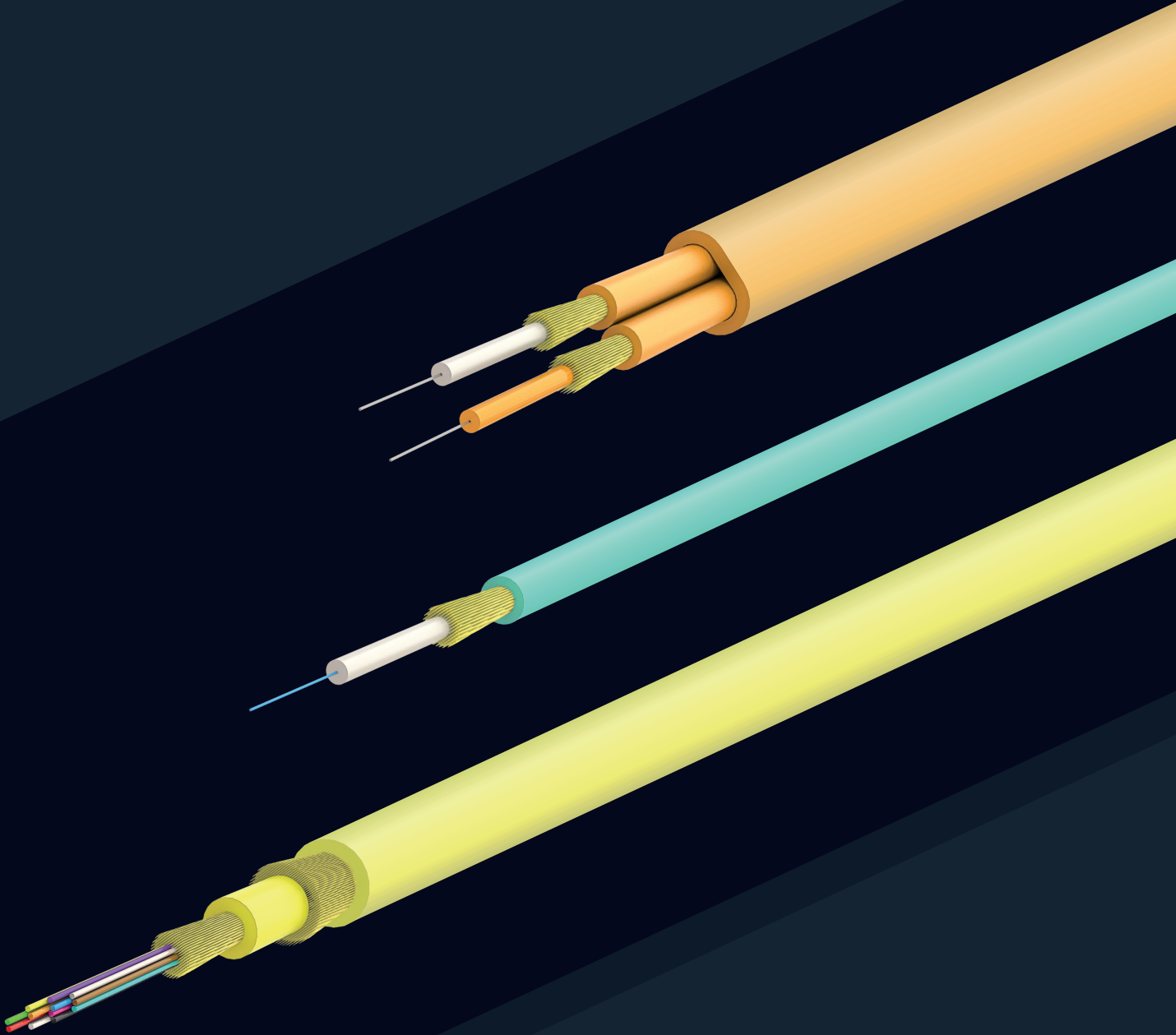




FIBER OPTIC CABLES



INDOOR



Founded in 2003, SAMM Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMM Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

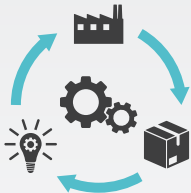
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMM also has a ministry-approved research and development center since 2017.



20+ Years' Experience

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



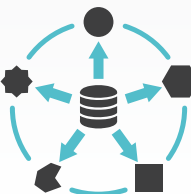
World Class Production

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



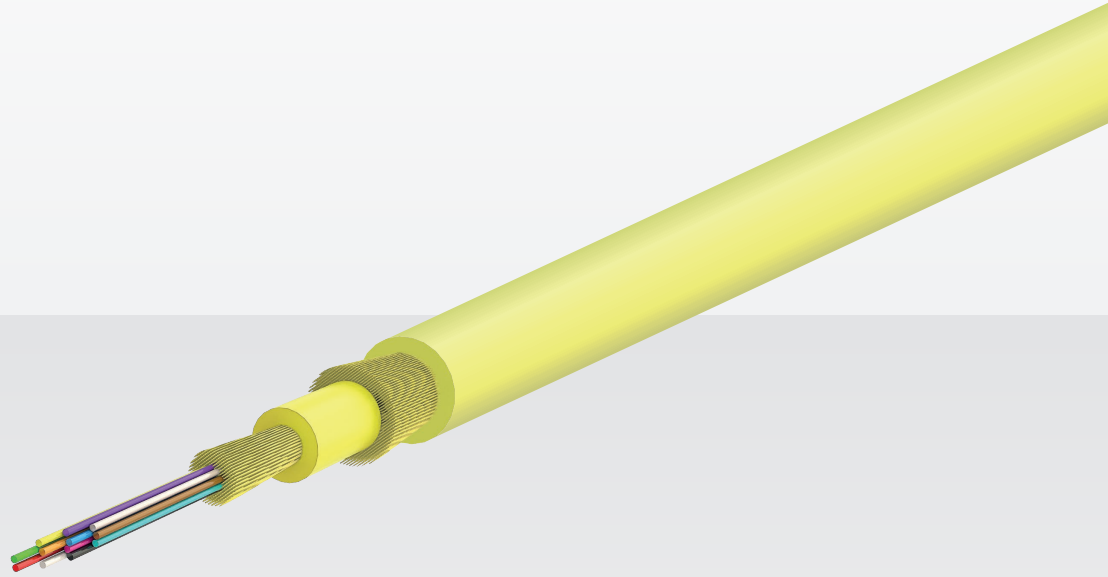
Connecting Continents

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



Innovative Solutions

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



INDOOR FIBER OPTIC CABLES

Single-mode Fiber Specifications

Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength λ_{cc}	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength λ_0	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at λ_0	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7	125 ± 0.7		
Coating diameter (uncoloured)	μm	235-250	235-245		
Concentricity error core/cladding	μm	≤ 0.6	≤ 0.5		
Concentricity error cladding/coating	μm	≤ 12.0	≤ 12.0		
Cladding non-circularity	%	≤ 1.0	≤ 0.7		
Coating non-circularity	%	≤ 6.0	≤ 6.0		

Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation ≤ 1 %)	N (kpsi)	≥ 9.0 (100)			
Operation temperature range -60 to 85 °C (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			
Water immersion 23 °C for 30 days (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			

Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
	ITU-T G.652.D IEC 60793-2-50 B-652.D	ITU-T G.657.A1 IEC 60793-2-50 B-657.A1	ITU-T G.657.A2 IEC 60793-2-50 B-657.A2	ITU-T G.657.B3 IEC 60793-2-50 B-657.B3
Standards				

Multi-mode Fiber Specifications

Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

Specifications

	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
Standards	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

Fiber Optic Color Coding

Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

Fiber Optic Cable Design Coding Guide

Design Number = **A₁** **B₁** **C₁** **D₁** **E₁**

Desing Number Example: 30121901

Design Code = **A₂** - **B₂** **C₂** **D₂** - **E₂**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

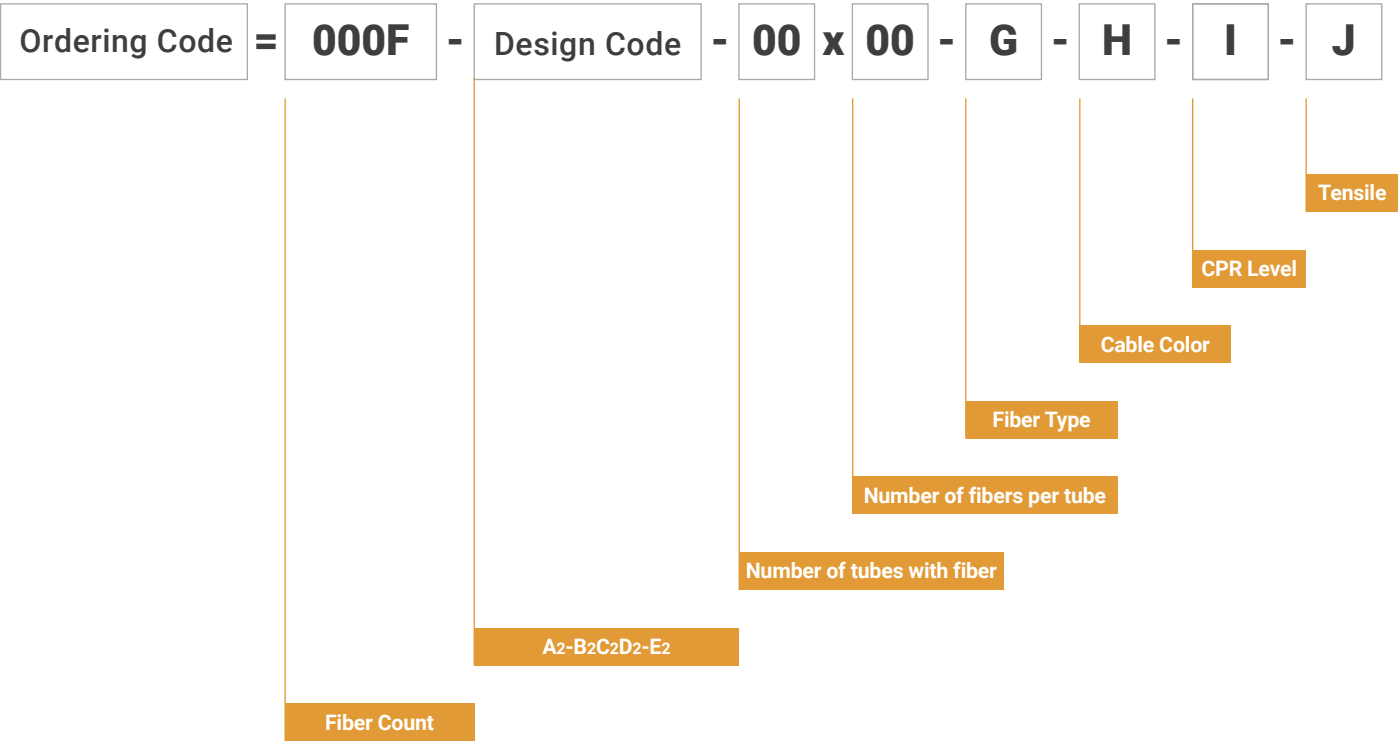
B ₂	B ₁	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

C ₁	C ₂	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E ₁	E ₂	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D ₁	D ₂	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath

Fiber Optic Cable Order Coding Guide

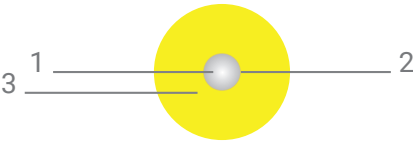


G	Fiber Type	H	Cable Color	I	CPR Level	J	Tensile
2D	Single Mode G652.D	BK	Black		B2ca		kN
A1	Single Mode G657.A1	YE	Yellow		Cca		
A2	Single Mode G657.A2	OG	Orange		Dca		
B3	Single Mode G657.B3	AQ	Aqua		Eca		
M1	Multi Mode G651.OM1	VT	Violet		Fca		
M2	Multi Mode G651.OM2	WH	White				
M3	Multi Mode G651.OM3	IV	Ivory				
M4	Multi Mode G651.OM4	BU	Blue				
M5	Multi Mode G651.OM5						

Ordering Code Example: 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

Buffered Optical Fibers

A buffer is one type of component used to encapsulate optical fibers for the purpose of providing such functions as mechanical isolation, protection from physical damage and fiber identification.



Cable Construction

1	Outer buffer tube	600/900 μm
2	Colored coating on fiber	250 μm
3	Optical fiber with cladding	125 μm

Properties

Metal-free indoor cable
For direct connector assembly
Halogen-free and non-corrosive fire gases
For high mechanical and thermal stability
Improved crush resistance

Applications

Data cable in distribution networks
Installation in indoor area
Patch cable within distribution frames and termination boxes
In thermally and mechanically critical environments
For mobile or flexible systems

Type Codes for Buffer Tubes

VS9	Semi-Tight Buffer 900 mic LSZH
VT6	Tight Buffer 600 mic LSZH
VT9	Tight Buffer 900 mic LSZH
VE9	Easy Strip Buffer 900 mic LSZH
WS9	Semi-Tight Buffer 900 mic TPE-E
WT6	Tight Buffer 600 mic TPE-E
WT9	Tight Buffer 900 mic TPE-E
PS9	Semi-Tight Buffer 900 mic PA
PT6	Tight Buffer 600 mic PA
PT9	Tight Buffer 900 mic PA

Technical Specification

Tube Construction	Conditions	Unit	VT9	VT6	VS9	VE9	Standard
Tube Outer Diameter	-	mm	0.9	0.6	0.9	0.9	-
Tube Material	-	-	LSZH	LSZH	LSZH	LSZH	-
Stripping Length	-	mm	20-30	20-30	300-500	1000-1500	-
Tensile Strength	During Installation	N	20	20	20	20	IEC 60794-1-21 E1
	In service	N	10	10	10	10	
Crush Resistance	Short-term	N/dm	1000	500	1000	100	IEC 60794-1-21 E3
	Long-term	N/dm	500	250	500	500	
Approx. Weight	-	kg/km	0.8	0.45	0.8	0.8	-
Temperature Range	During Installation	°C	-5 to +50 °C				IEC 60794-1-22 F12
	In service	°C	-25 to +60 °C				
	In storage	°C	-40 to +60 °C				

Standard Ordering Codes

Generic Product Coding	Generic Product Description
001F-I-...-2D-NT/BU	... μm, LSZH, Buffered Cable, 1 Fiber, G.652.D, Fiber: Natural / Buffer: Blue
001F-I-...-2D-BU/BU	... μm, LSZH, Buffered Cable, 1 Fiber, G.652.D, Fiber: Blue / Buffer: Blue
001F-I-...-A1-NT/WH	... μm, LSZH, Buffered Cable, 1 Fiber, G.657.A1, Fiber: Natural / Buffer: White
001F-I-...-A1-WH/WH	... μm, LSZH, Buffered Cable, 1 Fiber, G.657.A1, Fiber: White / Buffer: White
001F-I-...-A2-NT/YE	... μm, LSZH, Buffered Cable, 1 Fiber, G.657.A2, Fiber: Natural / Buffer: Yellow
001F-I-...-A2-YE/YE	... μm, LSZH, Buffered Cable, 1 Fiber, G.657.A2, Fiber: Yellow/ Buffer: Yellow
001F-I-...-M1-NT/GY	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM1, Fiber: Natural / Buffer: Gray
001F-I-...-M1-GY/GY	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM1, Fiber: Gray / Buffer: Gray
001F-I-...-M2-NT/OG	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM2, Fiber: Natural / Buffer: Orange
001F-I-...-M2-OG/OG	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM2, Fiber: Orange / Buffer: Orange
001F-I-...-M3-NT/AQ	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM3, Fiber: Natural / Buffer: Aqua
001F-I-...-M3-AQ/AQ	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM3, Fiber: Aqua / Buffer: Aqua
001F-I-...-M4-NT/VT	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM4, Fiber: Natural / Buffer: Heater Violet
001F-I-...-M4-VT/VT	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM4, Fiber: Heater Violet / Buffer: Heater Violet
001F-I-...-M5-NT/LG	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM5, Fiber: Natural / Buffer: Lime Green
001F-I-...-M5-LG/LG	... μm, LSZH, Buffered Cable, 1 Fiber, G.651.OM5, Fiber: Lime Green / Buffer: Lime Green

* Please define your buffer tube type, fiber and tube color when ordering.

* Sample Code and Description:
001F-I-VS9-M5-NT/LG 900μm, LSZH, Semi Tight Buffered Cable, 1 Fiber, G.651.OM5, Fiber: Natural / Buffer: Lime Green

Standard Fiber and Jacket Colors

Fiber Type	2D	A1	A2	OM1	OM2	OM3	OM4	OM5
Jacket Color	Blue	White	Yellow	Gray	Orange	Aqua	Violet	Lime Green

* Other colors are available upon request, according to ANSI/TIA-598.

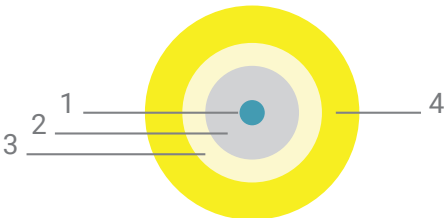
Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ	NT
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua	Natural

Simplex Fiber Cable

Design Type I-VT9(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	900μ LSZH
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			1.8 mm	2.0 mm	2.4 mm	2.7 mm
Tensile Force	Installation	IEC 60794-1-21-E1	200 N	200 N	400 N	400 N
	In Service		100 N	100 N	200 N	200 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm			
	-					
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N			
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles			

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Dca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
001F-I-VT9(ZN-AY)H-1U090-1x1-...-Dca-0.2kN-1.8	1	1	0.9	1.8	3.5
001F-I-VT9(ZN-AY)H-1U090-1x1-...-Dca-0.2kN-2.0	1	1	0.9	2.0	4.1
001F-I-VT9(ZN-AY)H-1U090-1x1-...-Dca-0.4kN-2.4	1	1	0.9	2.4	6.0
001F-I-VT9(ZN-AY)H-1U090-1x1-...-Dca-0.4kN-2.7	1	1	0.9	2.7	7.4
001F-I-VS9(ZN-AY)H-1U090-1x1-...-Dca-0.2kN-1.8	1	1	0.9	1.8	3.5
001F-I-VS9(ZN-AY)H-1U090-1x1-...-Dca-0.2kN-2.0	1	1	0.9	2.0	4.1
001F-I-VS9(ZN-AY)H-1U090-1x1-...-Dca-0.4kN-2.4	1	1	0.9	2.4	6.0
001F-I-VS9(ZN-AY)H-1U090-1x1-...-Dca-0.4kN-2.7	1	1	0.9	2.7	7.4

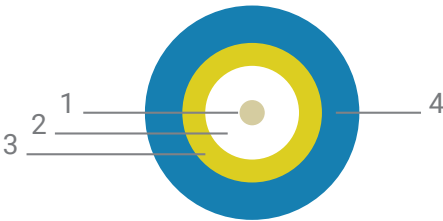
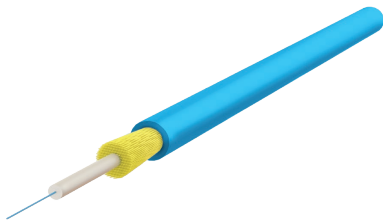
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 001F-I-VT9(ZN-AY)H-1U090-1x1-A2-YE-Dca-0.2kN-2.0

Drop Fiber Cable - 2.7 mm

Design Type I-VS9(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Semi-tight Buffer Tube	900μ LSZH
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	400 N
	In Service		200 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca-s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
001F-I-VS9(ZN-AY)H-1U090-1x1-...-B2ca-0.4kN	1	1	0.9	2.7	8.3

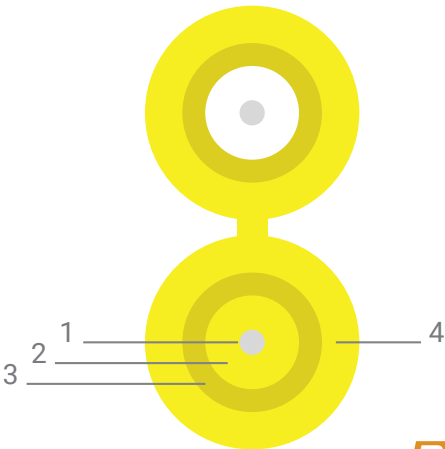
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 001F-I-VS9(ZN-AY)H-1U090-1x1-B3-BU-B2ca-0.4kN

Duplex Fig-8 Fiber Cable 2x1

Design Type I-VT9(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	900 μ LSZH
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	400 N
	In Service		200 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, $\pm 180^\circ$, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Dca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-I-VT9(ZN-AY)H-2U090-2x1-...-Dca-0.4kN-1.8x3.7	2	2	0.9	1.8 x 3.7	6.6
002F-I-VT9(ZN-AY)H-2U090-2x1-...-Dca-0.4kN-2.0x4.1	2	2	0.9	2.0 x 4.1	9.0
002F-I-VS9(ZN-AY)H-2U090-2x1-...-Dca-0.4kN-1.8x3.7	2	2	0.9	1.8 x 3.7	6.6
002F-I-VS9(ZN-AY)H-2U090-2x1-...-Dca-0.4kN-2.0x4.1	2	2	0.9	2.0 x 4.1	9.0

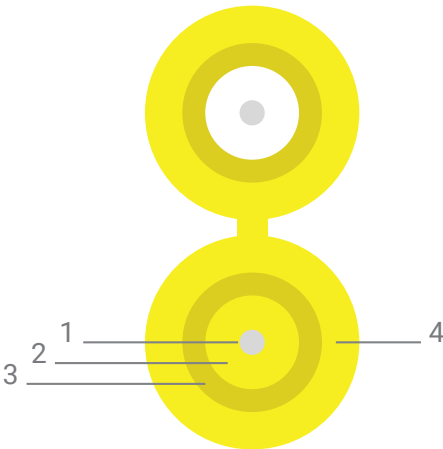
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-I-VT9(ZN-AY)H-2U090-2x1-A2-YE-Dca-0.4kN-2.0x4.1

Duplex Fig-8 Fiber Cable 2x1

Design Type I-VT6(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	600μ LSZH
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	300 N
	In Service		100 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-I-VT6(ZN-AY)H-2U060-2x1-...-Eca-0.3kN-1.6x3.3	2	2	0.6	1.6 x 3.3	5.0
002F-I-VS6(ZN-AY)H-2U060-2x1-...-Eca-0.3kN-1.6x3.3	2	2	0.6	1.6 x 3.3	5.0

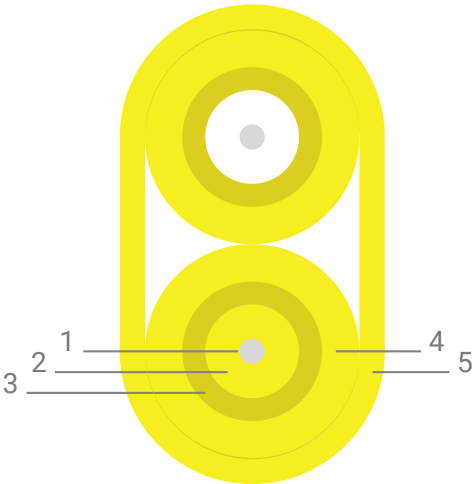
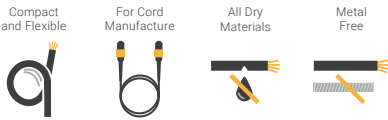
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-I-VS6(ZN-AY)H-2U060-2x1-A2-YE-Eca-0.3kN-1.6x3.3

Duplex Fig-0 Fiber Cable 2x1

Design Type I-VT9(ZN-AY)HH

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	900μ LSZH
3	Strength Member	Aramid yarn
4	Inner Jacket	LSZH - FR
5	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	400 N
	In Service		200 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

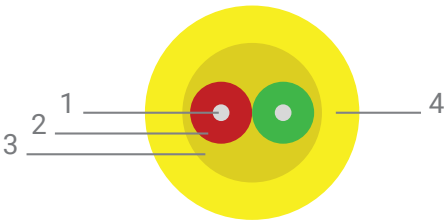
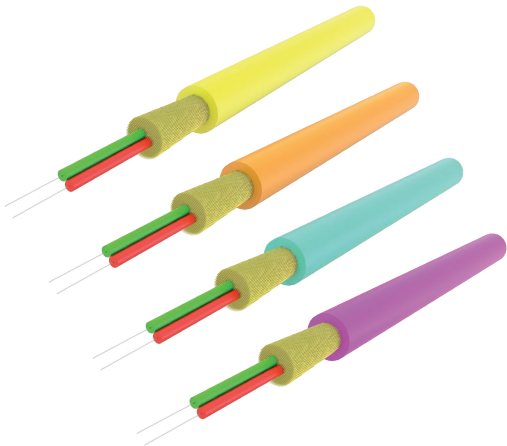
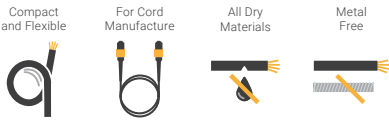
Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-I-VT9(ZN-AY)HH-2U090-2x1-...-...-Eca-0.4kN-3.1x5.2	2	2	0.9	3.1 x 5.2	18
002F-I-VS9(ZN-AY)HH-2U090-2x1-...-...-Eca-0.4kN-3.1x5.2	2	2	0.9	3.1 x 5.2	18

* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
* Sample Code: 002F-I-VT9(ZN-AY)HH-2U090-2x1-A2-YE-Eca-0.4kN-3.1x5.2

Duplex Round Fiber Cable 1x2

Design Type I-VT6(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	900μ LSZH
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	300 N
	In Service		150 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-I-VT6(ZN-AY)H-2U060-1x2-...-...-Eca-0.3kN-2.1	2	2	0.6	2.1	4.3

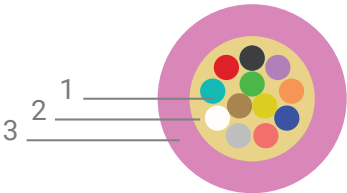
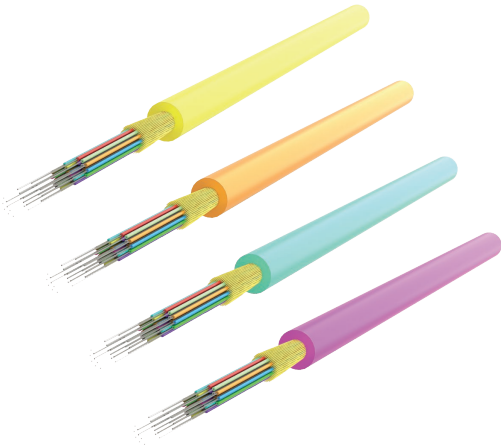
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-I-VT6(ZN-AY)H-2U060-1x2-A2-YE-Eca-0.3kN-2.1

Distribution Cable

Design Type I-B3

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 µ)
2	Strength Member	Aramid yarn
3	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	200 N
	In Service		100 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Dca, s2, d0, a1 (DOP-20003) B2ca-s1a, d1, a1 (DOP-20026)

Ordering Codes

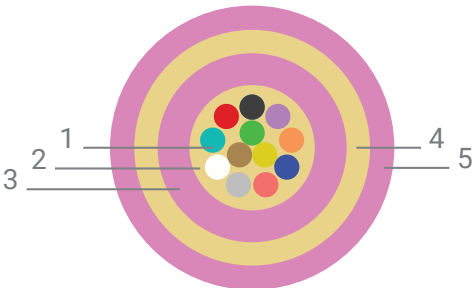
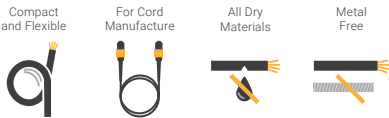
Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
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008F-I-B3-1B300-1x8-...-Dca-0.2kN-3.0	8	-	-	3.0	8
012F-I-B3-1B300-1x12-...-Dca-0.2kN-3.0	12	-	-	3.0	8
024F-I-B3-1B300-1x24-...-Dca-0.2kN-3.0	24	-	-	3.0	8
004F-I-B3-1B300-1x4-...-B2ca-0.2kN-3.0	4	-	-	3.0	8
008F-I-B3-1B300-1x8-...-B2ca-0.2kN-3.0	8	-	-	3.0	8
012F-I-B3-1B300-1x12-...-B2ca-0.2kN-3.0	12	-	-	3.0	8
024F-I-B3-1B300-1x24-...-B2ca-0.2kN-3.0	24	-	-	3.0	8

* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
* Sample Code: 012F-I-B3-1B300-1x12-M4-VT-B2ca-0.2kN-3.0

Ruggedized Distribution Cable

Design Type I-B3Q(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

Metal free indoor cable with completely dry design
Designed for direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Strength Member	Aramid yarn
3	Inner Jacket	LSZH - FR
4	Strength Member	Aramid yarn
5	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	500 N
	In Service		300 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-I-B3Q(ZN-AY)H-1B300-1x4-...-Eca-0.5kN-4.8	4	1	3.0	4.8	23
008F-I-B3Q(ZN-AY)H-1B300-1x8-...-Eca-0.5kN-4.8	8	1	3.0	4.8	23
012F-I-B3Q(ZN-AY)H-1B300-1x12-...-Eca-0.5kN-4.8	12	1	3.0	4.8	23
024F-I-B3Q(ZN-AY)H-1B300-1x24-...-Eca-0.5kN-4.8	24	1	3.0	4.8	23

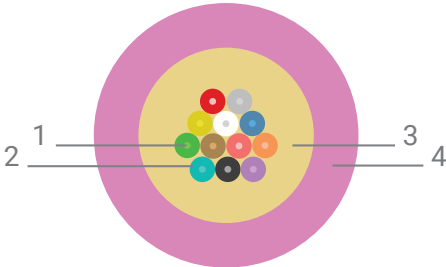
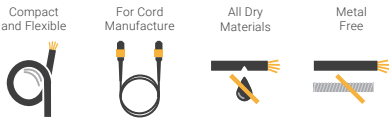
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 012F-I-B3Q-(ZN-AY)H-1B300-1x12-M4-VT-Eca-0.5kN-4.8

Mini Breakout Cable

Design Type IT-VT9(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

- Metal free indoor and outdoor cable
- Completely dry design
- For direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Aramid
4	Outer Jacket	LSZH

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	IEC 60794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-IT-VT9(ZN-AY)H-4U090-4x1-...-...-Eca-0.8kN-4.6	4	4	0.9	4.6	16
006F-IT-VT9(ZN-AY)H-6U090-6x1-...-...-Eca-0.8kN-5.2	6	6	0.9	5.2	20
008F-IT-VT9(ZN-AY)H-8U090-8x1-...-...-Eca-0.8kN-5.8	8	8	0.9	5.8	31
012F-IT-VT9(ZN-AY)H-12U090-12x1-...-...-Eca-0.8kN-6.5	12	12	0.9	6.5	42
024F-IT-VT9(ZN-AY)H-24U090-24x1-...-...-Eca-0.8kN-8.0	24	24	0.9	8.0	55

* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 012F-IT-VT9(ZN-AY)H-12U090-12x1-A2-YE-Eca-0.8kN-6.5

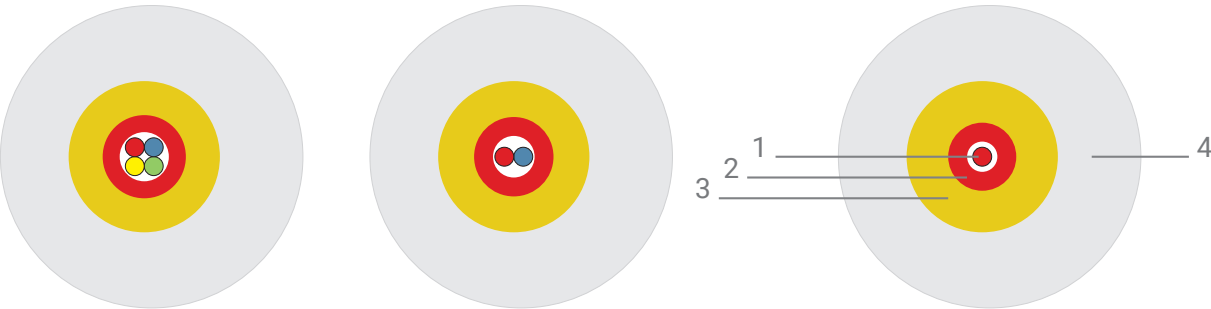
Optical Fiber Characteristics and Physical Properties

Fiber Type	Wavelength	SM	OM1	OM2	OM3	OM4
Jacket Color	-	Yellow	Orange	Orange	Aqua	Violet
Core Diameter (µm)	-	9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (µm)	-	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (µm)	-	245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.35	-	-	-	-
	@1550 nm	≤ 0.25	-	-	-	-
	@850 nm	-	≤ 3.5	≤ 3.5	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Indoor Drop Fiber Cable

Design Type I-B4(ZN-AY)H

Standards: XP C93-850-2-22 / IEC 60794-1 / IEC 60794-2 / IEC 60793-1



Properties

- Metal free indoor cable with completely dry design
- Designed for direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- LSZH flame retardant and self-extinguishing jacket material

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Buffer Tube	LSZH - Semi-tight
3	Strength Member	Aramid yarn
4	Outer Jacket	LSZH - FR

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	NF EN IEC &0794-1-21-E1	200 N
Crush Resistance	Installation	NF EN IEC &0794-1-21-E3	500 N / 100 mm
Impact	-	NF EN IEC &0794-1-21-E4	Wp=1J, R:12.5cm, 3 impacts
Repeated Bending	-	NF EN IEC &0794-1-21-E6	R= 20 x D, 25 cycles, 40 N
Torsion	-	NF EN IEC &0794-1-21-E7	L= 125 x D, ±180°, 10 cycles, 20 N
Cable Bending	-	NF EN IEC &0794-1-21-E11A	R= 20 x D, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	EN IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Dca-s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
001F-I-B4(ZN-AY)H-1B090-1x1-...-Dca-0.2kN	1	1	0.9	4.0 ±0.1	18
002F-I-B4(ZN-AY)H-1B105-1x2-...-Dca-0.2kN	2	1	1.05	4.0 ±0.1	18
004F-I-B4(ZN-AY)H-1B110-1x4-...-Dca-0.2kN	4	1	1.10	4.0 ±0.1	18

* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 004F-I-B4(ZN-AY)H-1B110-1x4-A2-WH-Dca-0.2kN

Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	500 mm
Drum core diameter	220 mm
Outside width	330 mm

Fiber Color Coding

Number	1	2	3	4
Color	Red	Blue	Yellow	Green

Buffer Color Coding

Number	1
Color	Red



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SAMM Teknoloji İletişim San. ve Tic. A.Ş.



TURKIYE

Company

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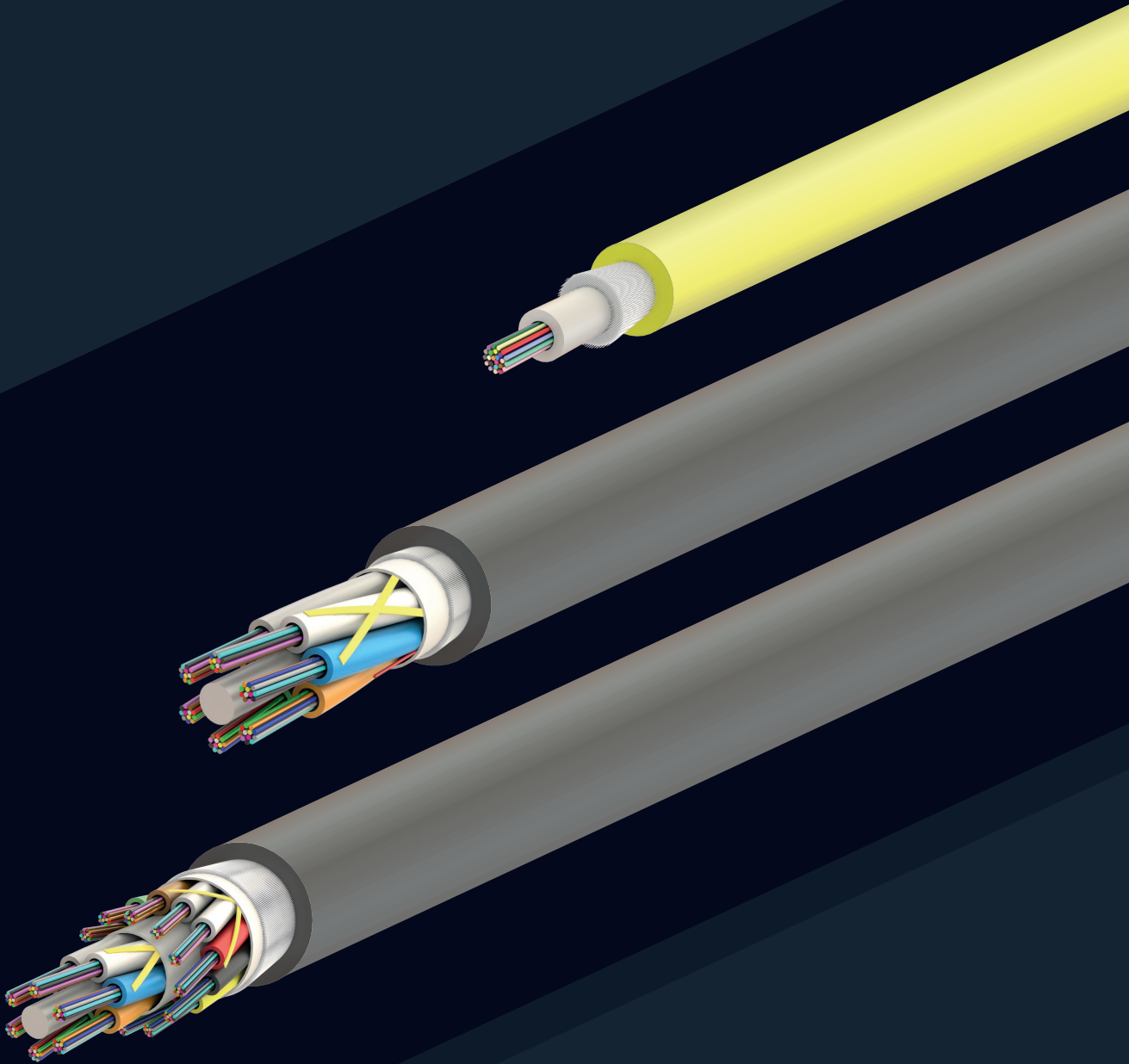


Our Website





FIBER OPTIC CABLES



UNIVERSAL



Founded in 2003, SAMM Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMM Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

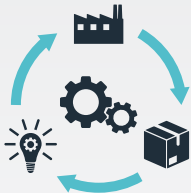
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMM also has a ministry-approved research and development center since 2017.



20+ Years' Experience

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



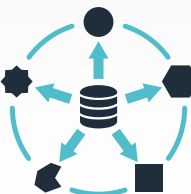
World Class Production

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



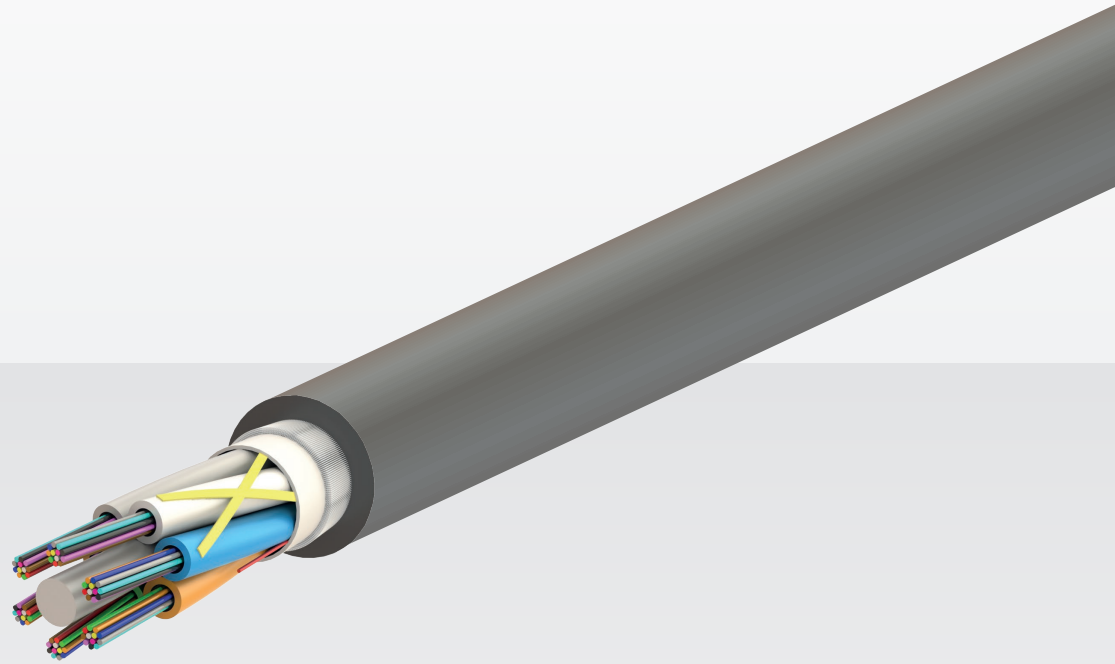
Connecting Continents

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



Innovative Solutions

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



UNIVERSAL FIBER OPTIC CABLES

Single-mode Fiber Specifications

Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength λ_{cc}	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength λ_0	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at λ_0	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7	125 ± 0.7		
Coating diameter (uncoloured)	μm	235-250	235-245		
Concentricity error core/cladding	μm	≤ 0.6	≤ 0.5		
Concentricity error cladding/coating	μm	≤ 12.0	≤ 12.0		
Cladding non-circularity	%	≤ 1.0	≤ 0.7		
Coating non-circularity	%	≤ 6.0	≤ 6.0		

Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation ≤ 1 %)	N (kpsi)	≥ 9.0 (100)			
Operation temperature range -60 to 85 °C (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			
Water immersion 23 °C for 30 days (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			

Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
	ITU-T G.652.D IEC 60793-2-50 B-652.D	ITU-T G.657.A1 IEC 60793-2-50 B-657.A1	ITU-T G.657.A2 IEC 60793-2-50 B-657.A2	ITU-T G.657.B3 IEC 60793-2-50 B-657.B3
Standards				

Multi-mode Fiber Specifications

Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

Specifications

	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
Standards	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

Fiber Optic Color Coding

Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

Fiber Optic Cable Design Coding Guide

Design Number = **A₁** **B₁** **C₁** **D₁** **E₁**

Desing Number Example: 30121901

Design Code = **A₂** - **B₂** **C₂** **D₂** - **E₂**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

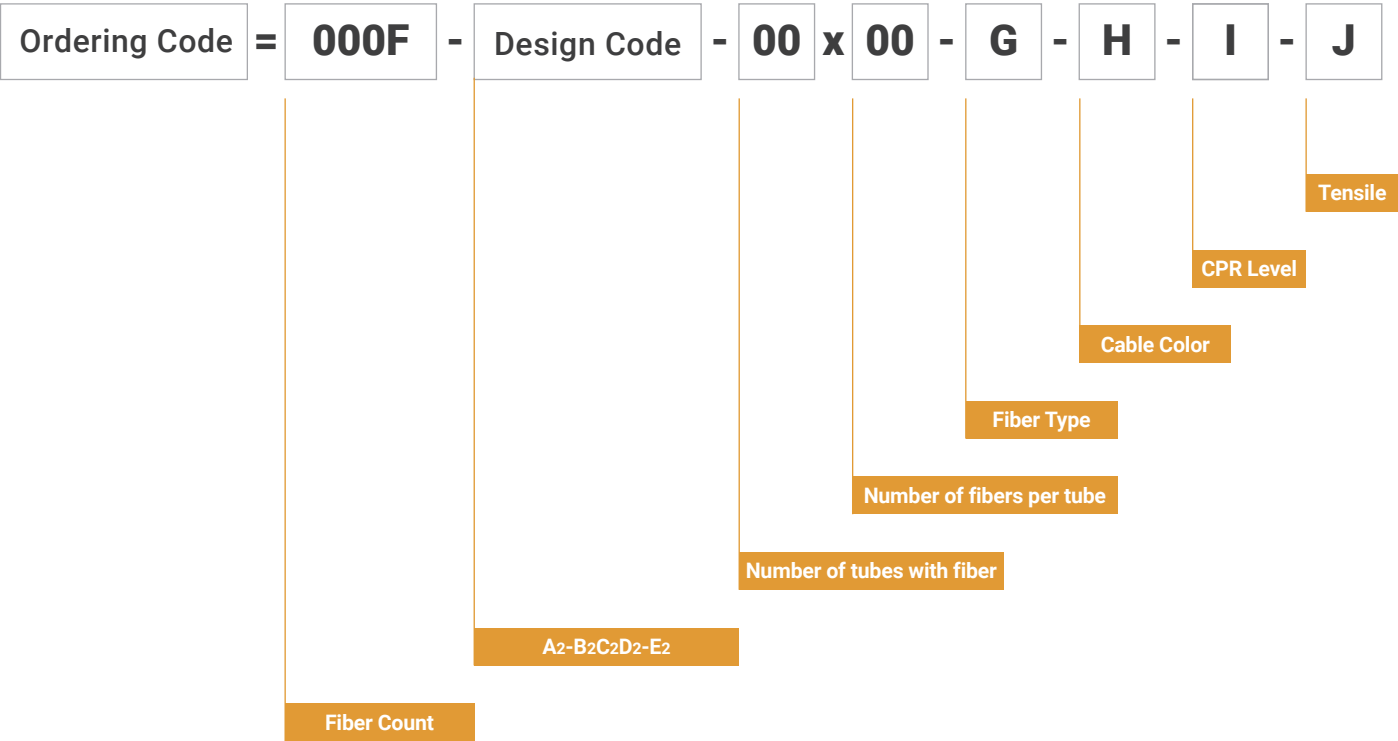
B ₂	B ₁	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

C ₁	C ₂	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E ₁	E ₂	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D ₁	D ₂	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath

Fiber Optic Cable Order Coding Guide



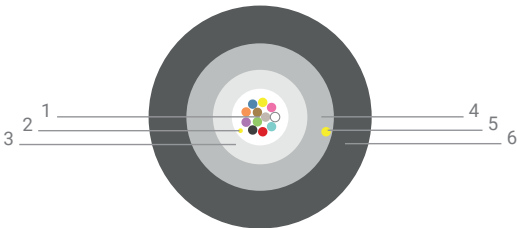
G	Fiber Type	H	Cable Color	I	CPR Level	J	Tensile
2D	Single Mode G652.D	BK	Black		B2ca		kN
A1	Single Mode G657.A1	YE	Yellow		Cca		
A2	Single Mode G657.A2	OG	Orange		Dca		
B3	Single Mode G657.B3	AQ	Aqua		Eca		
M1	Multi Mode G651.OM1	VT	Violet		Fca		
M2	Multi Mode G651.OM2	WH	White				
M3	Multi Mode G651.OM3	IV	Ivory				
M4	Multi Mode G651.OM4	BU	Blue				
M5	Multi Mode G651.OM5						

Ordering Code Example: 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

CLT, Gel-Free, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type U-B1Q(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-free tube
Glass yarn strength member with ripcord for easy stripping
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Anti-rodent protection
CPR: B2ca, s1a, d0, a1

Cable Construction

1	Fiber	SM/MM (250 µ)
2	Tube Filling Compound	Water Swellable Yarn
3	Loose Tube	LSZH
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Polyester
6	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1200 N
	In Service		600 N
Crush Resistance	-	IEC 60794-1-21-E3	1500 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-25 to +60 °C
	Storage		-40 to +60 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca-s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-U-B1Q(ZN-GY)BH-1B250-1x4-...-Eca-1.2kN	4	1	2.5	6.1	45
008F-U-B1Q(ZN-GY)BH-1B250-1x8-...-Eca-1.2kN	8	1	2.5	6.1	45
012F-U-B1Q(ZN-GY)BH-1B250-1x12-...-Eca-1.2kN	12	1	2.5	6.1	45
024F-U-B1Q(ZN-GY)BH-1B300-1x24-...-Eca-1.2kN	24	1	3.0	6.5	50
004F-U-B1Q(ZN-GY)BH-1B250-1x4-...-B2ca-1.2kN	4	1	2.5	6.1	45
008F-U-B1Q(ZN-GY)BH-1B250-1x8-...-B2ca-1.2kN	8	1	2.5	6.1	45
012F-U-B1Q(ZN-GY)BH-1B250-1x12-...-B2ca-1.2kN	12	1	2.5	6.1	45

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Available colors are Yellow, Orange, Aqua, Violet, Black
- * Sample Code: 012F-U-B1Q(ZN-GY)BH-1B250-1x12-A2-YE-B2ca-1.2kN

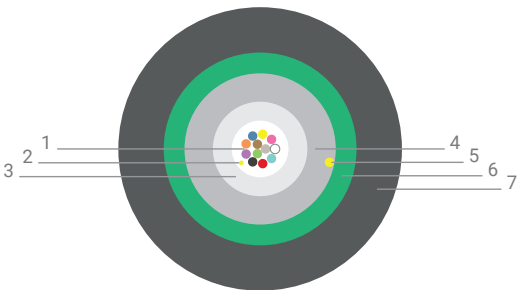
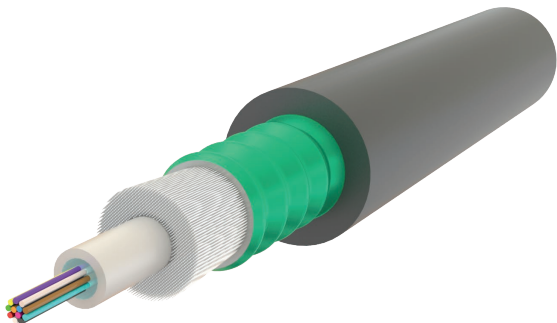
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	800 mm	900 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

CLT, Gel-Free, Dry Core, Steel Armoured, SJ, LSZH

Design Type U-B1Q(ZN-GY)(SR)H-1B300

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Indoor and Outdoor Cable
Glass yarn strength member
Ripcord for easy stripping
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Anti-rodent protection

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Tube Filling Compound	Water Swellable Yarn
3	Loose Tube	LSZH
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Armoured Material	Corrugated Steel
7	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1500 N
	In Service		750 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-U-B1Q(ZN-GY)(SR)H-1B300-1x4-...-BK-Eca-1.5kN	4	1	3.0	8.2	90
008F-U-B1Q(ZN-GY)(SR)H-1B300-1x8-...-BK-Eca-1.5kN	8	1	3.0	8.2	90
012F-U-B1Q(ZN-GY)(SR)H-1B300-1x12-...-BK-Eca-1.5kN	12	1	3.0	8.2	90
024F-U-B1Q(ZN-GY)(SR)H-1B300-1x24-...-BK-Eca-1.5kN	24	1	3.0	8.2	90

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-U-B1Q(ZN-GY)(SR)H-1B300-1x24-2D-BK-Eca-1.5kN

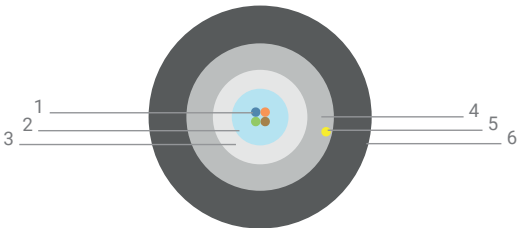
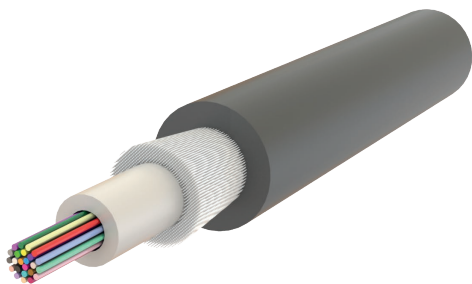
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

CLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type U-D1Q(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member with ripcord for easy stripping
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Anti-rodent protection

Cable Construction

1	Fiber	SM/MM (250 µ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Polyester
6	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	700 N
	In Service		300 N
Crush Resistance	-	IEC 60794-1-21-E3	700 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-U-D1Q(ZN-GY)BH-1D200-1x4-...-BK-Eca-0.7kN	4	1	2.0	5.1	31

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 04F-U-D1Q(ZN-GY)BH-1D200-1x4-2D-BK-Eca-0.7kN

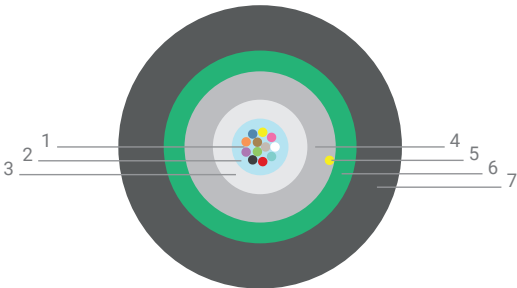
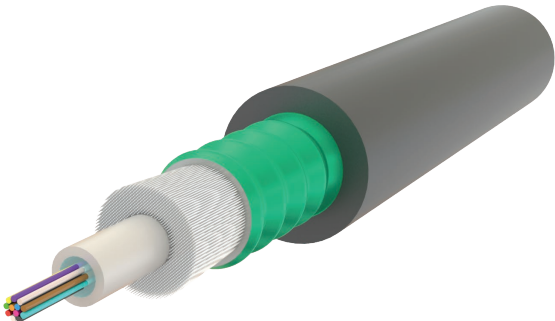
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	800 mm
Drum core diameter	400 mm
Outside width	600 mm

CLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type **U-D1Q(ZN-GY)(SR)H**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Indoor and Outdoor Cable
Glass yarn strength member with ripcord for easy stripping
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Anti-rodent protection

Cable Construction

1	Fiber	SM/MM (250 µ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Armoured Material	Corrugated Steel
7	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1200 N
	In Service		600 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-U-D1Q(ZN-GY)(SR)H-1D250-1x4-...-BK-Eca-1.2kN	4	1	2.5	7.5	74
008F-U-D1Q(ZN-GY)(SR)H-1D250-1x8-...-BK-Eca-1.2kN	8	1	2.5	7.5	74
012F-U-D1Q(ZN-GY)(SR)H-1D250-1x12-...-BK-Eca-1.2kN	12	1	2.5	7.5	74
024F-U-D1Q(ZN-GY)(SR)H-1D300-1x24-...-BK-Eca-1.2kN	24	1	3.0	8.0	84

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-U-D1Q(ZN-GY)(SR)H-1D300-1x24-2D-BK-Eca-1.2kN

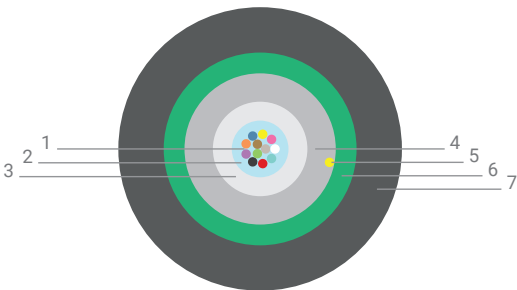
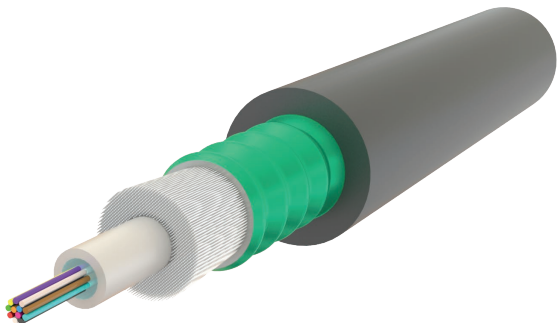
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

CLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type **U-D1Q(ZN-GY)(SR)H**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Indoor and Outdoor Cable
Glass yarn strength member with ripcord for easy stripping
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Anti-rodent protection

Cable Construction

1	Fiber	SM/MM (250 µ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Armoured Material	Corrugated Steel
7	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		900 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-U-D1Q(ZN-GY)(SR)H-1D250-1x8-...-BK-Eca-1.8kN	8	1	2.5	7.9	85

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 008F-U-D1Q(ZN-GY)(SR)H-1D250-1x8-2D-BK-Eca-1.8kN

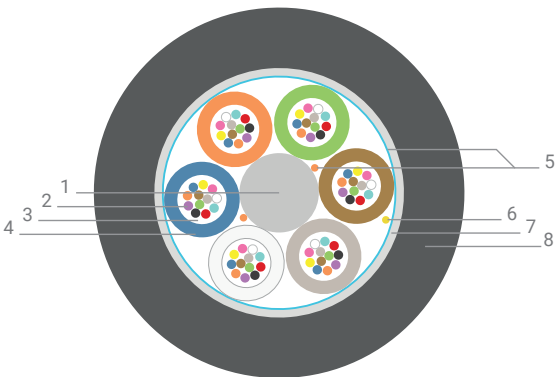
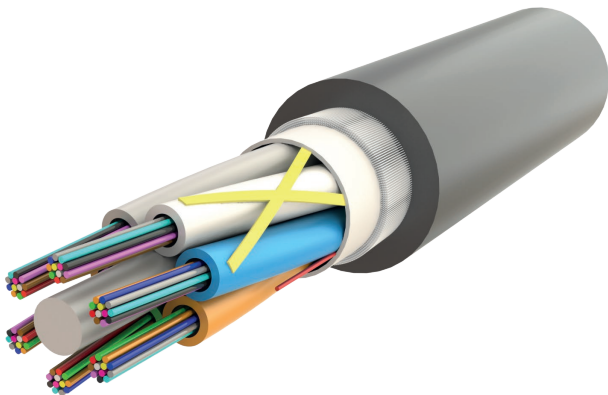
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)BH-6D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-UT-D1Q(ZN-GY)BH-6D200-1x8-...-BK-Eca-2.7kN	8	1	5	2.0	9.7	90
008F-UT-D1Q(ZN-GY)BH-6D200-2x4-...-BK-Eca-2.7kN	8	2	4	2.0	9.7	91
008F-UT-D1Q(ZN-GY)BH-6D200-4x2-...-BK-Eca-2.7kN	8	4	2	2.0	9.7	93
012F-UT-D1Q(ZN-GY)BH-6D200-1x12-...-BK-Eca-2.7kN	12	1	5	2.0	9.7	91
012F-UT-D1Q(ZN-GY)BH-6D200-6x2-...-BK-Eca-2.7kN	12	6	0	2.0	9.7	94
016F-UT-D1Q(ZN-GY)BH-6D200-2x8-...-BK-Eca-2.7kN	16	2	4	2.0	9.7	91
016F-UT-D1Q(ZN-GY)BH-6D200-4x4-...-BK-Eca-2.7kN	16	4	2	2.0	9.7	93
024F-UT-D1Q(ZN-GY)BH-6D200-2x12-...-BK-Eca-2.7kN	24	2	4	2.0	9.7	92
024F-UT-D1Q(ZN-GY)BH-6D200-6x4-...-BK-Eca-2.7kN	24	6	0	2.0	9.7	94
048F-UT-D1Q(ZN-GY)BH-6D200-4x12-...-BK-Eca-2.7kN	48	4	2	2.0	9.7	93
048F-UT-D1Q(ZN-GY)BH-6D200-6x8-...-BK-Eca-2.7kN	48	6	0	2.0	9.7	95
072F-UT-D1Q(ZN-GY)BH-6D200-6x12-...-BK-Eca-2.7kN	72	6	0	2.0	9.7	95

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-UT-D1Q(ZN-GY)BH-6D200-6x12-2D-BK-Eca-2.7kN

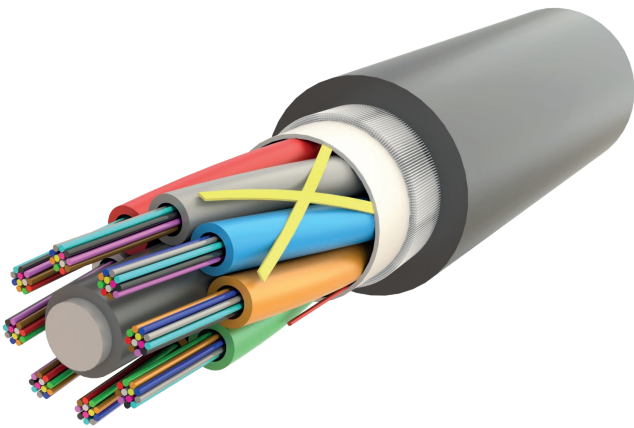
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1100 mm
Drum core diameter	700 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)BH-8D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-UT-D1Q(ZN-GY)BH-8D200-8x12-...-BK-Eca-2.7kN	96	8	0	2.0	11.2	124

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-UT-D1Q(ZN-GY)BH-8D200-8x12-2D-BK-Eca-2.7kN

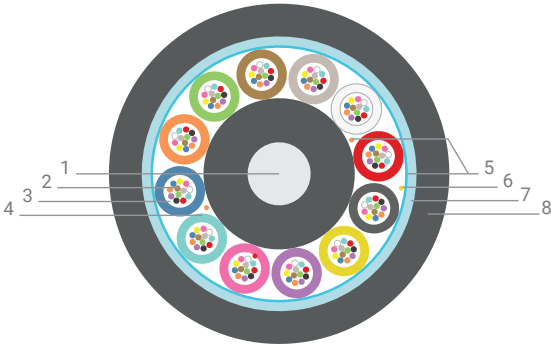
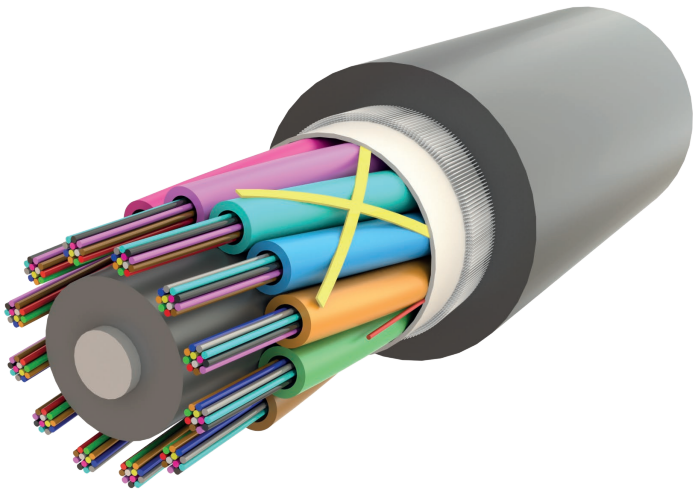
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1200 mm
Drum core diameter	700 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type **UT-D1Q(ZN-GY)BH-12D200**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 144 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1300 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-UT-D1Q(ZN-GY)BH-12D200-12x12-...-BK-Eca-2.7kN	144	12	0	2.0	13.7	175

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-UT-D1Q(ZN-GY)BH-12D200-12x12-2D-BK-Eca-2.7kN

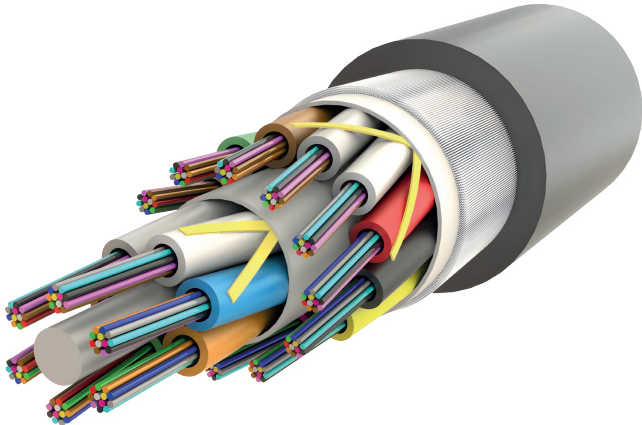
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	700 mm	800 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)BH-18D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 216 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	3500 N
	In Service		1750 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
216F-UT-D1Q(ZN-GY)BH-18D200-18x12-...-BK-Eca-3.5kN	216	18	0	2.0	14.3	185

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 216F-UT-D1Q(ZN-GY)BH-18D200-18x12-2D-BK-Eca-3.5kN

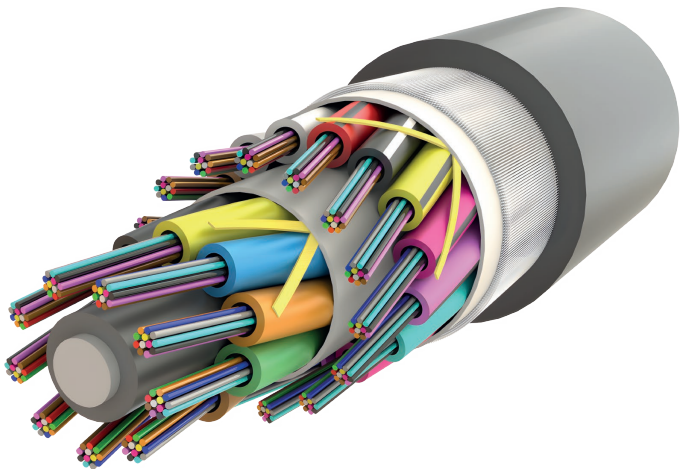
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1300 mm
Drum core diameter	700 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)BH-24D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 288 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
288F-UT-D1Q(ZN-GY)BH-24D200-24x12-...-BK-Eca-4.0kN	288	24	0	2.0	16.0	220

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-UT-D1Q(ZN-GY)BH-24D200-24x12-2D-BK-Eca-4.0kN

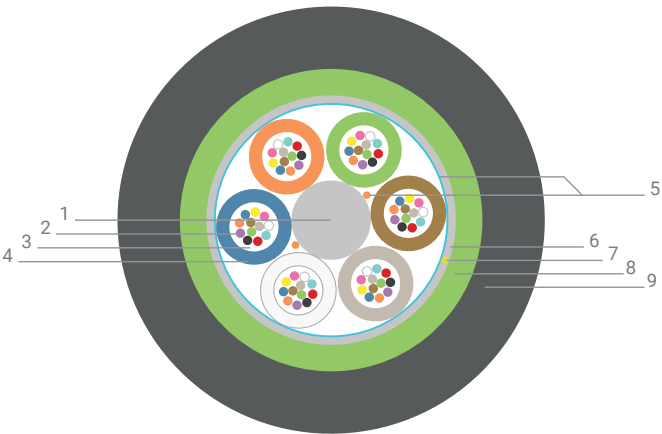
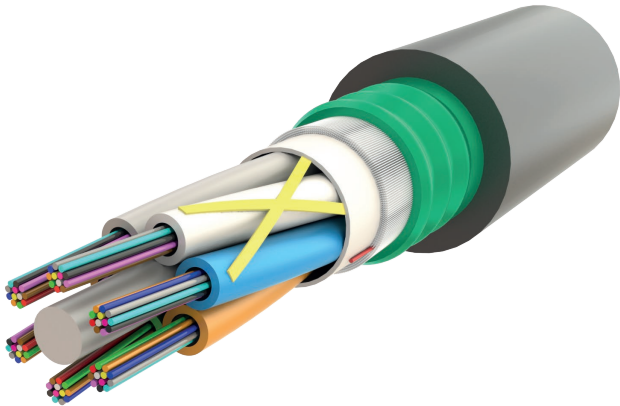
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1300 mm
Drum core diameter	700 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)(SR)H-6D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel
9	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-UT-D1Q(ZN-GY)(SR)H-6D200-1x8-.-BK-Eca-2.7kN	8	1	5	2.0	11.4	148
008F-UT-D1Q(ZN-GY)(SR)H-6D200-2x4-.-BK-Eca-2.7kN	8	2	4	2.0	11.4	149
008F-UT-D1Q(ZN-GY)(SR)H-6D200-4x2-.-BK-Eca-2.7kN	8	4	2	2.0	11.4	150
012F-UT-D1Q(ZN-GY)(SR)H-6D200-1x12-.-BK-Eca-2.7kN	12	1	5	2.0	11.4	148
012F-UT-D1Q(ZN-GY)(SR)H-6D200-6x2-.-BK-Eca-2.7kN	12	6	0	2.0	11.4	152
016F-UT-D1Q(ZN-GY)(SR)H-6D200-2x8-.-BK-Eca-2.7kN	16	2	4	2.0	11.4	149
016F-UT-D1Q(ZN-GY)(SR)H-6D200-4x4-.-BK-Eca-2.7kN	16	4	2	2.0	11.4	150
024F-UT-D1Q(ZN-GY)(SR)H-6D200-2x12-.-BK-Eca-2.7kN	24	2	4	2.0	11.4	149
024F-UT-D1Q(ZN-GY)(SR)H-6D200-6x4-.-BK-Eca-2.7kN	24	6	0	2.0	11.4	152
048F-UT-D1Q(ZN-GY)(SR)H-6D200-4x12-.-BK-Eca-2.7kN	48	4	2	2.0	11.4	151
048F-UT-D1Q(ZN-GY)(SR)H-6D200-6x8-.-BK-Eca-2.7kN	48	6	0	2.0	11.4	152
072F-UT-D1Q(ZN-GY)(SR)H-6D200-6x12-.-BK-Eca-2.7kN	72	6	0	2.0	11.4	152

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-UT-D1Q(ZN-GY)(SR)H-6D200-6x12-2D-BK-Eca-2.7kN

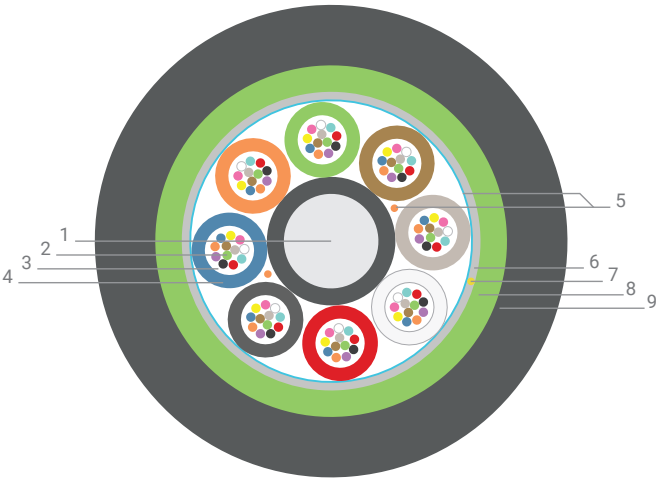
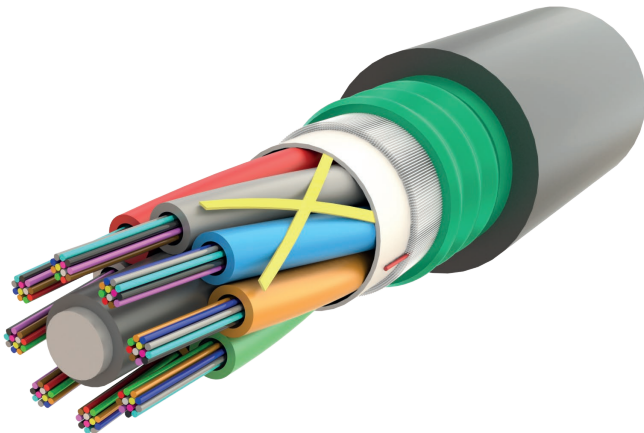
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1200 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)(SR)H-8D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel
9	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-UT-D1Q(ZN-GY)(SR)H-8D200-8x12-...-BK-Eca-2.7kN	96	8	0	2.0	12.6	180

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-UT-D1Q(ZN-GY)(SR)H-8D200-8x12-2D-BK-Eca-2.7kN

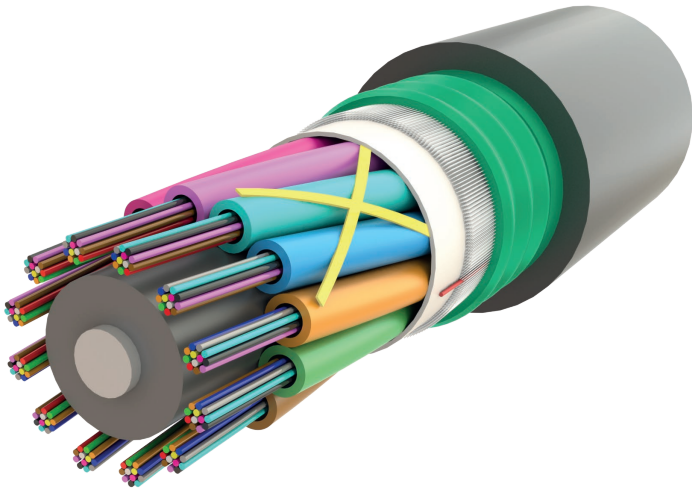
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1300 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)(SR)H-12D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 144 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel
9	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-UT-D1Q(ZN-GY)(SR)H-12D200-12x12--BK-Eca-4.0kN	144	12	0	2.0	15.1	245

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-AT-D1Q(ZN-GY)(SR)2Y-12D200-12x12-2D-BK-Eca-4.0kN

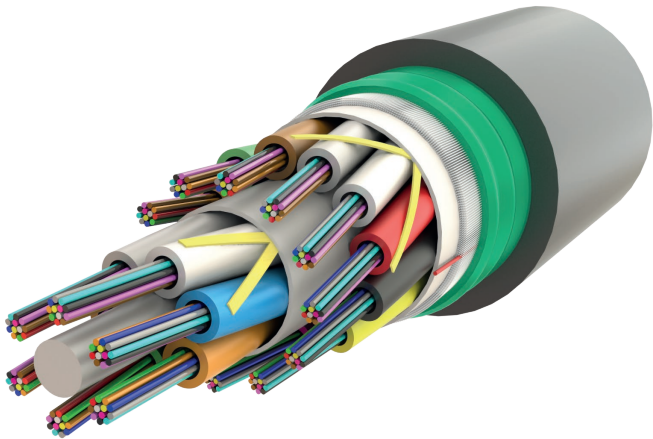
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1500 mm
Drum core diameter	500 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)(SR)H-18D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 216 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel
9	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	3500 N
	In Service		1750 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
192F-UT-D1Q(ZN-GY)(SR)H-18D200-16x12-.-BK-Eca-3.5kN	192	16	2	2.0	15.8	254
216F-UT-D1Q(ZN-GY)(SR)H-18D200-18x12-.-BK-Eca-3.5kN	216	18	0	2.0	15.8	256

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 216F-UT-D1Q(ZN-GY)(SR)H-18D200-18x12-2D-BK-Eca-3.5kN

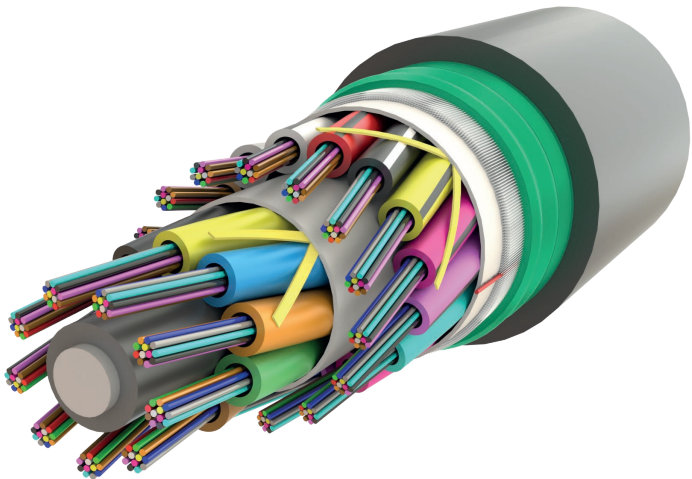
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, LSZH

Design Type UT-D1Q(ZN-GY)(SR)H-24D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 288 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel
9	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
288F-UT-D1Q(ZN-GY)(SR)H-24D200-24x12-.-BK-Eca-4.0kN	288	24	0	2.0	17.5	300

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
* Sample Code: 288F-UT-D1Q(ZN-GY)(SR)H-24D200-24x12-2D-BK-Eca-4.0kN

Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1300 mm
Drum core diameter	650 mm
Outside width	1000 mm



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SAMM Teknoloji İletişim San. ve Tic. A.Ş.



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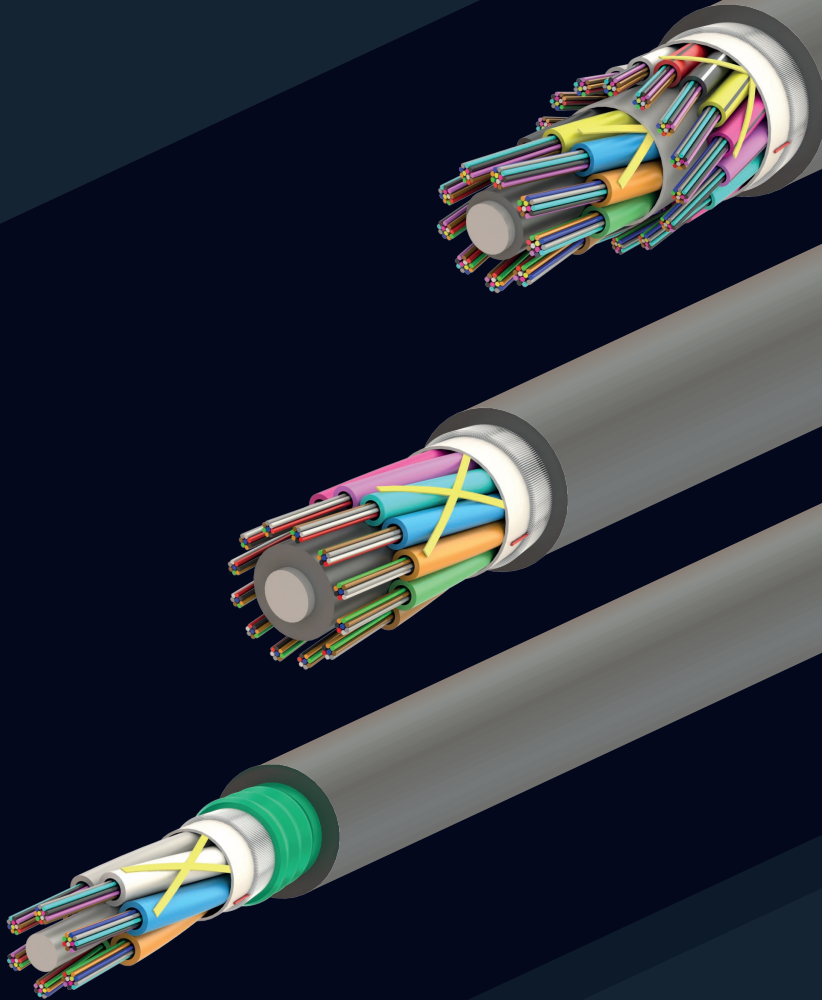


Our Website





FIBER OPTIC CABLES



OUTDOOR



Founded in 2003, SAMM Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMM Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

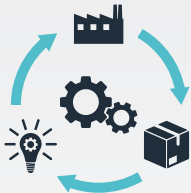
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMM also has a ministry-approved research and development center since 2017.



20+ Years' Experience

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



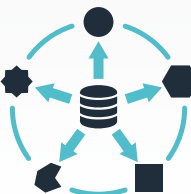
World Class Production

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



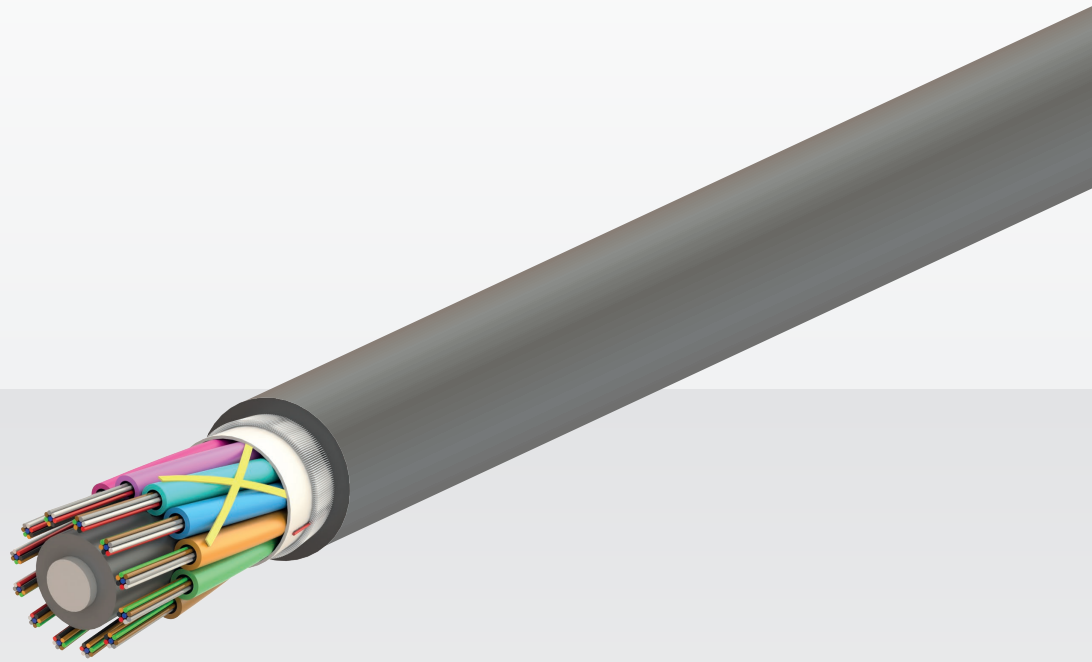
Connecting Continents

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



Innovative Solutions

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



OUTDOOR FIBER OPTIC CABLES

Single-mode Fiber Specifications

Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength λ_{cc}	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength λ_0	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at λ_0	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7	125 ± 0.7		
Coating diameter (uncoloured)	μm	235-250	235-245		
Concentricity error core/cladding	μm	≤ 0.6	≤ 0.5		
Concentricity error cladding/coating	μm	≤ 12.0	≤ 12.0		
Cladding non-circularity	%	≤ 1.0	≤ 0.7		
Coating non-circularity	%	≤ 6.0	≤ 6.0		

Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation ≤ 1 %)	N (kpsi)	≥ 9.0 (100)			
Operation temperature range -60 to 85 °C (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			
Water immersion 23 °C for 30 days (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			

Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
	ITU-T G.652.D IEC 60793-2-50 B-652.D	ITU-T G.657.A1 IEC 60793-2-50 B-657.A1	ITU-T G.657.A2 IEC 60793-2-50 B-657.A2	ITU-T G.657.B3 IEC 60793-2-50 B-657.B3
Standards				

Multi-mode Fiber Specifications

Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

Specifications

	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
Standards	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

Fiber Optic Color Coding

Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

Fiber Optic Cable Design Coding Guide

Design Number = **A₁** **B₁** **C₁** **D₁** **E₁**

Desing Number Example: 30121901

Design Code = **A₂** - **B₂** **C₂** **D₂** - **E₂**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

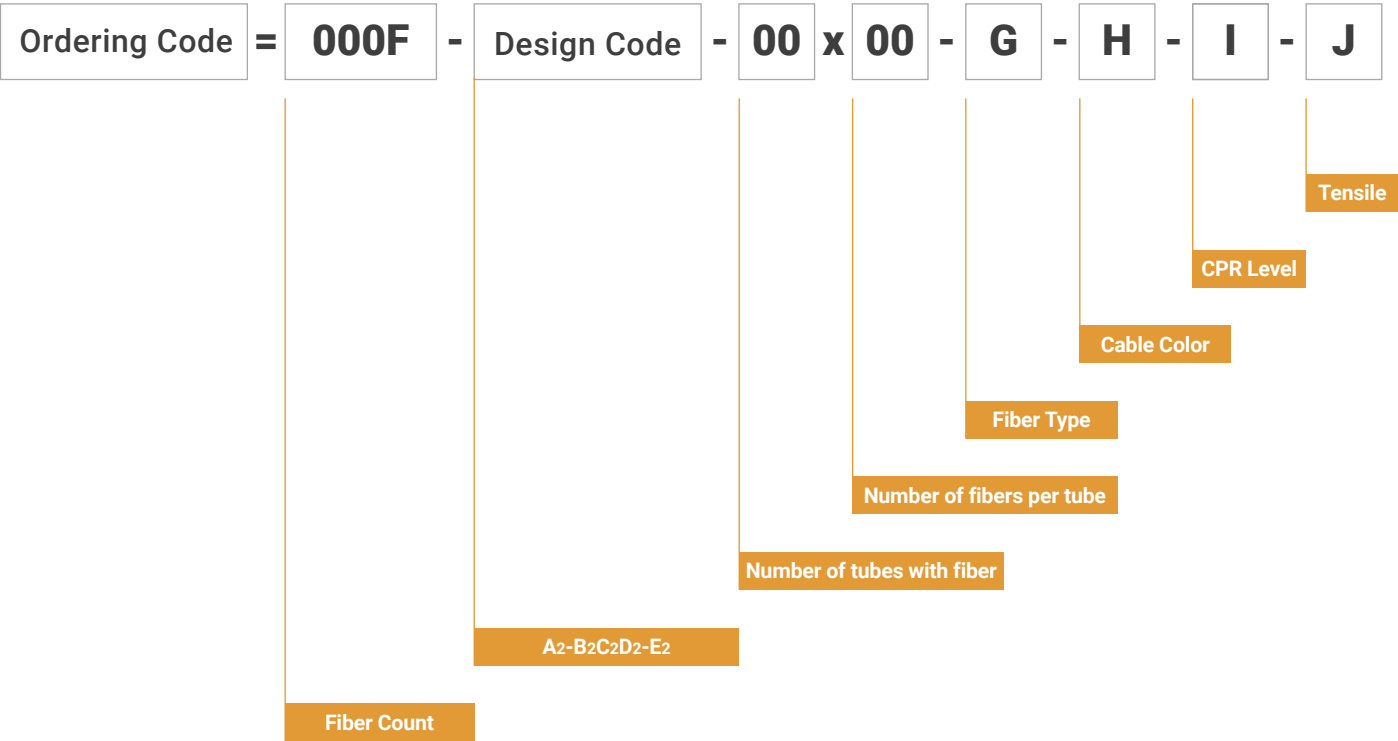
B ₂	B ₁	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

C ₁	C ₂	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E ₁	E ₂	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D ₁	D ₂	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath

Fiber Optic Cable Order Coding Guide



G	Fiber Type	H	Cable Color	I	CPR Level	J	Tensile
2D	Single Mode G652.D	BK	Black		B2ca		kN
A1	Single Mode G657.A1	YE	Yellow		Cca		
A2	Single Mode G657.A2	OG	Orange		Dca		
B3	Single Mode G657.B3	AQ	Aqua		Eca		
M1	Multi Mode G651.OM1	VT	Violet		Fca		
M2	Multi Mode G651.OM2	WH	White				
M3	Multi Mode G651.OM3	IV	Ivory				
M4	Multi Mode G651.OM4	BU	Blue				
M5	Multi Mode G651.OM5						

Ordering Code Example: 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

CLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, PE

Design Type A-D1Q(ZN-GY)B2Y-1D250

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1

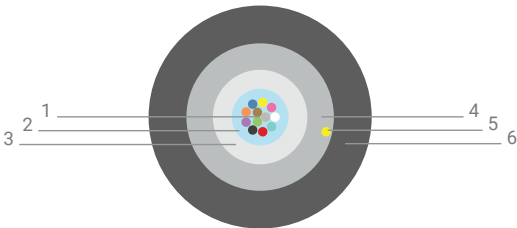
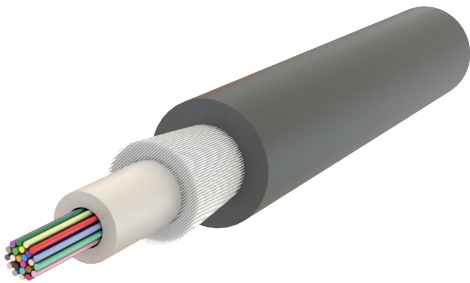


Fig.01 Scale 5:1

Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member with anti-rodent protection
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Polyester
6	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1200 N
	In Service		600 N
Crush Resistance	-	IEC 60794-1-21-E3	1500 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-GY)B2Y-1D250-1x4-...-BK-Fca-1.2kN	4	1	2.5	5.9	31
008F-A-D1Q(ZN-GY)B2Y-1D250-1x8-...-BK-Fca-1.2kN	8	1	2.5	5.9	31
012F-A-D1Q(ZN-GY)B2Y-1D250-1x12-...-BK-Fca-1.2kN	12	1	2.5	5.9	31
024F-A-D1Q(ZN-GY)B2Y-1D300-1x24-...-BK-Fca-1.2kN	24	1	3.0	6.3	35

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 012F-A-D1Q(ZN-GY)B2Y-1D250-1x12-2D-BK-Fca-1.2kN

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	800 mm	900 mm
Drum core diameter	500 mm	500 mm
Outside width	600 mm	650 mm

CLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type **A-D1Q(ZN-GY)(SR)2Y-1D250**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1

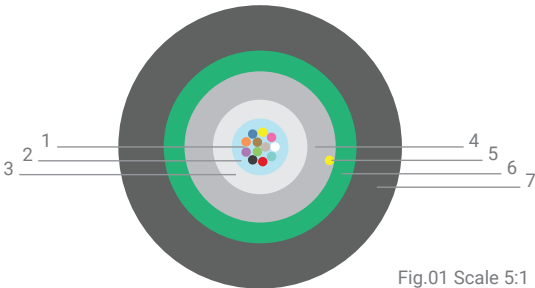
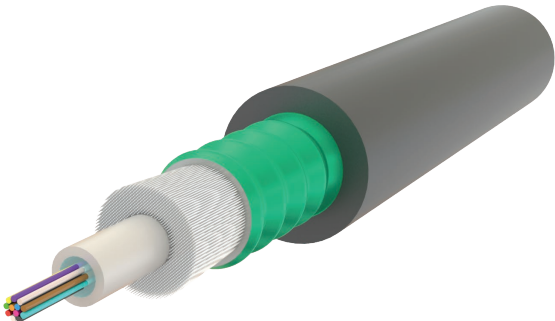
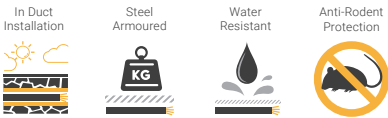


Fig.01 Scale 5:1

Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member with anti-rodent protection
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Armoured Material	Corrugated Steel Tape
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1200 N
	In Service		600 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x4-..-BK-Fca-1.2kN	4	1	2.5	7.5	60
008F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x8-..-BK-Fca-1.2kN	8	1	2.5	7.5	60
012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-..-BK-Fca-1.2kN	12	1	2.5	7.5	60
024F-A-D1Q(ZN-GY)(SR)2Y-1D300-1x24-..-BK-Fca-1.2kN	24	1	3.0	7.9	66

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-A-D1Q(ZN-GY)(SR)2Y-1D300-1x24-2D-BK-Fca-1.2kN

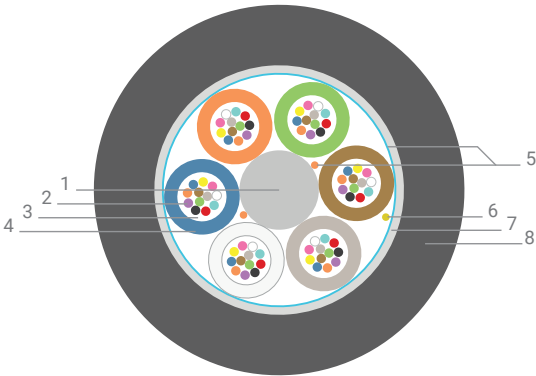
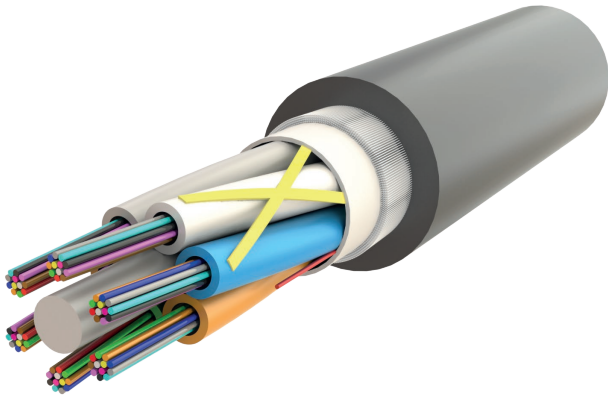
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)B2Y-6D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)B2Y-6D200-1x8-...BK-Fca-2.7kN	8	1	5	2.0	9.8	70
008F-AT-D1Q(ZN-GY)B2Y-6D200-2x4-...BK-Fca-2.7kN	8	2	4	2.0	9.8	71
008F-AT-D1Q(ZN-GY)B2Y-6D200-4x2-...BK-Fca-2.7kN	8	4	2	2.0	9.8	73
012F-AT-D1Q(ZN-GY)B2Y-6D200-1x12-...BK-Fca-2.7kN	12	1	5	2.0	9.8	70
012F-AT-D1Q(ZN-GY)B2Y-6D200-6x2-...BK-Fca-2.7kN	12	6	0	2.0	9.8	76
016F-AT-D1Q(ZN-GY)B2Y-6D200-2x8-...BK-Fca-2.7kN	16	2	4	2.0	9.8	71
016F-AT-D1Q(ZN-GY)B2Y-6D200-4x4-...BK-Fca-2.7kN	16	4	2	2.0	9.8	73
024F-AT-D1Q(ZN-GY)B2Y-6D200-2x12-...BK-Fca-2.7kN	24	2	4	2.0	9.8	71
024F-AT-D1Q(ZN-GY)B2Y-6D200-6x4-...BK-Fca-2.7kN	24	6	0	2.0	9.8	76
048F-AT-D1Q(ZN-GY)B2Y-6D200-4x12-...BK-Fca-2.7kN	48	4	2	2.0	9.8	73
048F-AT-D1Q(ZN-GY)B2Y-6D200-6x8-...BK-Fca-2.7kN	48	6	0	2.0	9.8	76
072F-AT-D1Q(ZN-GY)B2Y-6D200-6x12-...BK-Fca-2.7kN	72	6	0	2.0	9.8	76

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-GY)B2Y-6D200-6x12-2D-BK-Fca-2.7kN

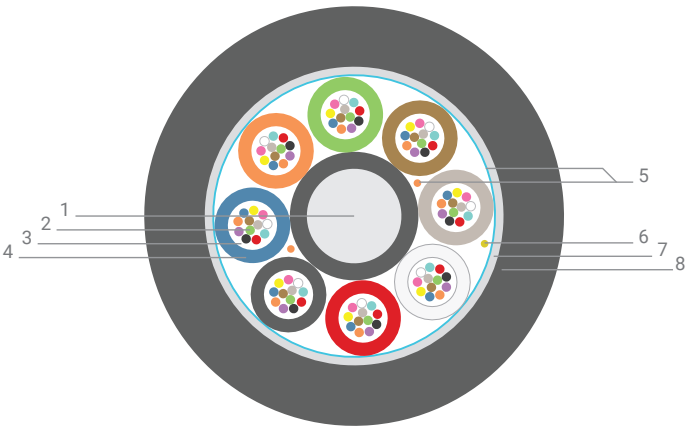
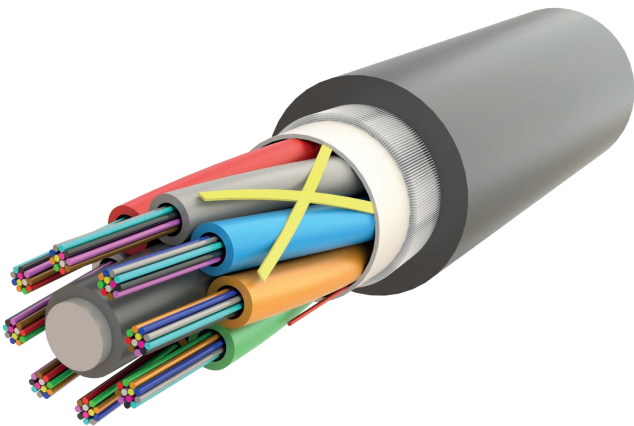
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1300 mm
Drum core diameter	600 mm	500 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)B2Y-8D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

- Metal free indoor and outdoor cable with Gel-filled tube
- Glass yarn strength member
- PE outer jacket for use in ducts and unprotected environments
- Longitudinal and transversal water resistant cable
- Has a ripcord for easy stripping
- Up to 96 Fiber
- Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)B2Y-8D200-8x12-...-BK-Fca-2.7kN	96	8	0	2.0	11.1	96

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)B2Y-8D200-8x12-2D-BK-Fca-2.7kN

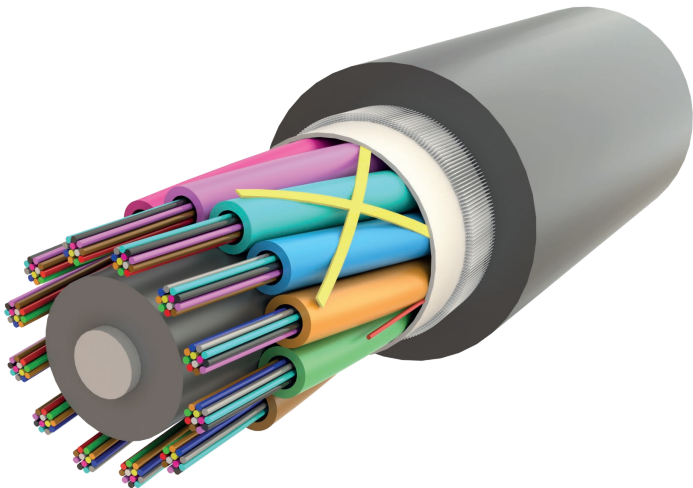
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1200 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non-Metallic Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)B2Y-12D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free indoor and outdoor cable with Gel-filled tube
Glass yarn strength member
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 144 Fiber
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1300 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-AT-D1Q(ZN-GY)B2Y-12D200-12x12-.-BK-Fca-2.7kN	144	12	0	2.0	13.5	140

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-AT-D1Q(ZN-GY)B2Y-12D200-12x12-2D-BK-Fca-2.7kN

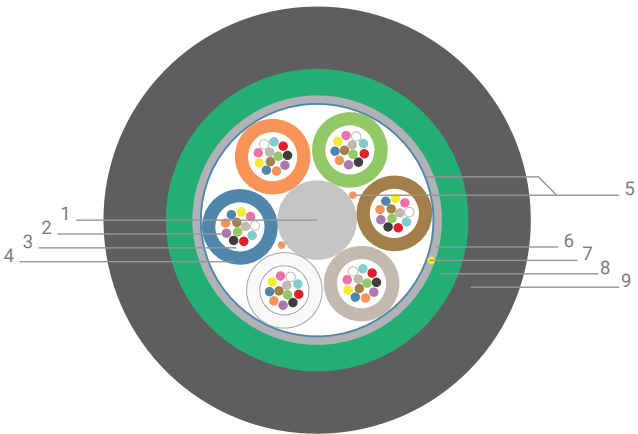
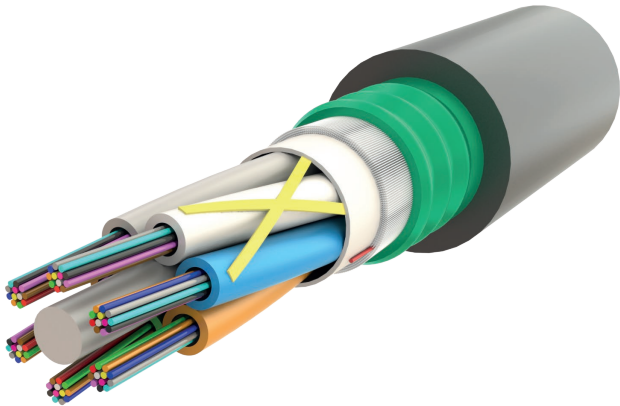
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1400 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-6D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-1x8-...-BK-Fca-2.7kN	8	1	5	2.0	11.3	121
008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x4-...-BK-Fca-2.7kN	8	2	4	2.0	11.3	122
008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x2-...-BK-Fca-2.7kN	8	4	2	2.0	11.3	123
012F-AT-D1Q(ZN-GY)(SR)2Y-6D200-1x12-...-BK-Fca-2.7kN	12	1	5	2.0	11.3	121
012F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x2-...-BK-Fca-2.7kN	12	6	0	2.0	11.3	125
016F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x8-...-BK-Fca-2.7kN	16	2	4	2.0	11.3	122
016F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x4-...-BK-Fca-2.7kN	16	4	2	2.0	11.3	124
024F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x12-...-BK-Fca-2.7kN	24	2	4	2.0	11.3	122
024F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x4-...-BK-Fca-2.7kN	24	6	0	2.0	11.3	125
048F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x12-...-BK-Fca-2.7kN	48	4	2	2.0	11.3	125
048F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x8-...-BK-Fca-2.7kN	48	6	0	2.0	11.3	125
072F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x12-...-BK-Fca-2.7kN	72	6	0	2.0	11.3	126

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x12-2D-BK-Fca-2.7kN

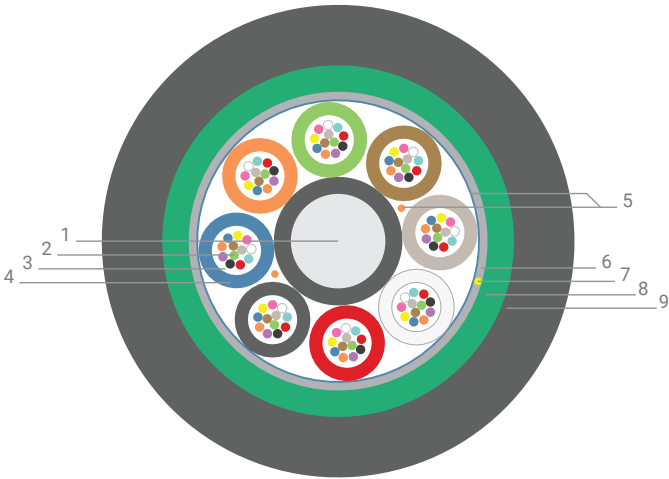
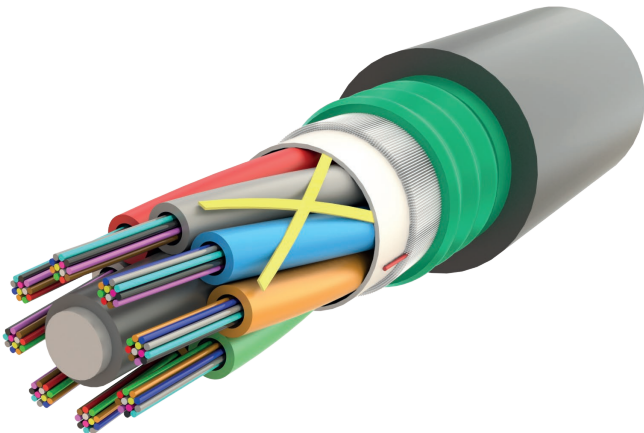
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1200 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-8D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)(SR)2Y-8D200-8x12-...-BK-Fca-2.7kN	96	8	0	2.0	12.5	150

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)(SR)2Y-8D200-8x12-2D-BK-Fca-2.7kN

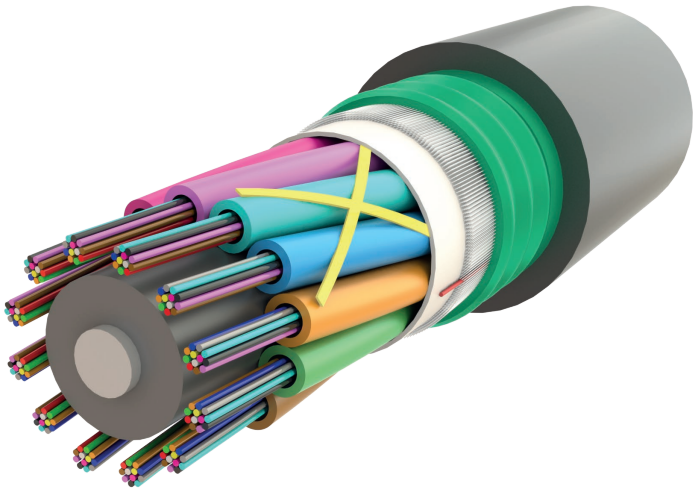
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1300 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-12D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 144 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-AT-D1Q(ZN-GY)(SR)2Y-12D200-12x12-...-BK-Fca-4.0kN	144	12	0	2.0	15.0	200

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-AT-D1Q(ZN-GY)(SR)2Y-12D200-12x12-2D-BK-Fca-4.0kN

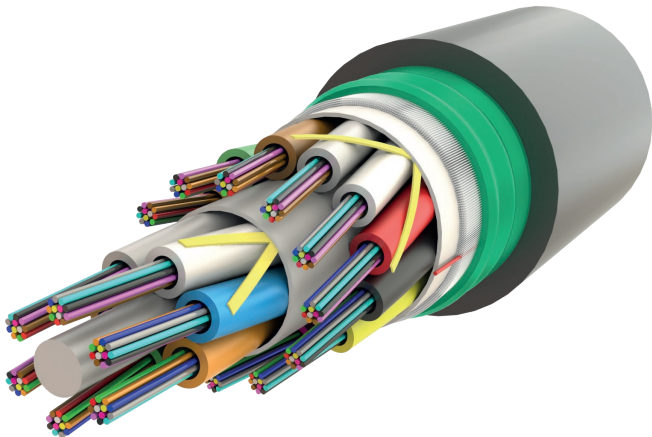
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1500 mm
Drum core diameter	500 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-18D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 216 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	3500 N
	In Service		1750 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
216F-AT-D1Q(ZN-GY)(SR)2Y-18D200-18x12-...-BK-Fca-3.5kN	216	18	0	2.0	15.6	217

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 216F-AT-D1Q(ZN-GY)(SR)2Y-18D200-18x12-2D-BK-Fca-3.5kN

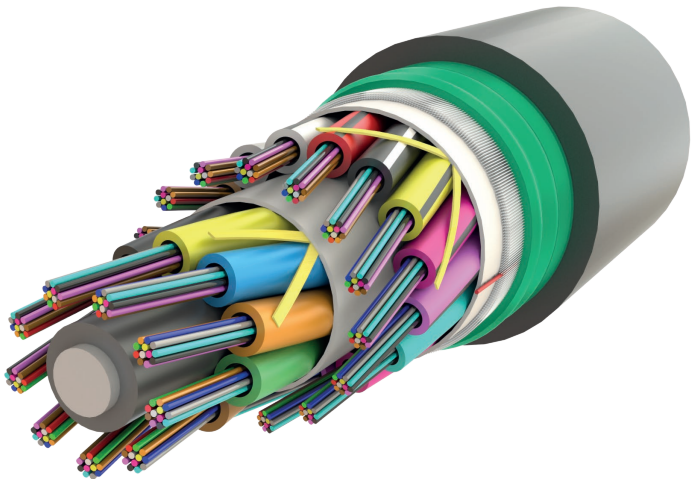
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-24D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 288 Fibers
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
288F-AT-D1Q(ZN-GY)(SR)2Y-24D200-24x12-...-BK-Fca-4.0kN	288	24	0	2.0	17.4	267

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-AT-D1Q(ZN-GY)(SR)2Y-24D200-24x12-2D-BK-Fca-4.0kN

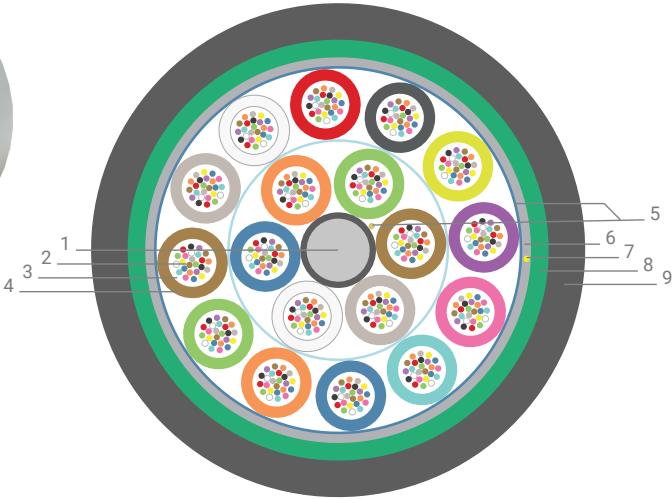
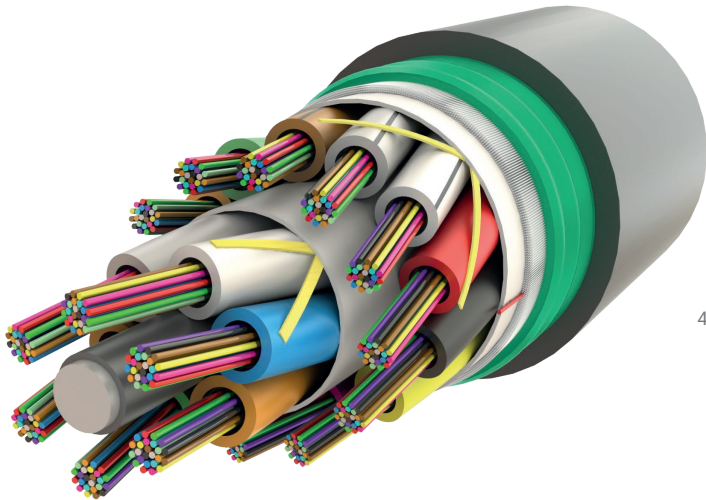
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1300 mm
Drum core diameter	600 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2Y-18D280

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 432 Fibers

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Aramid
8	Armoured Material	Corrugated Steel Tape
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	5000 N
	In Service		2500 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
432F-AT-D1Q(ZN-GY)(SR)2Y-18D280-18x24-...-BK-Fca-5.0kN	432	18	0	2.8	19.6	320

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 432F-AT-D1Q(ZN-GY)(SR)2Y-18D280-18x24-2D-BK-Fca-5.0kN

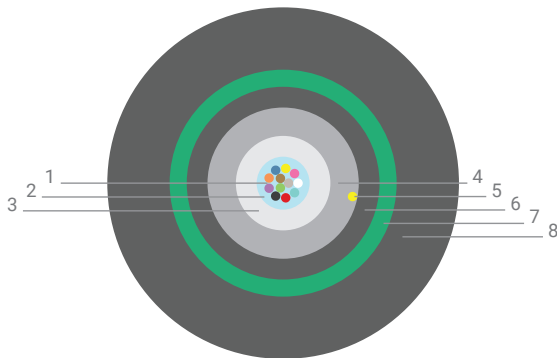
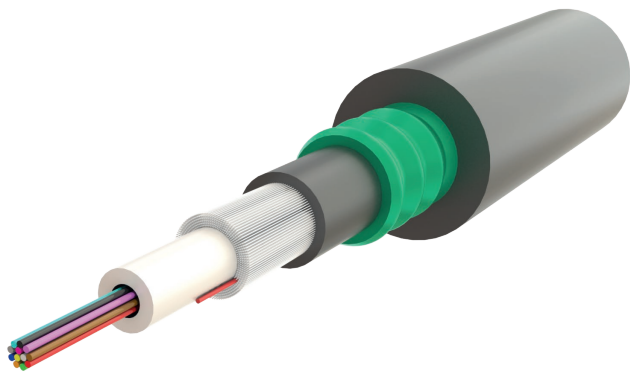
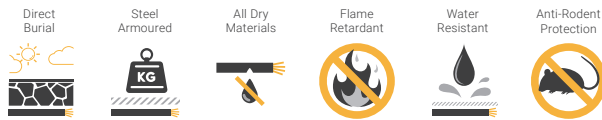
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1500 mm
Drum core diameter	600 mm
Outside width	1000 mm

CLT, Gel-Filled, Dry Core, Steel Armoured, DJ, PE

Design Type A-D1Q(ZN-GY)2Y(SR)2Y-1D250

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 24Fibers
Double Jacket for Direct Burial

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tube Filling Material	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Inner Jacket	UV Resistant PE
7	Armoured Material	Corrugated Steel Tape
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1500 N
	In Service		750 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x4-...-BK-Fca-1.5kN	4	1	2.5	9.3	92
008F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x8-...-BK-Fca-1.5kN	8	1	2.5	9.3	92
012F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x12-...-BK-Fca-1.5kN	12	1	2.5	9.3	92
024F-A-D1Q(ZN-GY)2Y(SR)2Y-1D300-1x24-...-BK-Fca-1.5kN	24	1	3.0	9.8	100

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-A-D1Q(ZN-GY)2Y(SR)2Y-1D300-1x24-2D-BK-Fca-1.5kN

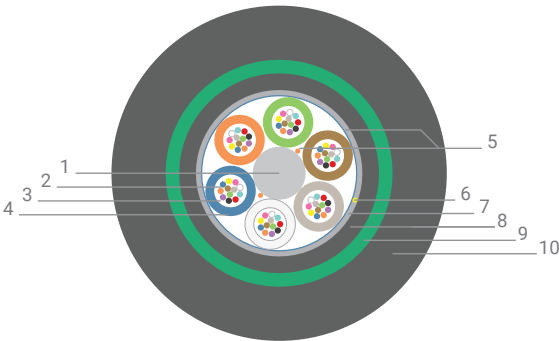
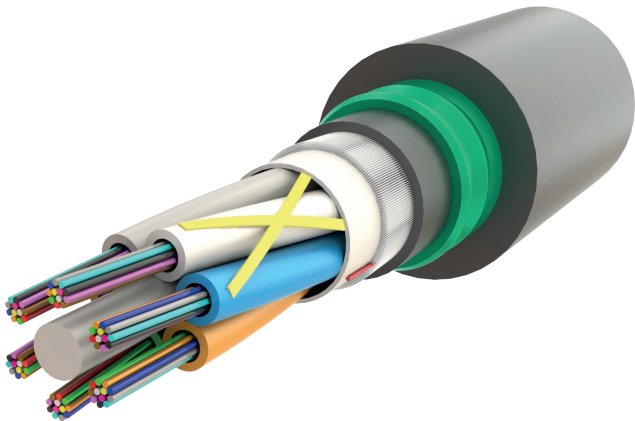
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1200 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	650 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, DJ, PE

Design Type AT-D1Q(ZN-GY)2Y(SR)2Y-6D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fibers
Double Jacket for Direct Burial

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Aramid
7	Strength Member	Swellable Glass Yarn
8	Inner Jacket	UV Resistant PE
9	Armoured Material	Corrugated Steel Tape
10	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-1x8-...-BK-Fca-2.7kN	8	1	5	2.0	13.3	159
008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x4-...-BK-Fca-2.7kN	8	2	4	2.0	13.3	160
008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x2-...-BK-Fca-2.7kN	8	4	2	2.0	13.3	161
012F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-1x12-...-BK-Fca-2.7kN	12	1	5	2.0	13.3	159
012F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x2-...-BK-Fca-2.7kN	12	6	0	2.0	13.3	163
016F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x8-...-BK-Fca-2.7kN	16	2	4	2.0	13.3	160
016F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x4-...-BK-Fca-2.7kN	16	4	2	2.0	13.3	162
024F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x12-...-BK-Fca-2.7kN	24	2	4	2.0	13.3	160
024F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x4-...-BK-Fca-2.7kN	24	6	0	2.0	13.3	163
048F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x12-...-BK-Fca-2.7kN	48	4	2	2.0	13.3	162
048F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x8-...-BK-Fca-2.7kN	48	6	0	2.0	13.3	163
072F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x12-...-BK-Fca-2.7kN	72	6	0	2.0	13.3	164

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x12-2D-BK-Fca-2.7kN

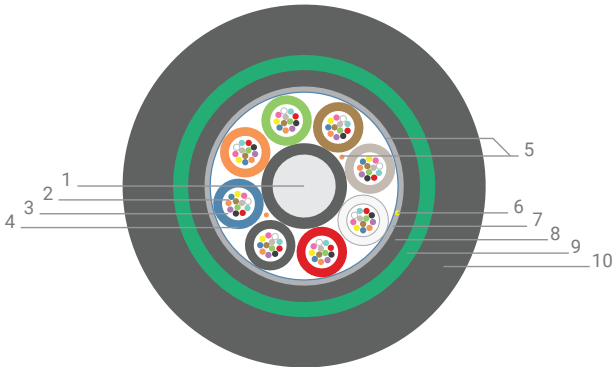
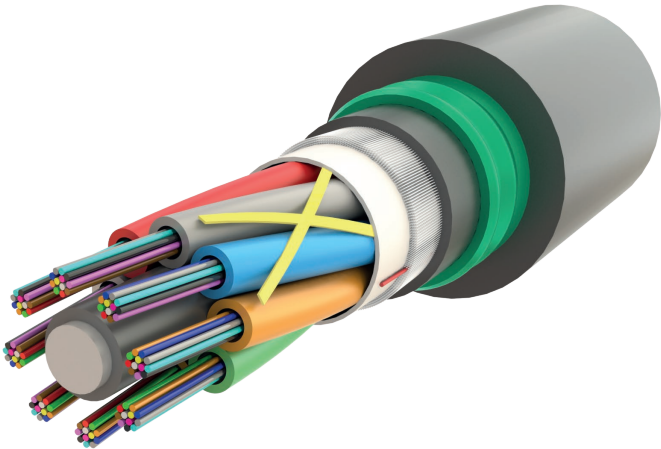
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1400 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, DJ, PE

Design Type AT-D1Q(ZN-GY)2Y(SR)2Y-8D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fibers
Double Jacket for Direct Burial
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Aramid
7	Strength Member	Swellable Glass Yarn
8	Inner Jacket	UV Resistant PE
9	Armoured Material	Corrugated Steel Tape
10	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1350 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)2Y(SR)2Y-8D200-8x12-...-BK-Fca-2.7kN	96	8	0	2.0	14.6	195

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)2Y(SR)2Y-8D200-8x12-2D-BK-Fca-2.7kN

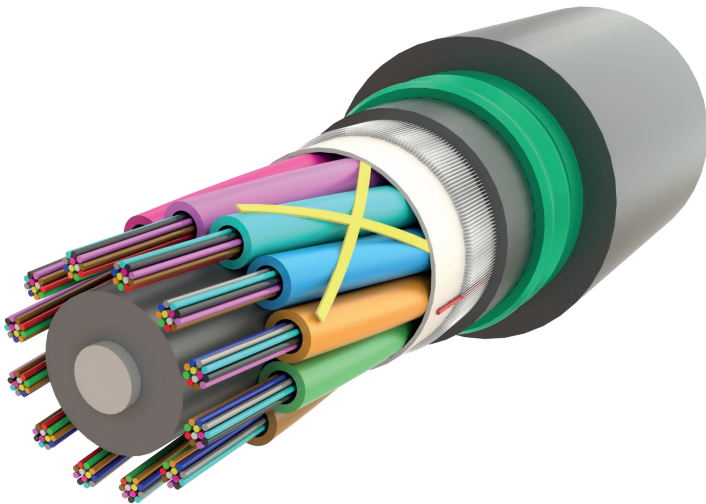
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Steel Armoured, DJ, PE

Design Type AT-D1Q(ZN-GY)2Y(SR)2Y-12D200

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 144 Fibers
Double Jacket for Direct Burial
Anti-rodent protection

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Aramid
7	Strength Member	Swellable Glass Yarn
8	Inner Jacket	UV Resistant PE
9	Armoured Material	Corrugated Steel Tape
10	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-AT-D1Q(ZN-GY)2Y(SR)2Y-12D200-12x12-...-BK-Fca-4.0kN	144	12	0	2.0	17.0	258

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-AT-D1Q(ZN-GY)B2Y-12D200-12x12-2D-BK-Fca-4.0kN

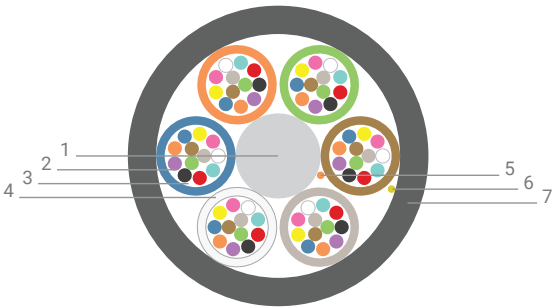
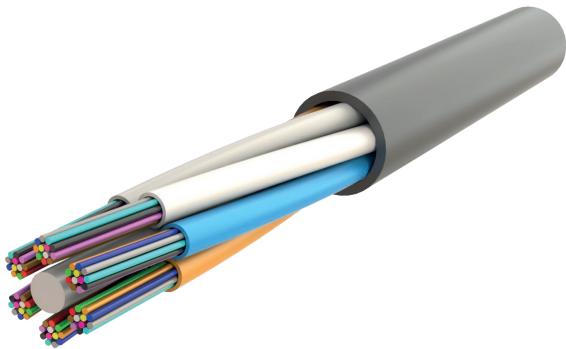
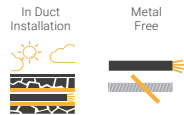
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1300 mm	1600 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Gel-Filled, Dry Core, Non Armoured, SJ, PE, Micro Duct

Design Type AT-D3Q2Y-6D140

Standards: IEC 60794-1 / IEC 60794-5 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 72 Fiber

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Water Swellable Yarn
6	Ripcord	Polyester
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	500 N
	In Service		250 N
Crush Resistance	-	IEC 60794-1-21-E3	800 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-AT-D3Q2Y-6D140-1x2-.-BK-Fca-0.5kN	2	1	5	1.4	5.3	22
004F-AT-D3Q2Y-6D140-1x4-.-BK-Fca-0.5kN	4	1	5	1.4	5.3	22
004F-AT-D3Q2Y-6D140-2x2-.-BK-Fca-0.5kN	4	2	4	1.4	5.3	22
008F-AT-D3Q2Y-6D140-1x8-.-BK-Fca-0.5kN	8	1	5	1.4	5.3	22
008F-AT-D3Q2Y-6D140-2x4-.-BK-Fca-0.5kN	8	2	4	1.4	5.3	22
008F-AT-D3Q2Y-6D140-4x2-.-BK-Fca-0.5kN	8	4	2	1.4	5.3	22
012F-AT-D3Q2Y-6D140-1x12-.-BK-Fca-0.5kN	12	1	5	1.4	5.3	22
012F-AT-D3Q2Y-6D140-6x2-.-BK-Fca-0.5kN	12	6	0	1.4	5.3	22
016F-AT-D3Q2Y-6D140-2x8-.-BK-Fca-0.5kN	16	2	4	1.4	5.3	22
016F-AT-D3Q2Y-6D140-4x4-.-BK-Fca-0.5kN	16	4	2	1.4	5.3	22
024F-AT-D3Q2Y-6D140-2x12-.-BK-Fca-0.5kN	24	2	4	1.4	5.3	22
024F-AT-D3Q2Y-6D140-6x4-.-BK-Fca-0.5kN	24	6	0	1.4	5.3	22
048F-AT-D3Q2Y-6D140-4x12-.-BK-Fca-0.5kN	48	4	2	1.4	5.3	22
048F-AT-D3Q2Y-6D140-6x8-.-BK-Fca-0.5kN	48	6	0	1.4	5.3	22
072F-AT-D3Q2Y-6D140-6x12-.-BK-Fca-0.5kN	72	6	0	1.4	5.3	22

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D3Q2Y-6D140-6x12-2D-BK-Fca-0.5kN

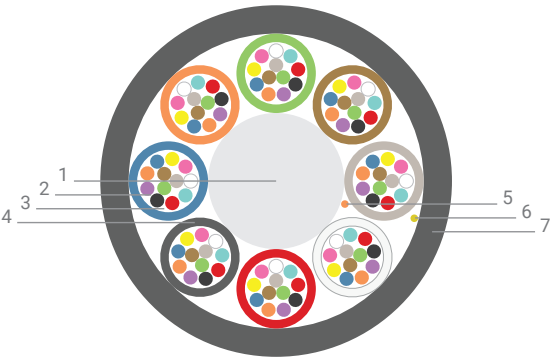
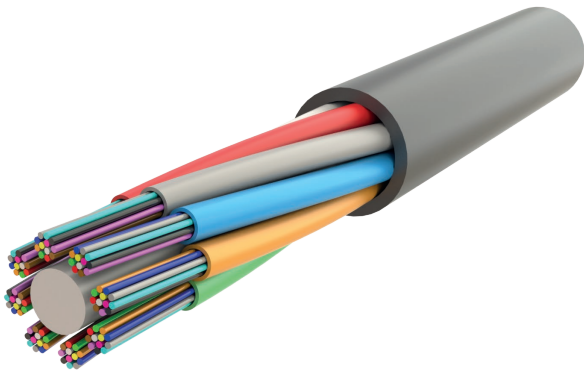
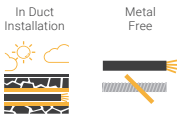
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	800 mm
Drum core diameter	400 mm
Outside width	600 mm

MLT, Gel-Filled, Dry Core, Non Armoured, SJ, PE, Micro Duct

Design Type AT-D3Q2Y-8D140

Standards: IEC 60794-1 / IEC 60794-5 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 96 Fiber

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Water Swellable Yarn
6	Ripcord	Polyester
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1000 N
	In Service		500 N
Crush Resistance	-	IEC 60794-1-21-E3	800 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D3Q2Y-8D140-8x12-...-BK-Fca-1.0kN	96	8	0	1.4	6.2	32

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D3Q2Y-8D140-8x12-2D-BK-Fca-1.0kN

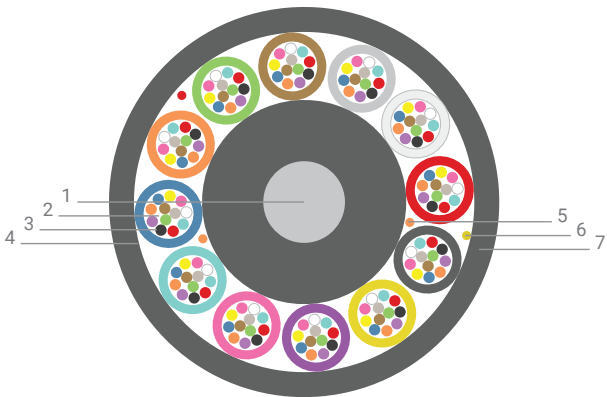
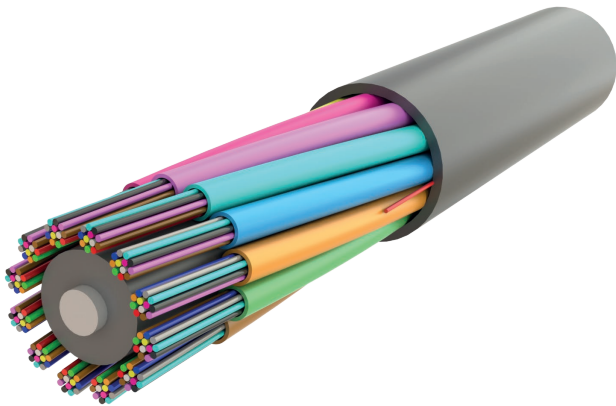
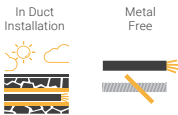
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	900 mm
Drum core diameter	400 mm
Outside width	650 mm

MLT, Gel-Filled, Dry Core, Non Armoured, SJ, PE, Micro Duct

Design Type AT-D3Q2Y-12D140

Standards: IEC 60794-1 / IEC 60794-5 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 144 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Water Swellable Yarn
6	Ripcord	Polyester
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		400 N
Crush Resistance	-	IEC 60794-1-21-E3	800 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-AT-D3Q2Y-12D140-12x12-...-BK-Fca	144	12	0	1.4	8.0	50

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-AT-D3Q2Y-12D140-12x12-2D-BK-Fca

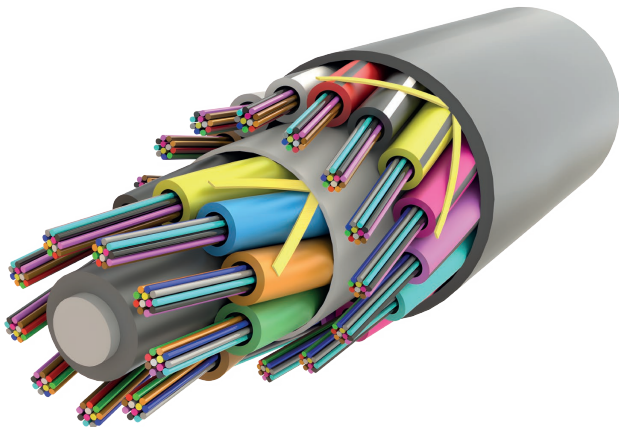
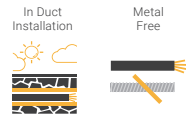
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1200 mm
Drum core diameter	700 mm
Outside width	650 mm

MLT, Gel-Filled, Dry Core, Non Armoured, SJ, PE, Micro Duct

Design Type AT-D3Q2Y-24D140

Standards: IEC 60794-1 / IEC 60794-5 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 288 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode 200µ
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Water Swellable Yarn
6	Ripcord	Polyester
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1000 N
	In Service		500 N
Crush Resistance	-	IEC 60794-1-21-E3	800 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
288F-AT-D3Q2Y-24D140-24x12-...-BK-Fca-1.0kN	288	24	0	1.4	9.5	68

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-AT-D3Q2Y-24D140-24x12-2D-BK-Fca-1.0kN

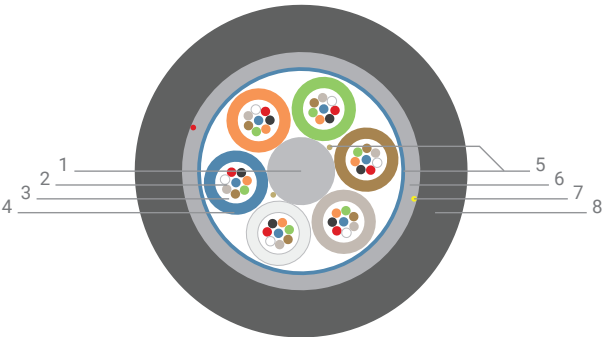
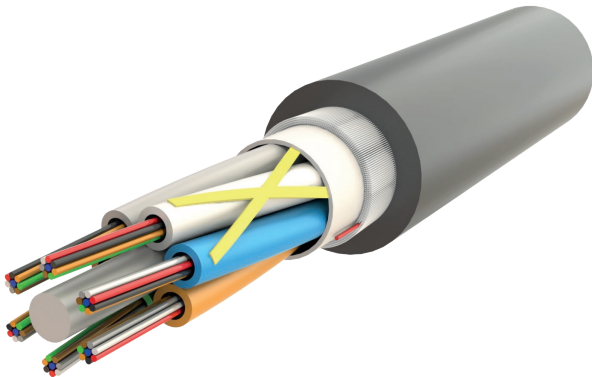
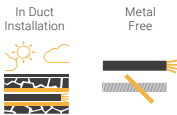
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1200 mm
Drum core diameter	700 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Non-Armoured, SJ, PE, Mini Duct

Design Type AT-D1Q(ZN-GY)2Y-6D170

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 72 Fiber

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1500 N
Crush Resistance	-	IEC 60794-1-21-E3	1200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=8J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)2Y-6D170-1x8-.-BK-Fca-2.7kN	8	1	5	1.7	8.8	59
008F-AT-D1Q(ZN-GY)2Y-6D170-2x4-.-BK-Fca-2.7kN	8	2	4	1.7	8.8	59
008F-AT-D1Q(ZN-GY)2Y-6D170-4x2-.-BK-Fca-2.7kN	8	4	2	1.7	8.8	60
012F-AT-D1Q(ZN-GY)2Y-6D170-1x12-.-BK-Fca-2.7kN	12	1	5	1.7	8.8	59
012F-AT-D1Q(ZN-GY)2Y-6D170-6x2-.-BK-Fca-2.7kN	12	6	0	1.7	8.8	62
016F-AT-D1Q(ZN-GY)2Y-6D170-2x8-.-BK-Fca-2.7kN	16	2	4	1.7	8.8	60
016F-AT-D1Q(ZN-GY)2Y-6D170-4x4-.-BK-Fca-2.7kN	16	4	2	1.7	8.8	60
024F-AT-D1Q(ZN-GY)2Y-6D170-2x12-.-BK-Fca-2.7kN	24	2	4	1.7	8.8	60
024F-AT-D1Q(ZN-GY)2Y-6D170-6x4-.-BK-Fca-2.7kN	24	6	0	1.7	8.8	62
048F-AT-D1Q(ZN-GY)2Y-6D170-4x12-.-BK-Fca-2.7kN	48	4	2	1.7	8.8	61
048F-AT-D1Q(ZN-GY)2Y-6D170-6x8-.-BK-Fca-2.7kN	48	6	0	1.7	8.8	62
072F-AT-D1Q2(ZN-GY)Y-6D170-6x12-.-BK-Fca-2.7kN	72	6	0	1.7	8.8	62

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-GY)2Y-6D170-6x12-2D-BK-Fca-2.7kN

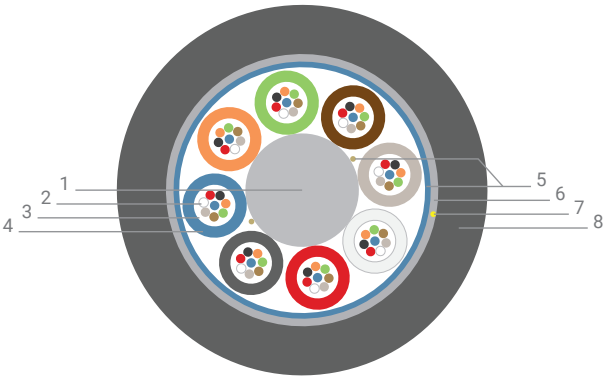
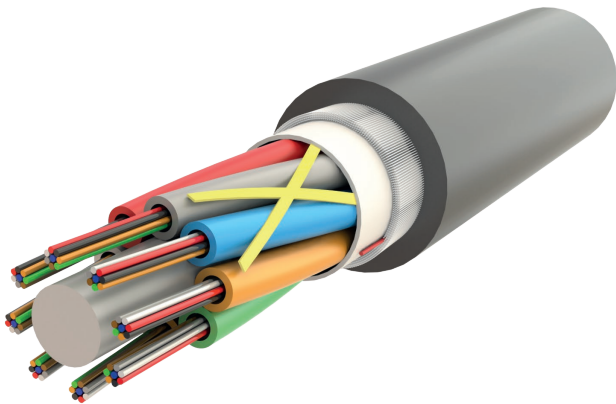
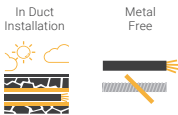
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1000 mm
Drum core diameter	400 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Non-Armoured, SJ, PE, Mini Duct

Design Type AT-D1Q(ZN-GY)2Y-8D170

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 96 Fiber

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1500 N
Crush Resistance	-	IEC 60794-1-21-E3	1200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=8J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)2Y-8D170-8x12-...BK-Fca-2.7kN	96	8	0	1.7	9.8	77

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)2Y-8D170-8x12-2D-BK-Fca-2.7kN

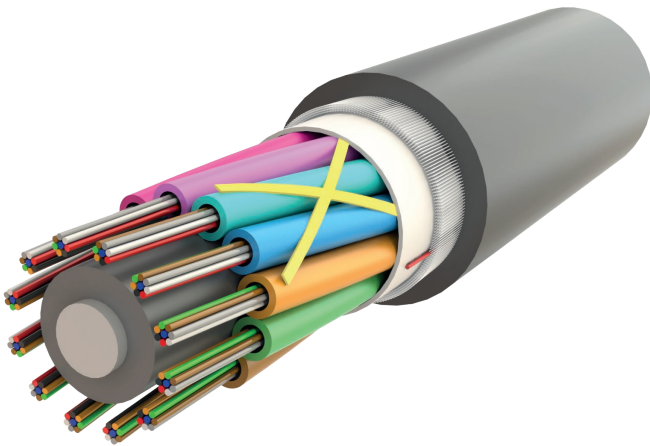
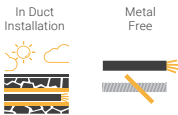
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1000 mm
Drum core diameter	400 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Non-Armoured, SJ, PE, Mini Duct

Design Type AT-D1Q(ZN-GY)2Y-12D170

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 144 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1500 N
Crush Resistance	-	IEC 60794-1-21-E3	1200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=8J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
144F-AT-D1Q(ZN-GY)2Y-12D170-12x12-...-BK-Fca-2.7kN	144	12	0	1.7	11.7	106

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
* Sample Code: 144F-AT-D1Q(ZN-GY)2Y-12D170-12x12-2D-BK-Fca-2.7kN

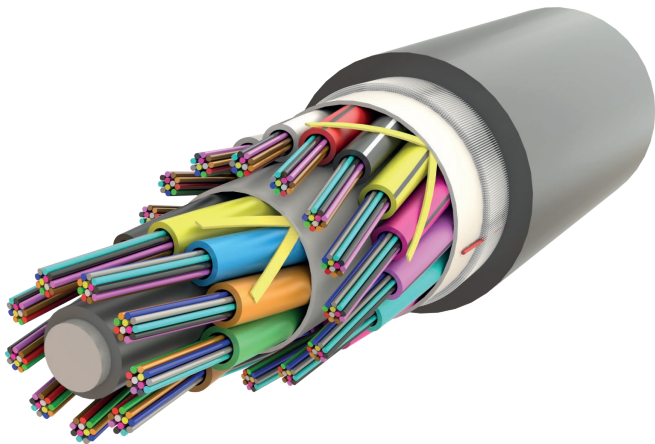
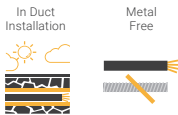
Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1200 mm
Drum core diameter	550 mm
Outside width	1000 mm

MLT, Gel-Filled, Dry Core, Non-Armoured, SJ, PE, Mini Duct

Design Type AT-D1Q(ZN-GY)2Y-24D170

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free outdoor cable with gel filled tubes
Ripcord for easy stripping
Designed to be rapidly installed by blowing
Longitudinal and transversal watertight cable
PE outer jacket for use in ducts and unprotected environments
Up to 288 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	Thermoplastic
5	Water Blocking	Tape & Yarn
6	Strength Member	Swellable Glass Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2700 N
	In Service		1500 N
Crush Resistance	-	IEC 60794-1-21-E3	1200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=8J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
288F-AT-D1Q(ZN-GY)2Y-24D170-24x12-...-BK-Fca-2.7kN	288	24	0	1.7	14.0	146

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-AT-D1Q(ZN-GY)2Y-24D170-24x12-2D-BK-Fca-2.7kN

Packaging

Drum length/Tolerance	4000 m ± 5%
Drum Flange diameter	1400 mm
Drum core diameter	600 mm
Outside width	1000 mm



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SAMM Teknoloji İletişim San. ve Tic. A.Ş.



TURKIYE

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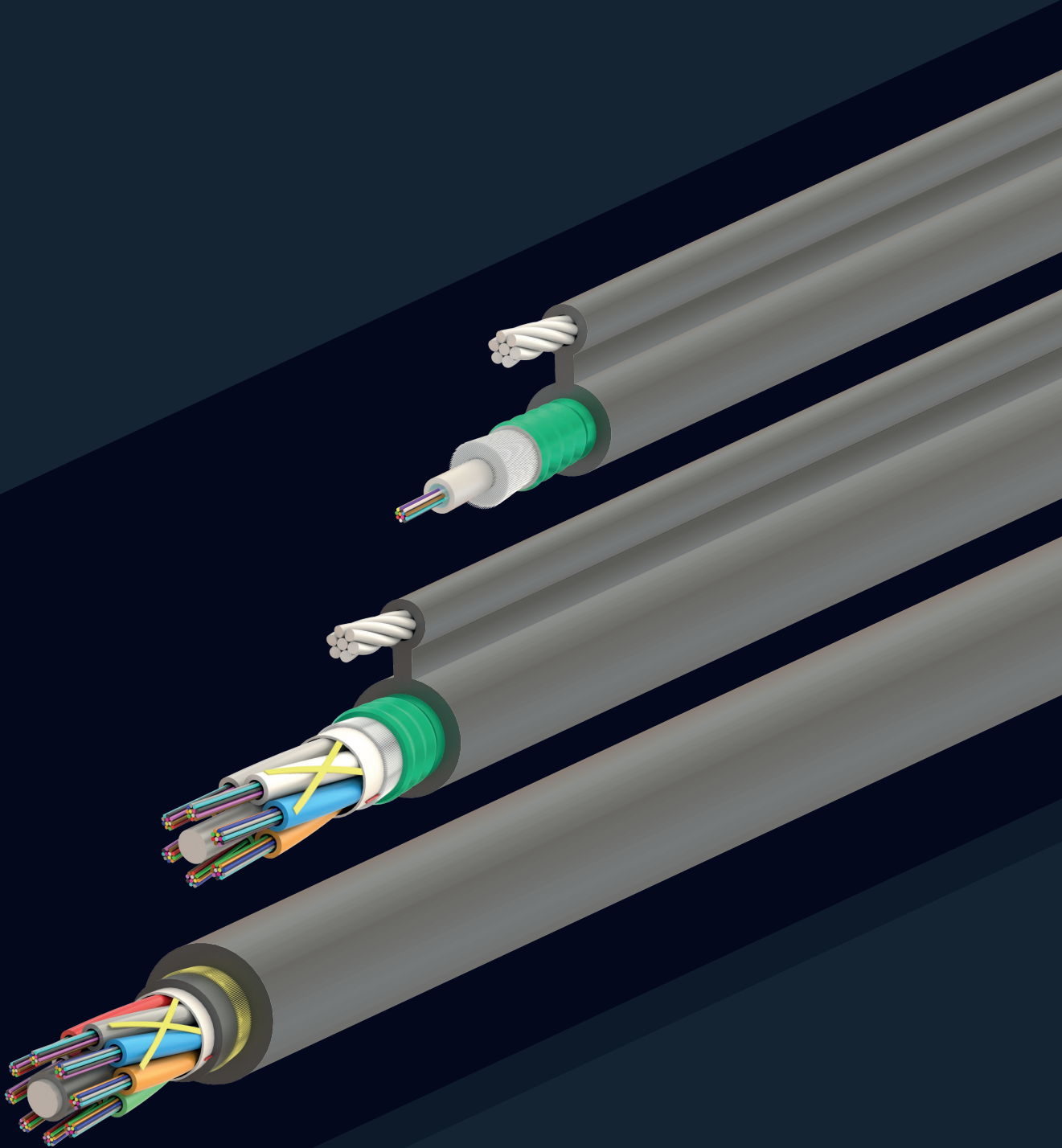


Our Website





FIBER OPTIC CABLES



AERIAL



Founded in 2003, SAMM Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMM Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

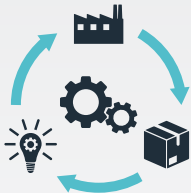
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMM also has a ministry-approved research and development center since 2017.



20+ Years' Experience

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



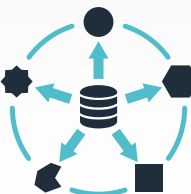
World Class Production

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



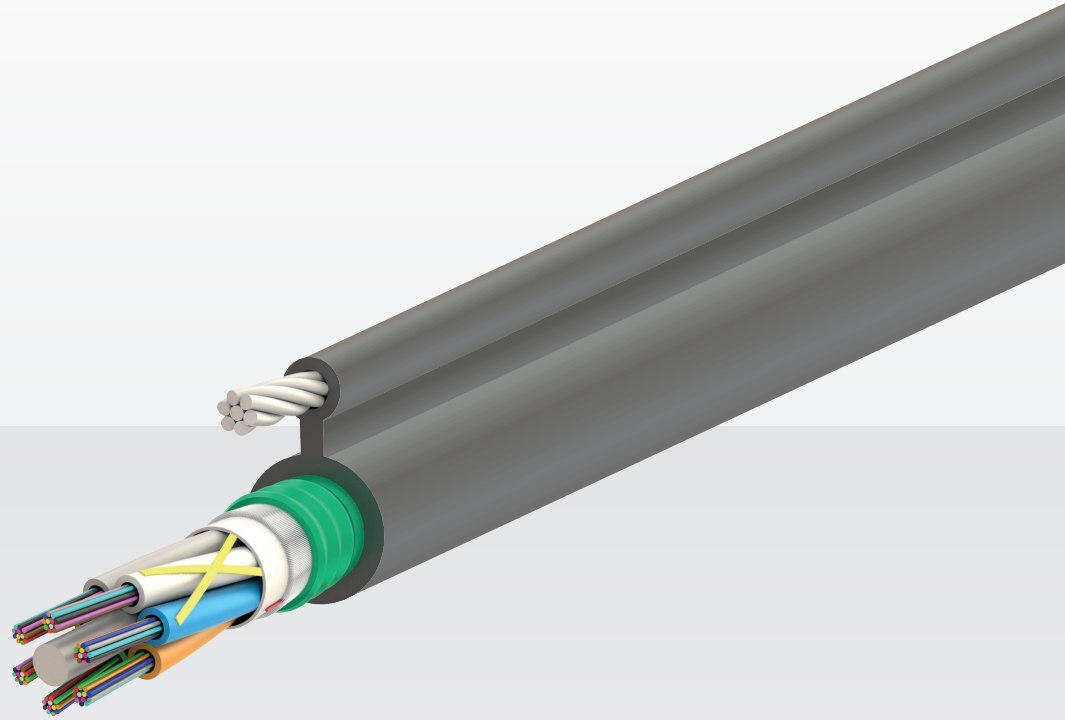
Connecting Continents

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



Innovative Solutions

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



AERIAL FIBER OPTIC CABLES

Single-mode Fiber Specifications

Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength λ_{cc}	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength λ_0	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at λ_0	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7	125 ± 0.7		
Coating diameter (uncoloured)	μm	235-250	235-245		
Concentricity error core/cladding	μm	≤ 0.6	≤ 0.5		
Concentricity error cladding/coating	μm	≤ 12.0	≤ 12.0		
Cladding non-circularity	%	≤ 1.0	≤ 0.7		
Coating non-circularity	%	≤ 6.0	≤ 6.0		

Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation ≤ 1 %)	N (kpsi)	≥ 9.0 (100)			
Operation temperature range -60 to 85 °C (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			
Water immersion 23 °C for 30 days (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			

Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
	ITU-T G.652.D IEC 60793-2-50 B-652.D	ITU-T G.657.A1 IEC 60793-2-50 B-657.A1	ITU-T G.657.A2 IEC 60793-2-50 B-657.A2	ITU-T G.657.B3 IEC 60793-2-50 B-657.B3
Standards				

Multi-mode Fiber Specifications

Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

Specifications

Standards	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

Fiber Optic Color Coding

Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

Fiber Optic Cable Design Coding Guide

Design Number = **A₁** **B₁** **C₁** **D₁** **E₁**

Desing Number Example: 30121901

Design Code = **A₂** - **B₂** **C₂** **D₂** - **E₂**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

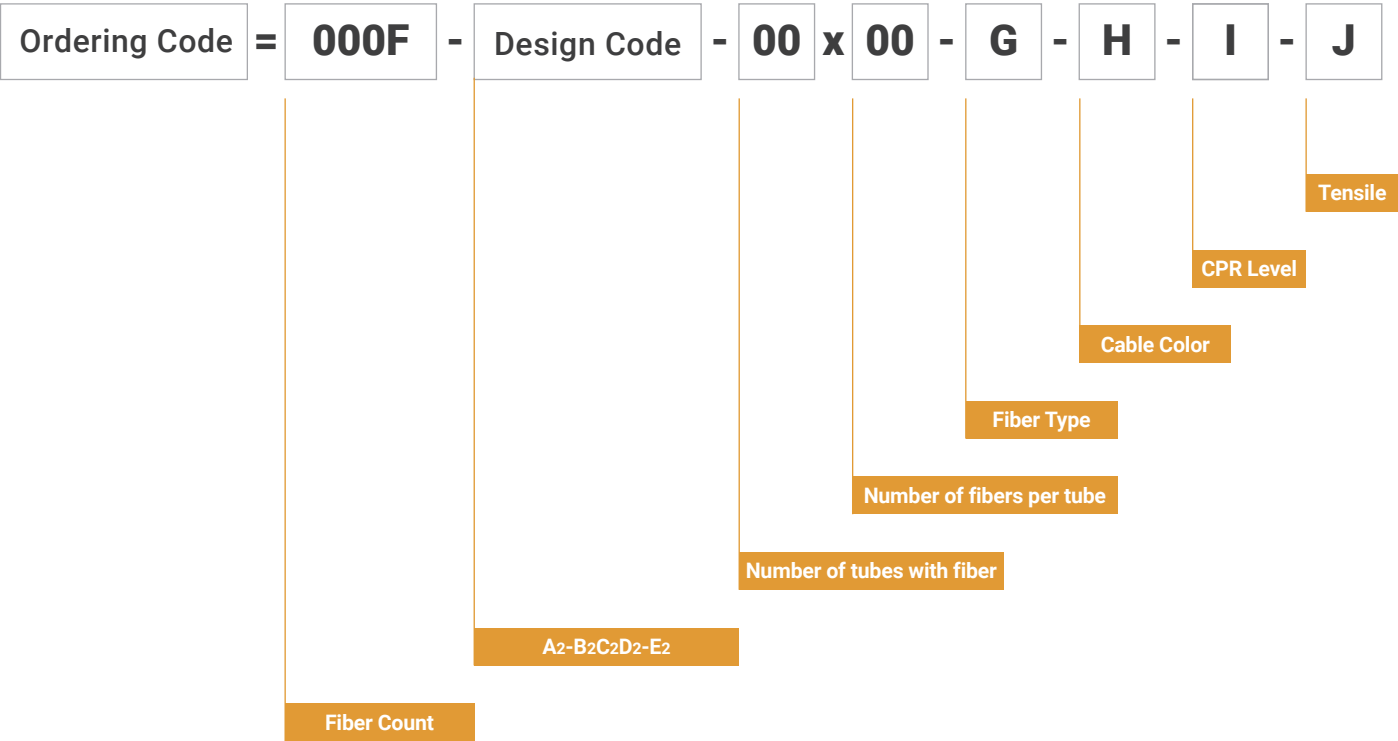
B ₂	B ₁	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

C ₁	C ₂	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E ₁	E ₂	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D ₁	D ₂	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath

Fiber Optic Cable Order Coding Guide



G	Fiber Type	H	Cable Color	I	CPR Level	J	Tensile
2D	Single Mode G652.D	BK	Black		B2ca		kN
A1	Single Mode G657.A1	YE	Yellow		Cca		
A2	Single Mode G657.A2	OG	Orange		Dca		
B3	Single Mode G657.B3	AQ	Aqua		Eca		
M1	Multi Mode G651.OM1	VT	Violet		Fca		
M2	Multi Mode G651.OM2	WH	White				
M3	Multi Mode G651.OM3	IV	Ivory				
M4	Multi Mode G651.OM4	BU	Blue				
M5	Multi Mode G651.OM5						

Ordering Code Example: 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

CLT, ADSS, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

Design Type A-D1Q(ZN-AY)2Y

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1

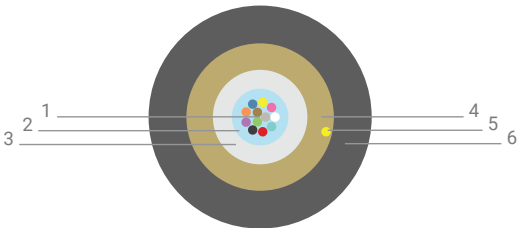
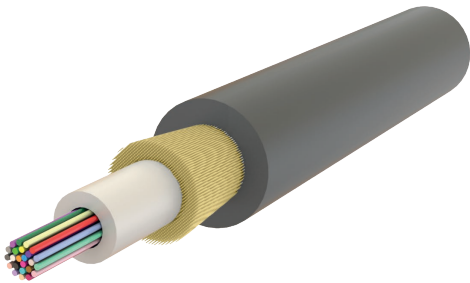


Fig.01 Scale 5:1

Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Single-jacket design with multiple span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Tube Filling Compound	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Aramid Yarn & Swellable Yarn
5	Ripcord	Polyester
6	Outer Jacket	UV Resistant HDPE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	-	IEC 60794-1-21-E1	1350 N (MAT)
Crush Resistance	-	IEC 60794-1-21-E3	1500 N/10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s, Ice Load: 0 mm Extra Load: 0.07 kg/m, Temp.: -1 °C Cable and Fiber Strain: 0.46%	Wind Speed: 17 m/s, Ice Load: 6.5 mm Extra Load: 0.25 kg/m, Temp.: -10 °C Cable and Fiber Strain: 0.46%	Wind Speed: 7 m/s, Ice Load: 12.5 mm Extra Load: 0.44 kg/m, Temp.: -20 °C Cable and Fiber Strain: 0.46%
	Span Distance Installed Sag: 1.0%, Max. Sag: 3.5%	Span Distance Installed Sag: 1.0%, Max. Sag: 3.9%	Span Distance Installed Sag: 1.0%, Max. Sag: 4.1%
Tube Count x Fiber Count			
1x4	110 m	57 m	32 m
1x6	110 m	57 m	32 m
1x8	110 m	57 m	32 m
1x12	100 m	54 m	31 m
Tube Count x Fiber Count	Installed Sag: 2.0%, Max. Sag: 4.3%	Installed Sag: 2.0%, Max. Sag: 4.5%	Installed Sag: 2.0%, Max. Sag: 4.5%
1x4	131 m	64 m	36 m
1x6	131 m	64 m	36 m
1x8	131 m	64 m	36 m
1x12	120 m	62 m	34 m
Tube Count x Fiber Count	Installed Sag: 3.0%, Max. Sag: 4.9%	Installed Sag: 3.0%, Max. Sag: 5.1%	Installed Sag: 3.0%, Max. Sag: 5.1%
1x4	150 m	75 m	42 m
1x6	150 m	75 m	42 m
1x8	149 m	72 m	40 m
1x12	137 m	69 m	38 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-AY)2Y-1D300-1x4-...-BK-Fca-1.35kN	4	1	3.0	6.6	35
006F-A-D1Q(ZN-AY)2Y-1D300-1x6-...-BK-Fca-1.35kN	6	1	3.0	6.6	35
008F-A-D1Q(ZN-AY)2Y-1D300-1x8-...-BK-Fca-1.35kN	8	1	3.0	6.6	35
012F-A-D1Q(ZN-AY)2Y-1D300-1x12-...-BK-Fca-1.35kN	12	1	3.0	6.6	35

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

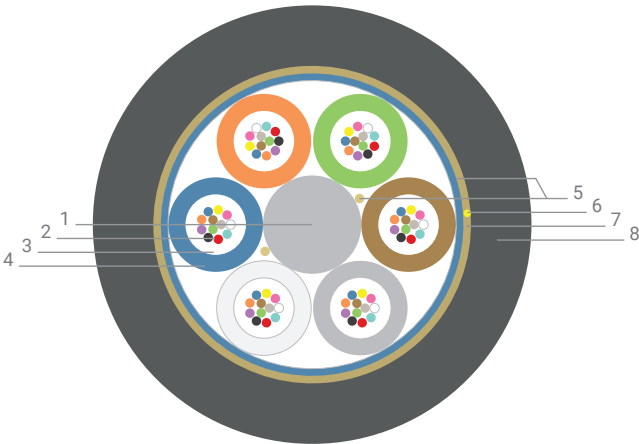
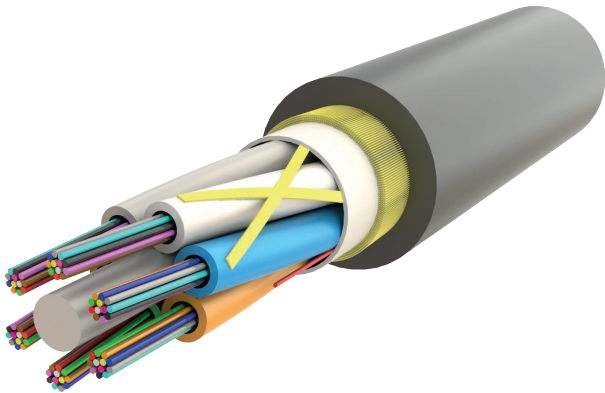
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	800 mm	1100 mm
Drum core diameter	400 mm	700 mm
Outside width	600 mm	650 mm

MLT, ADSS, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

Design Type AT-D1Q(ZN-AY)2Y-6D230

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Single-jacket design with multiple span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Aramid Yarn
8	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4500 N (MAT)
	In Service		3000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N/10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	150 m	100 m	55 m
1x12	150 m	100 m	55 m
2x12	150 m	100 m	55 m
3x12	150 m	100 m	55 m
4x12	150 m	100 m	55 m
5x12	150 m	100 m	55 m
6x12	150 m	100 m	55 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
012F-AT-D1Q(ZN-AY)2Y-6D230-1x12-...BK-Fca-4.5kN	12	1	5	2.3	11.0	94
024F-AT-D1Q(ZN-AY)2Y-6D230-2x12-...BK-Fca-4.5kN	24	2	4	2.3	11.0	95
036F-AT-D1Q(ZN-AY)2Y-6D230-3x12-...BK-Fca-4.5kN	36	3	3	2.3	11.0	96
048F-AT-D1Q(ZN-AY)2Y-6D230-4x12-...BK-Fca-4.5kN	48	4	2	2.3	11.0	97
060F-AT-D1Q(ZN-AY)2Y-6D230-5x12-...BK-Fca-4.5kN	60	5	1	2.3	11.0	98
072F-AT-D1Q(ZN-AY)2Y-6D230-6x12-...BK-Fca-4.5kN	72	6	0	2.3	11.0	99
012F-AT-D1Q(ZN-AY)2Y-ATR-6D230-1x12-...BK-Fca-4.5kN	12	1	5	2.3	11.0	100
024F-AT-D1Q(ZN-AY)2Y-ATR-6D230-2x12-...BK-Fca-4.5kN	24	2	4	2.3	11.0	101
036F-AT-D1Q(ZN-AY)2Y-ATR-6D230-3x12-...BK-Fca-4.5kN	36	3	3	2.3	11.0	102
048F-AT-D1Q(ZN-AY)2Y-ATR-6D230-4x12-...BK-Fca-4.5kN	48	4	2	2.3	11.0	103
060F-AT-D1Q(ZN-AY)2Y-ATR-6D230-5x12-...BK-Fca-4.5kN	60	5	1	2.3	11.0	104
072F-AT-D1Q(ZN-AY)2Y-ATR-6D230-6x12-...BK-Fca-4.5kN	72	6	0	2.3	11.0	105

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-AY)2Y-ATR-6D230-6x12-2D-BK-Fca-4.5kN

* ATR stands for Anti-Track Resistance

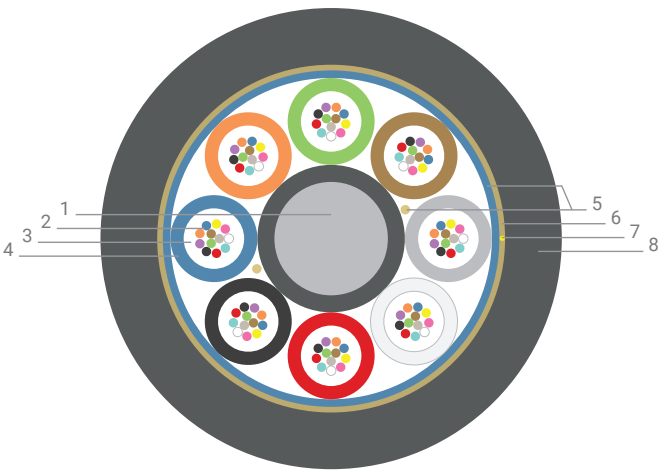
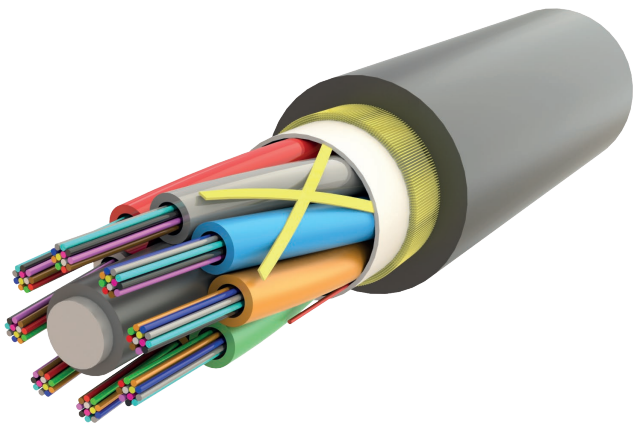
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	1000 mm

MLT, ADSS, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

Design Type **AT-D1Q(ZN-AY)2Y-8D230**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Single-jacket design with multiple span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Aramid Yarn
8	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4500 N (MAT)
	In Service		3000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N/10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	8x12	100 m	55 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-AY)2Y-8D230-8x12-...-BK-Fca-4.5kN	96	8	0	2.3	12.3	131
096F-AT-D1Q(ZN-AY)2Y-ATR-8D230-8x12-...-BK-Fca-4.5kN	96	8	0	2.3	12.3	138

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Sample Code: 096F-AT-D1Q(ZN-AY)2Y-ATR-8D230-8x12-2D-BK-Fca-4.5kN
- * ATR stands for Anti-Track Resistance

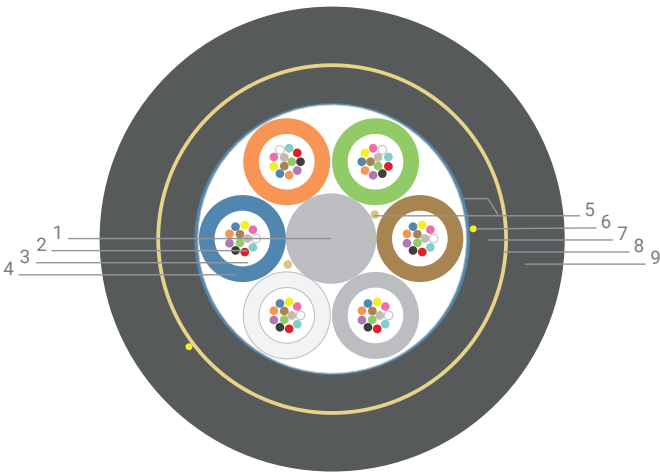
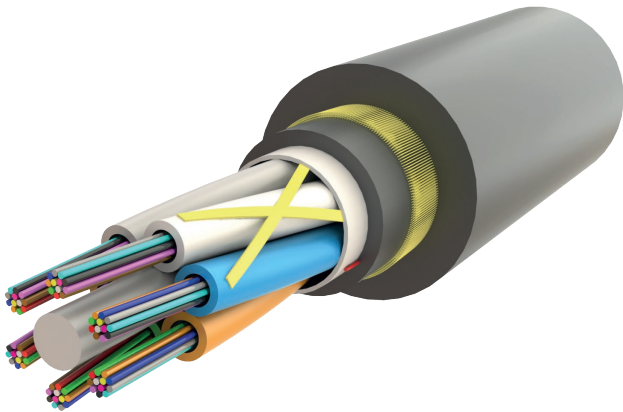
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1300 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, ADSS, Gel-Filled, Dry Core, Non-Armoured, DJ, PE

Design Type AT-D1Q2Y(ZN-AY)2Y-6D250

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

- All-dielectric self-supporting (ADSS) cable
- Designed for easy and economical one-step installation
- Stable performance over a wide temperature range
- Double-jacket design with multiple long span distance options
- Dry Water-blocking materials
- One-step installation using standard hardware
- Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Inner Jacket	PE
8	Strength Member	Aramid Yarn
9	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with $\geq 25\text{kV}$ potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	7000 N (MAT)
	In Service		5000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, $\pm 180^\circ$, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	250 m	180 m	100 m
1x12	250 m	180 m	100 m
2x12	250 m	180 m	100 m
3x12	250 m	180 m	100 m
4x12	250 m	180 m	100 m
5x12	250 m	180 m	100 m
6x12	250 m	180 m	100 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
012F-AT-D1Q2Y(ZN-AY)2Y-6D250-1x12-.-BK-Fca-7.0kN	12	1	5	2.5	13.0	133
024F-AT-D1Q2Y(ZN-AY)2Y-6D250-2x12-.-BK-Fca-7.0kN	24	2	4	2.5	13.0	133
036F-AT-D1Q2Y(ZN-AY)2Y-6D250-3x12-.-BK-Fca-7.0kN	36	3	3	2.5	13.0	132
048F-AT-D1Q2Y(ZN-AY)2Y-6D250-4x12-.-BK-Fca-7.0kN	48	4	2	2.5	13.0	131
060F-AT-D1Q2Y(ZN-AY)2Y-6D250-5x12-.-BK-Fca-7.0kN	60	5	1	2.5	13.0	130
072F-AT-D1Q2Y(ZN-AY)2Y-6D250-6x12-.-BK-Fca-7.0kN	72	6	0	2.5	13.0	129
012F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-1x12-.-BK-Fca-7.0kN	12	1	5	2.5	13.0	141
024F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-2x12-.-BK-Fca-7.0kN	24	2	4	2.5	13.0	140
036F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-3x12-.-BK-Fca-7.0kN	36	3	3	2.5	13.0	139
048F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-4x12-.-BK-Fca-7.0kN	48	4	2	2.5	13.0	138
060F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-5x12-.-BK-Fca-7.0kN	60	5	1	2.5	13.0	137
072F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-6x12-.-BK-Fca-7.0kN	72	6	0	2.5	13.0	136

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-6x12-2D-BK-Fca-7.0kN

* ATR stands for Anti-Track Resistance

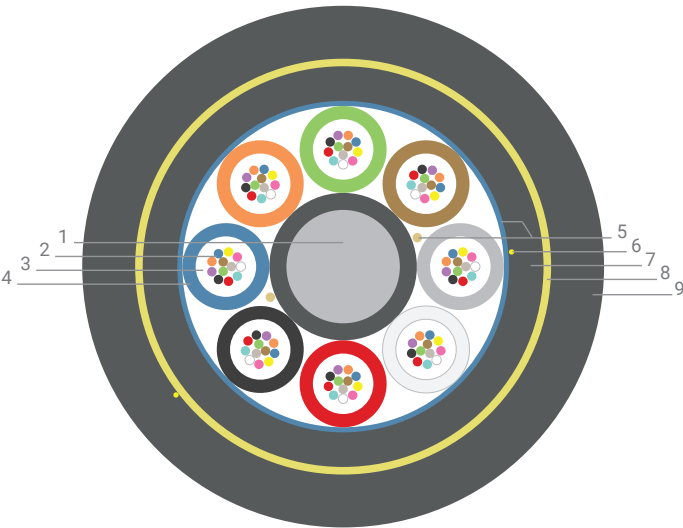
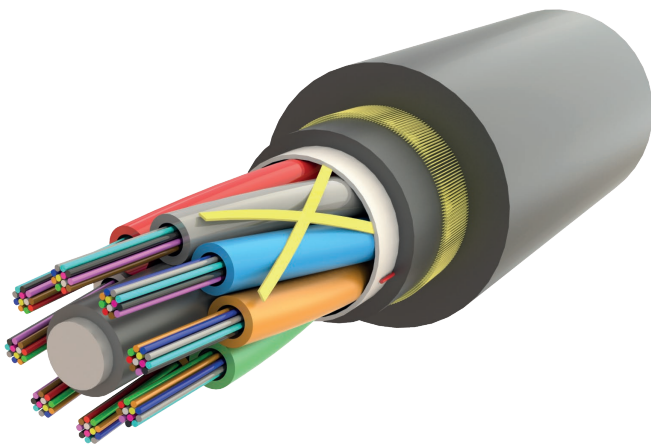
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1400 mm
Drum core diameter	500 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, ADSS, Gel-Filled, Dry Core, Non-Armoured, DJ, PE

Design Type AT-D1Q2Y(ZN-AY)2Y-8D250

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Double-jacket design with multiple long span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Inner Jacket	PE
8	Strength Member	Aramid Yarn
9	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	6500 N (MAT)
	In Service		4500 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count 8x12	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	250 m	180 m	100 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q2Y(ZN-AY)2Y-8D250-8x12-...-BK-Fca-6.5kN	96	8	0	2.5	14.5	165
096F-AT-D1Q2Y(ZN-AY)2Y-ATR-8D250-8x12-...-BK-Fca-6.5kN	96	8	0	2.5	14.5	173

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q2Y(ZN-AY)2Y-ATR-6D250-6x12-2D-BK-Fca-7.0kN

* ATR stands for Anti-Track Resistance

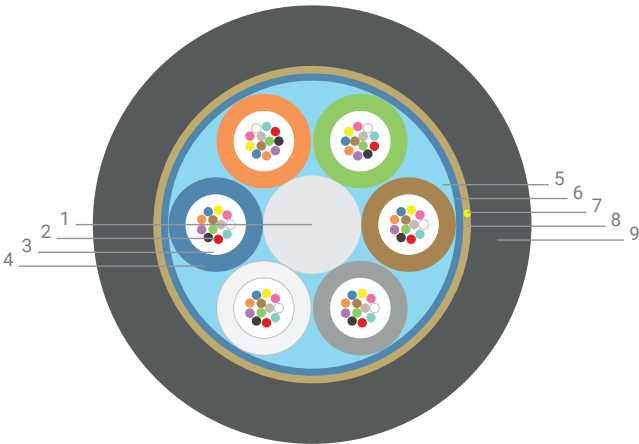
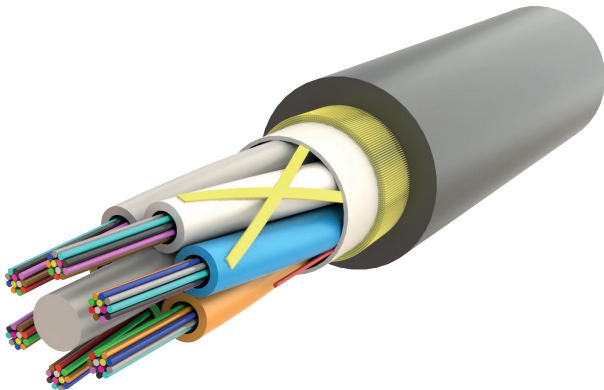
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, ADSS, Gel-Filled, Filled-Core, Non-Armoured, SJ, PE

Design Type AT-D1F(ZN-AY)2Y-6D230

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Single-jacket design with multiple span distance options
Petroleum gel filled core design
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Petroleum Gel
6	Core Wrapping	Polyester Tape
7	Ripcord	Polyester
8	Strength Member	Aramid Yarn
9	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4500 N (MAT)
	In Service		3000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N/10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	150 m	100 m	55 m
1x12	150 m	100 m	55 m
2x12	150 m	100 m	55 m
3x12	150 m	100 m	55 m
4x12	150 m	100 m	55 m
5x12	150 m	100 m	55 m
6x12	150 m	100 m	55 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
012F-AT-D1F(ZN-AY)2Y-6D230-1x12-...-BK-Fca-4.5kN	12	1	5	2.3	11.0	94
024F-AT-D1F(ZN-AY)2Y-6D230-2x12-...-BK-Fca-4.5kN	24	2	4	2.3	11.0	95
036F-AT-D1F(ZN-AY)2Y-6D230-3x12-...-BK-Fca-4.5kN	36	3	3	2.3	11.0	96
048F-AT-D1F(ZN-AY)2Y-6D230-4x12-...-BK-Fca-4.5kN	48	4	2	2.3	11.0	97
060F-AT-D1F(ZN-AY)2Y-6D230-5x12-...-BK-Fca-4.5kN	60	5	1	2.3	11.0	98
072F-AT-D1F(ZN-AY)2Y-6D230-6x12-...-BK-Fca-4.5kN	72	6	0	2.3	11.0	99
012F-AT-D1F(ZN-AY)2Y-ATR-6D230-1x12-...-BK-Fca-4.5kN	12	1	5	2.3	11.0	100
024F-AT-D1F(ZN-AY)2Y-ATR-6D230-2x12-...-BK-Fca-4.5kN	24	2	4	2.3	11.0	101
036F-AT-D1F(ZN-AY)2Y-ATR-6D230-3x12-...-BK-Fca-4.5kN	36	3	3	2.3	11.0	102
048F-AT-D1F(ZN-AY)2Y-ATR-6D230-4x12-...-BK-Fca-4.5kN	48	4	2	2.3	11.0	103
060F-AT-D1F(ZN-AY)2Y-ATR-6D230-5x12-...-BK-Fca-4.5kN	60	5	1	2.3	11.0	104
072F-AT-D1F(ZN-AY)2Y-ATR-6D230-6x12-...-BK-Fca-4.5kN	72	6	0	2.3	11.0	105

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1F(ZN-AY)2Y-ATR-6D230-6x12-2D-BK-Fca-4.5kN

* ATR stands for Anti-Track Resistance

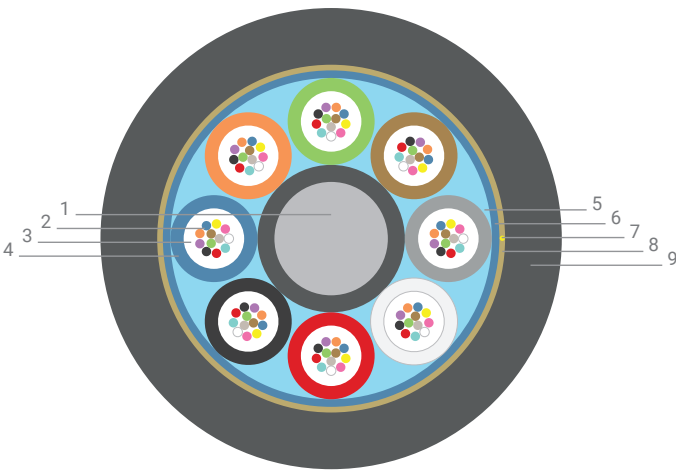
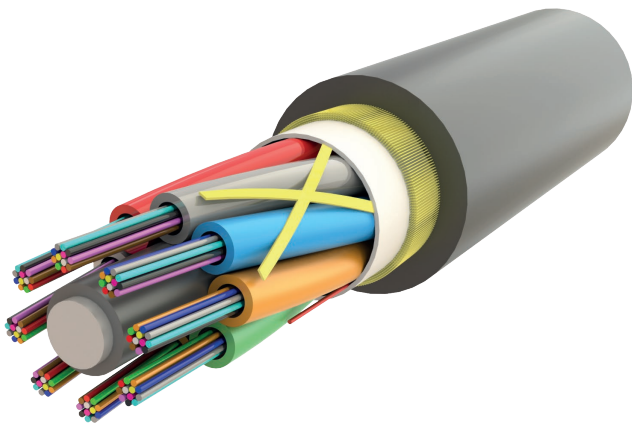
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1100 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	1000 mm

MLT, ADSS, Gel-Filled, Filled-Core, Non-Armoured, SJ, PE

Design Type **AT-D1F(ZN-AY)2Y-8D230**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Single-jacket design with multiple span distance options
Petroleum gel filled core design
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Petroleum Gel
6	Core Wrapping	Polyester Tape
7	Ripcord	Polyester
8	Strength Member	Aramid Yarn
9	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4500 N (MAT)
	In Service		3000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N/10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
8x12	150 m	100 m	55 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1F(ZN-AY)2Y-8D230-8x12-...-BK-Fca-4.5kN	96	8	0	2.3	12.3	131
096F-AT-D1F(ZN-AY)2Y-ATR-8D230-8x12-...-BK-Fca-4.5kN	96	8	0	2.3	12.3	138

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1F(ZN-AY)2Y-ATR-8D230-8x12-2D-BK-Fca-4.5kN

* ATR stands for Anti-Track Resistance

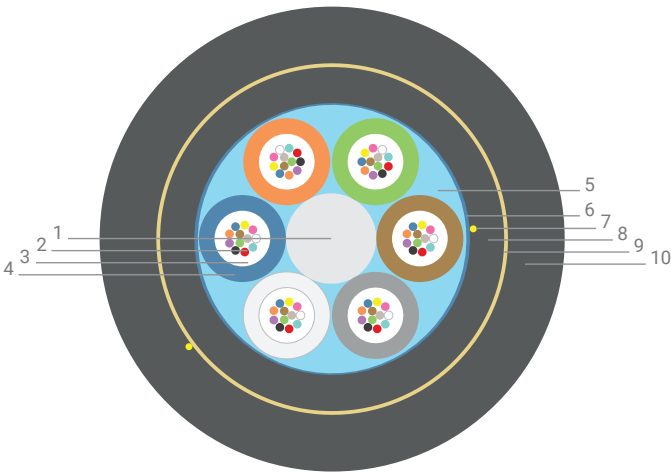
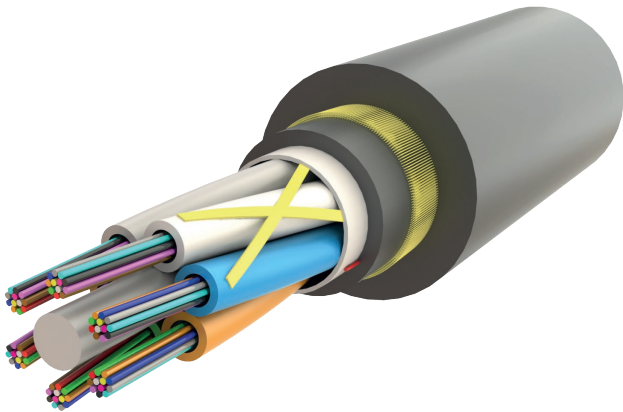
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1300 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	1000 mm

MLT, ADSS, Gel-Filled, Filled-Core, Non-Armoured, DJ, PE

Design Type AT-D1F2Y(ZN-AY)2Y-6D250

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Double-jacket design with multiple long span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Petroleum Gel
6	Core Wrapping	Polyester Tape
7	Ripcord	Polyester
8	Inner Jacket	PE
9	Strength Member	Aramid Yarn
10	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	7500 N (MAT)
	In Service		5000 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	250 m	180 m	100 m
1x12	250 m	180 m	100 m
2x12	250 m	180 m	100 m
3x12	250 m	180 m	100 m
4x12	250 m	180 m	100 m
5x12	250 m	180 m	100 m
6x12	250 m	180 m	100 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
012F-AT-D1F2Y(ZN-AY)2Y-6D250-1x12-.-BK-Fca-7.5kN	12	1	5	2.5	13.0	124
024F-AT-D1F2Y(ZN-AY)2Y-6D250-2x12-.-BK-Fca-7.5kN	24	2	4	2.5	13.0	125
036F-AT-D1F2Y(ZN-AY)2Y-6D250-3x12-.-BK-Fca-7.5kN	36	3	3	2.5	13.0	126
048F-AT-D1F2Y(ZN-AY)2Y-6D250-4x12-.-BK-Fca-7.5kN	48	4	2	2.5	13.0	127
060F-AT-D1F2Y(ZN-AY)2Y-6D250-5x12-.-BK-Fca-7.5kN	60	5	1	2.5	13.0	128
072F-AT-D1F2Y(ZN-AY)2Y-6D250-6x12-.-BK-Fca-7.5kN	72	6	0	2.5	13.0	129
012F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-1x12-.-BK-Fca-7.5kN	12	1	5	2.5	13.0	132
024F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-2x12-.-BK-Fca-7.5kN	24	2	4	2.5	13.0	133
036F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-3x12-.-BK-Fca-7.5kN	36	3	3	2.5	13.0	134
048F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-4x12-.-BK-Fca-7.5kN	48	4	2	2.5	13.0	135
060F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-5x12-.-BK-Fca-7.5kN	60	5	1	2.5	13.0	136
072F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-6x12-.-BK-Fca-7.5kN	72	6	0	2.5	13.0	137

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-6x12-2D-BK-Fca-7.5kN

* ATR stands for Anti-Track Resistance

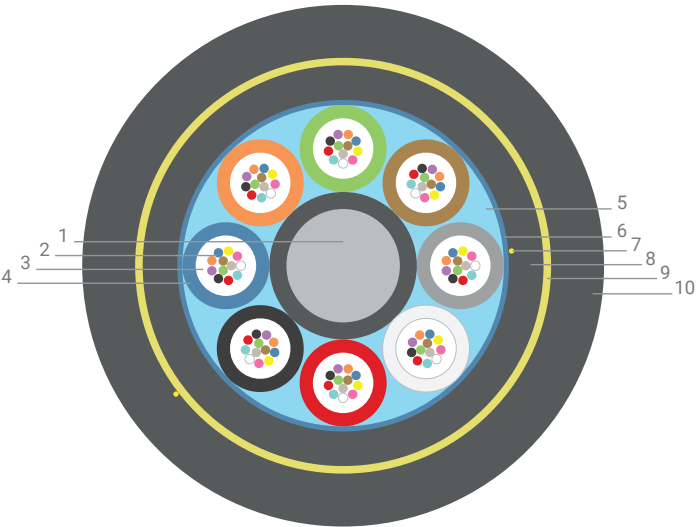
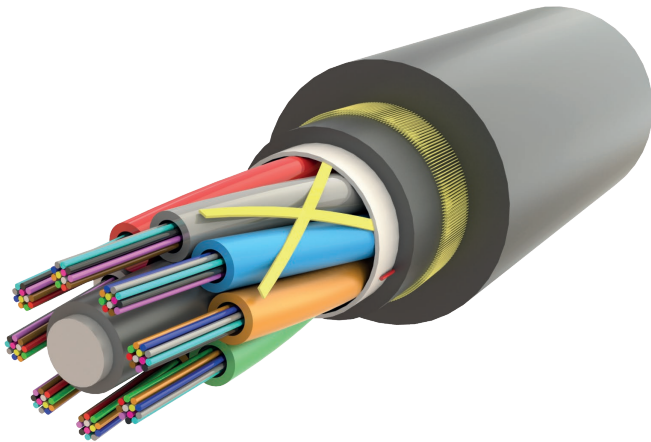
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1400 mm
Drum core diameter	500 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, ADSS, Gel-Filled, Filled-Core, Non-Armoured, DJ, PE

Design Type AT-D1F2Y(ZN-AY)2Y-8D250

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

All-dielectric self-supporting (ADSS) cable
Designed for easy and economical one-step installation
Stable performance over a wide temperature range
Double-jacket design with multiple long span distance options
Dry Water-blocking materials
One-step installation using standard hardware
Span distances are stated in the table below

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Petroleum Gel
6	Core Wrapping	Polyester Tape
7	Ripcord	Polyester
8	Inner Jacket	PE
9	Strength Member	Aramid Yarn
10	Outer Jacket	UV Resistant HDPE*

*Track resistance option is available for use with ≥ 25kV potential

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	6500 N (MAT)
	In Service		4500 N (MOT)
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant

Span Properties

Tube Count x Fiber Count 8x12	NESC Light	NESC Medium	NESC Heavy
	Wind Speed: 25 m/s	Wind Speed: 17 m/s	Wind Speed: 17 m/s
	Ice Load: 0 mm	Ice Load: 6.5 mm	Ice Load: 12.5 mm
	Extra Load: 0.07 kg/m	Extra Load: 0.25 kg/m	Extra Load: 0.44 kg/m
	Installed Sag: 1.5%	Installed Sag: 1.5%	Installed Sag: 1.5%
	Span Distance	Span Distance	Span Distance
	250 m	180 m	100 m

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1F2Y(ZN-AY)2Y-8D250-8x12-...-BK-Fca-6.5kN	96	8	0	2.5	14.5	164
096F-AT-D1F2Y(ZN-AY)2Y-ATR-8D250-8x12-...-BK-Fca-6.5kN	96	8	0	2.5	14.5	172

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Sample Code: 072F-AT-D1F2Y(ZN-AY)2Y-ATR-6D250-6x12-2D-BK-Fca-7.0kN
- * ATR stands for Anti-Track Resistance

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

CLT, Fig-8, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

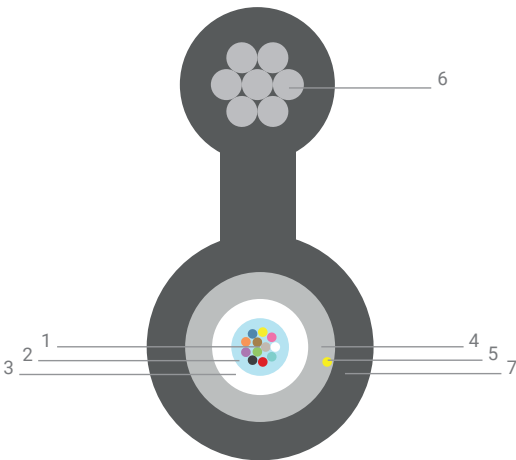
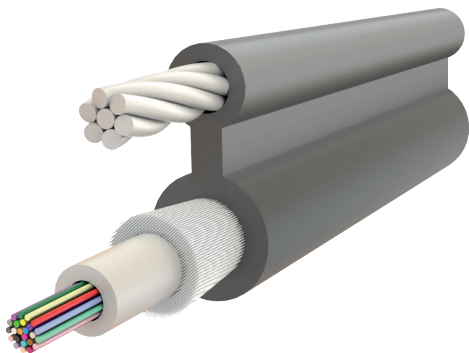
Design Type A-D1Q(ZN-GY)2YT-1D300

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1

Anti-Rodent
Protection



Water
Resistant



Properties

Aerial cable with steel messenger
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 24 Fiber

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tube Filling Material	Thixotropic Gel
3	Loose Tube	PBT
4	Water Blocking	Glass Yarn
5	Ripcord	Polyester
6	Messenger	Steel
7	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		1100 N
Crush Resistance	-	IEC 60794-1-21-E3	1500 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-GY)2YT-1D300-1x4-...-BK-Eca-1.8kN	4	1	3.0	6.0 / 12.6	68
008F-A-D1Q(ZN-GY)2YT-1D300-1x8-...-BK-Eca-1.8kN	8	1	3.0	6.0 / 12.6	68
012F-A-D1Q(ZN-GY)2YT-1D300-1x12-...-BK-Eca-1.8kN	12	1	3.0	6.0 / 12.6	68
024F-A-D1Q(ZN-GY)2YT-1D300-1x24-...-BK-Eca-1.8kN	24	1	3.0	6.0 / 12.6	68

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 012F-A-D1Q(ZN-GY)2YT-1D300-1x12-2D-BK-Eca-1.8kN

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1100 mm
Drum core diameter	700 mm	600 mm
Outside width	650 mm	1000 mm

CLT, Fig-8, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

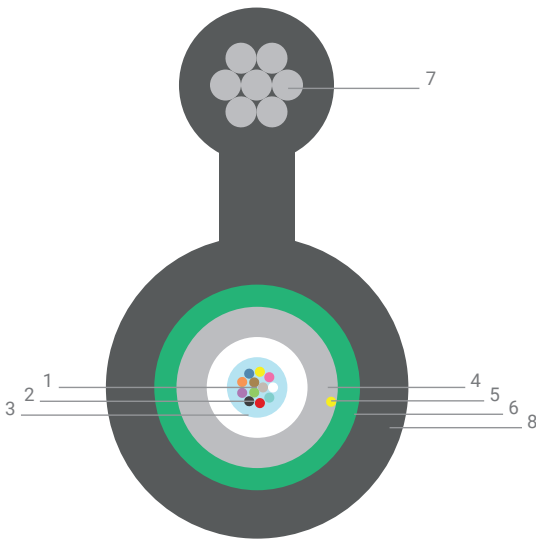
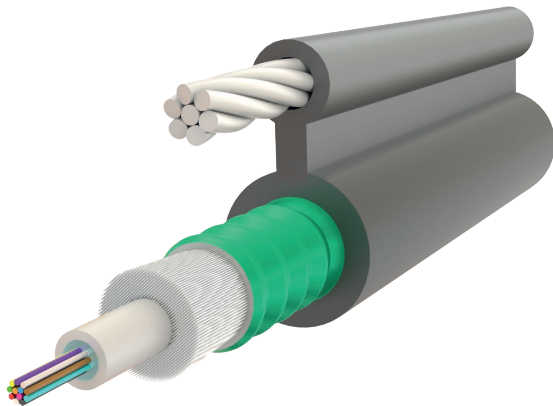
Design Type A-D1Q(ZN-GY)(SR)2YT-1D300

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1

Anti-Rodent
Protection



Water
Resistant



Properties

Aerial cable with steel messenger
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 24 Fiber

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tube Filling Material	Thixotropic Gel
3	Loose Tube	PBT
4	Water Blocking	Glass Yarn
5	Ripcord	Aramid
6	Armoured Material	Corrugated Steel
7	Messenger	Steel
8	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N
	In Service		1000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-A-D1Q(ZN-GY)(SR)2YT-1D300-1x4-...-BK-Fca-2.0kN	4	1	3.0	7.8 / 14.4	103
008F-A-D1Q(ZN-GY)(SR)2YT-1D300-1x8-...-BK-Fca-2.0kN	8	1	3.0	7.8 / 14.4	103
012F-A-D1Q(ZN-GY)(SR)2YT-1D300-1x12-...-BK-Fca-2.0kN	12	1	3.0	7.8 / 14.4	103
024F-A-D1Q(ZN-GY)(SR)2YT-1D300-1x24-...-BK-Fca-2.0kN	24	1	3.0	7.8 / 14.4	103

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 012F-A-D1Q(ZN-GY)(SR)2YT-1D300-1x12-2D-BK-Fca-2.0kN

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1100 mm
Drum core diameter	700 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Fig-8, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

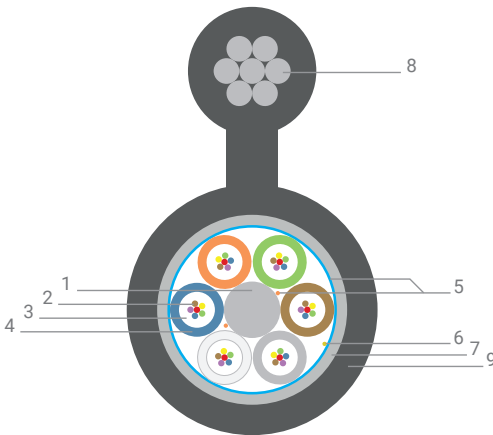
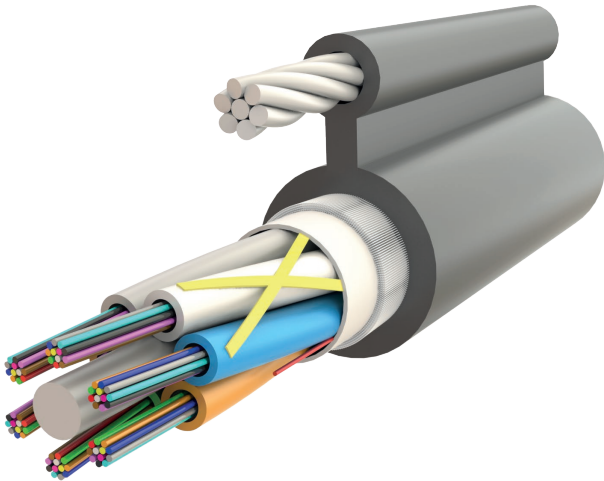
Design Type AT-D1Q(ZN-GY)2YT-6D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1

Anti-Rodent
Protection



Water
Resistant



Properties

Aerial cable with steel messenger
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fiber

Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Messenger	Steel
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)2YT-6D200-1x8-...-BK-Fca-4.0kN	8	1	5	2.0	9.8 / 17.6	136
008F-AT-D1Q(ZN-GY)2YT-6D200-2x4-...-BK-Fca-4.0kN	8	2	4	2.0	9.8 / 17.6	137
008F-AT-D1Q(ZN-GY)2YT-6D200-4x2-...-BK-Fca-4.0kN	8	4	2	2.0	9.8 / 17.6	137
012F-AT-D1Q(ZN-GY)2YT-6D200-1x12-...-BK-Fca-4.0kN	12	1	5	2.0	9.8 / 17.6	136
012F-AT-D1Q(ZN-GY)2YT-6D200-6x2-...-BK-Fca-4.0kN	12	6	0	2.0	9.8 / 17.6	140
016F-AT-D1Q(ZN-GY)2YT-6D200-2x8-...-BK-Fca-4.0kN	16	2	4	2.0	9.8 / 17.6	137
016F-AT-D1Q(ZN-GY)2YT-6D200-4x4-...-BK-Fca-4.0kN	16	4	2	2.0	9.8 / 17.6	138
024F-AT-D1Q(ZN-GY)2YT-6D200-2x12-...-BK-Fca-4.0kN	24	2	4	2.0	9.8 / 17.6	137
024F-AT-D1Q(ZN-GY)2YT-6D200-6x4-...-BK-Fca-4.0kN	24	6	0	2.0	9.8 / 17.6	140
048F-AT-D1Q(ZN-GY)2YT-6D200-4x12-...-BK-Fca-4.0kN	48	4	2	2.0	9.8 / 17.6	139
048F-AT-D1Q(ZN-GY)2YT-6D200-6x8-...-BK-Fca-4.0kN	48	6	0	2.0	9.8 / 17.6	140
072F-AT-D1Q(ZN-GY)2YT-6D200-6x12-...-BK-Fca-4.0kN	72	6	0	2.0	9.8 / 17.6	140

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 072F-AT-D1Q(ZN-GY)2YT-6D200-6x12-2D-BK-Fca-4.0kN

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1400 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Fig-8, Gel-Filled, Dry Core, Non-Armoured, SJ, PE

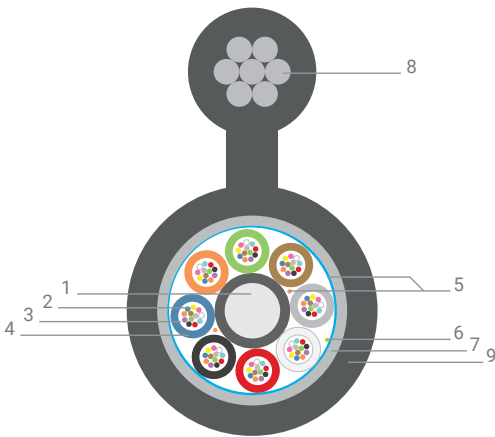
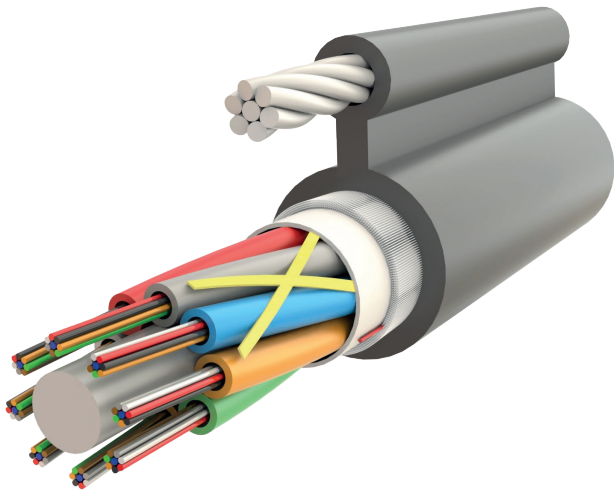
Design Type AT-D1Q(ZN-GY)2YT-8D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1

Anti-Rodent
Protection



Water
Resistant



Properties

Aerial cable with steel messenger
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Polyester
7	Strength Member	Swellable Glass Yarn
8	Messenger	Steel
9	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)2YT-8D200-8x12-...-BK-Eca-4.0kN	96	8	0	2.0	11.2 / 18.7	165

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)2YT-8D200-8x12-2D-BK-Fca-4.0kN

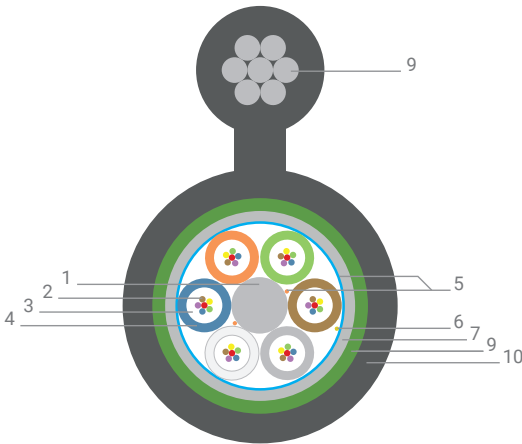
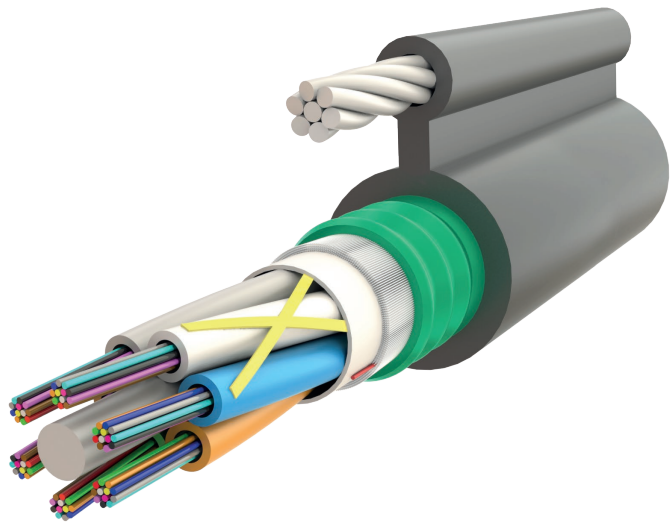
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Fig-8, Gel-Filled, Dry Core, Steel Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2YT-6D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Aerial cable with steel messenger
Corrugated Steel Armoured
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 72 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Aramid
7	Strength Member	Swellable Glass Yarn
8	Armoured Material	Corrugated Steel
9	Messenger	Steel
10	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-AT-D1Q(ZN-GY)(SR)2YT-6D200-1x8-...-BK-Fca-4.0kN	8	1	5	2.0	11.2 / 19.0	184
008F-AT-D1Q(ZN-GY)(SR)2YT-6D200-2x4-...-BK-Fca-4.0kN	8	2	4	2.0	11.2 / 19.0	185
008F-AT-D1Q(ZN-GY)(SR)2YT-6D200-4x2-...-BK-Fca-4.0kN	8	4	2	2.0	11.2 / 19.0	186
012F-AT-D1Q(ZN-GY)(SR)2YT-6D200-1x12-...-BK-Fca-4.0kN	12	1	5	2.0	11.2 / 19.0	184
012F-AT-D1Q(ZN-GY)(SR)2YT-6D200-6x2-...-BK-Fca-4.0kN	12	6	0	2.0	11.2 / 19.0	188
016F-AT-D1Q(ZN-GY)(SR)2YT-6D200-2x8-...-BK-Fca-4.0kN	16	2	4	2.0	11.2 / 19.0	185
016F-AT-D1Q(ZN-GY)(SR)2YT-6D200-4x4-...-BK-Fca-4.0kN	16	4	2	2.0	11.2 / 19.0	186
024F-AT-D1Q(ZN-GY)(SR)2YT-6D200-2x12-...-BK-Fca-4.0kN	24	2	4	2.0	11.2 / 19.0	185
024F-AT-D1Q(ZN-GY)(SR)2YT-6D200-6x4-...-BK-Fca-4.0kN	24	6	0	2.0	11.2 / 19.0	188
048F-AT-D1Q(ZN-GY)(SR)2YT-6D200-4x12-...-BK-Fca-4.0kN	48	4	2	2.0	11.2 / 19.0	187
048F-AT-D1Q(ZN-GY)(SR)2YT-6D200-6x8-...-BK-Fca-4.0kN	48	6	0	2.0	11.2 / 19.0	188
072F-AT-D1Q(ZN-GY)(SR)2YT-6D200-6x12-...-BK-Fca-4.0kN	72	6	0	2.0	11.2 / 19.0	189

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
* Sample Code: 072F-AT-D1Q(ZN-GY)(SR)2YT-6D200-6x12-2D-BK-Fca-4.0kN

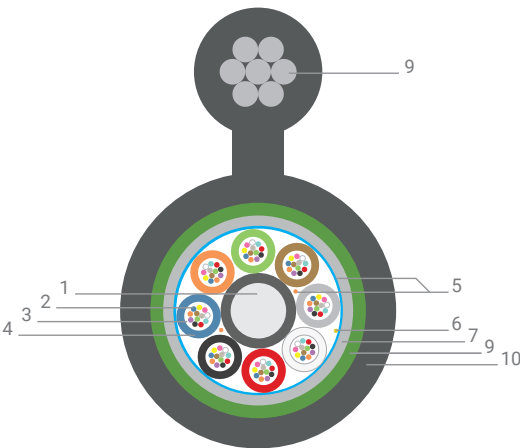
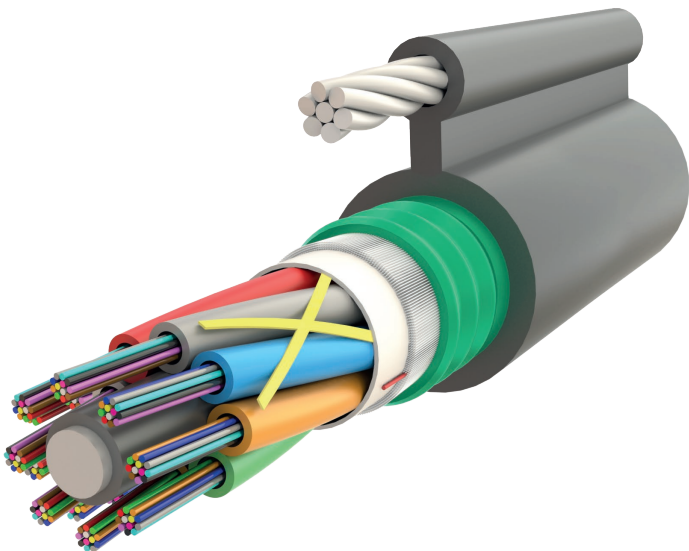
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1500 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

MLT, Fig-8, Gel-Filled, Dry Core, Metallic Armoured, SJ, PE

Design Type AT-D1Q(ZN-GY)(SR)2YT-8D200

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Aerial cable with steel messenger
Corrugated Steel Armoured
Glass yarn strength member
Gel-Filled loose tube
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 96 Fiber

Cable Construction

1	Central Strength Member	FRP / PE Coating
2	Fiber	Single-mode or Multi-mode
3	Tube Filling Material	Thixotropic Gel
4	Loose Tube	PBT
5	Water Blocking	Tape & Yarn
6	Ripcord	Aramid
7	Strength Member	Swellable Glass Yarn
8	Armoured Material	Corrugated Steel
9	Messenger	Steel
10	Outer Jacket	UV Resistant PE

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	-	IEC 60794-1-21-E3	2200 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
096F-AT-D1Q(ZN-GY)(SR)2YT-8D200-8x12-..-BK-Eca-4.0kN	96	8	0	2.0	12.5 / 20.0	215

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-AT-D1Q(ZN-GY)2YT-8D200-8x12-2D-BK-Fca-4.0kN

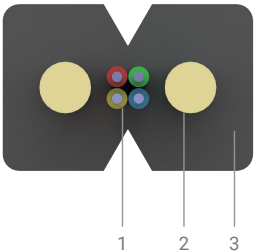
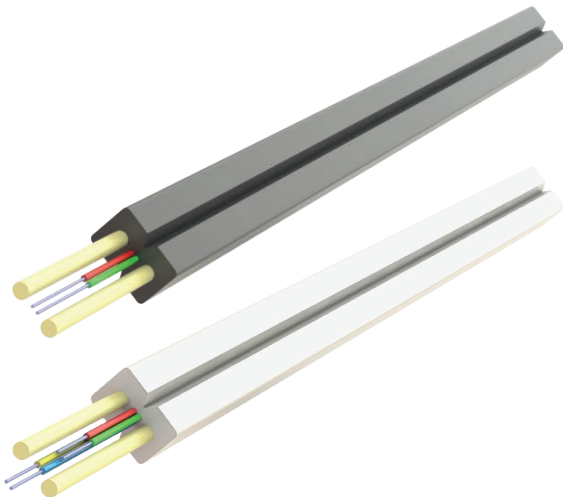
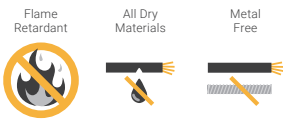
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1600 mm
Drum core diameter	600 mm	600 mm
Outside width	1000 mm	1000 mm

Flat Drop Cable | FRP Strength Member

Design Type U-(ZN-2P)H

Standards: IEC 60794-1 / IEC 60794-4 / IEC 60793-1



Properties

- Metal free indoor and outdoor cable
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Strength Member	FRP ø 0.5 mm
3	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White or Black	(length marking 1 m intervals)
Sub-Unit Identification	Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	100 N
	In Service		40 N
Crush Resistance	-	IEC 60794-1-21-E3	4000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

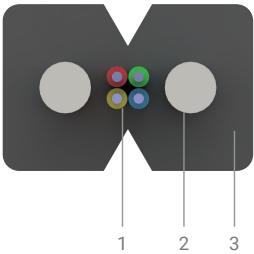
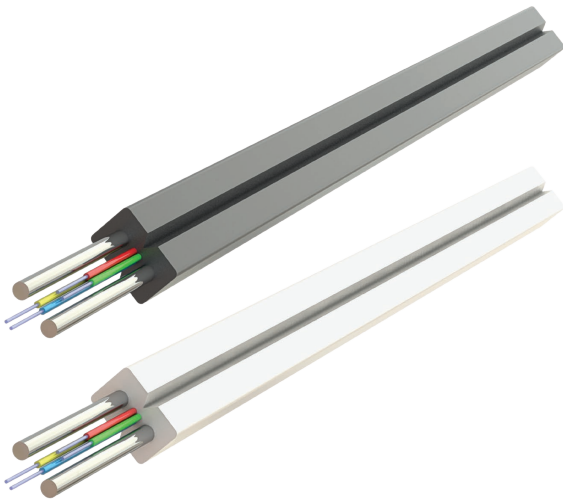
Order Code	Fiber Count	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
001F-U-(ZN-2P)H-1x1-...-Eca	1	2.0x3.0	8
002F-U-(ZN-2P)H-1x2-...-Eca	2	2.0x3.0	8
004F-U-(ZN-2P)H-1x4-...-Eca	4	2.0x3.0	8

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Available colors are White, Black
- * Sample Code: 002F-U-(ZN-2P)H-1x2-A2-BK-Eca

Flat Drop Cable | Steel Strength Member

Design Type U-(ZN-2S)H

Standards: IEC 60794-1 / IEC 60794-4 / IEC 60793-1



Properties

Indoor and outdoor cable
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Strength Member	Steel ø 0.5 mm
3	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White or Black	(length marking 1 m intervals)
Sub-Unit Identification	Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	200 N
	In Service		100 N
Crush Resistance	-	IEC 60794-1-21-E3	4000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

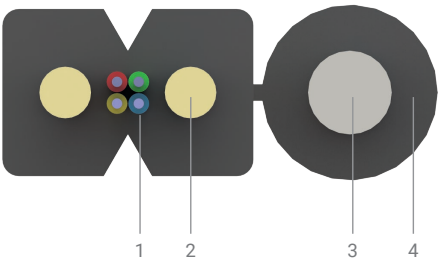
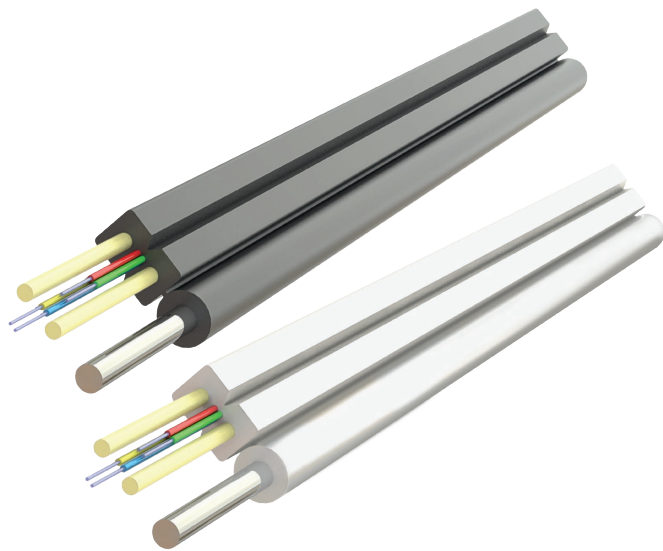
Order Code	Fiber Count	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
001F-U-(ZN-2S)H-1x1-...-Eca	1	2.0x3.0	10
002F-U-(ZN-2S)H-1x2-...-Eca	2	2.0x3.0	10
004F-U-(ZN-2S)H-1x4-...-Eca	4	2.0x3.0	10

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Available colors are White, Black
- * Sample Code: 002F-U-(ZN-2S)H-1x2-A2-BK-Eca

Flat Drop Cable | FRP Strength Member with Messenger

Design Type U-(ZN-2P)HT

Standards: IEC 60794-1 / IEC 60794-4 / IEC 60793-1



Properties

Indoor and outdoor cable with steel messenger
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Strength Member	FRP ø 0.5 mm
3	Messenger	Steel ø 1.0 mm
4	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White or Black	(length marking 1 m intervals)
Sub-Unit Identification	Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	600 N
	In Service		300 N
Crush Resistance	-	IEC 60794-1-21-E3	4000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

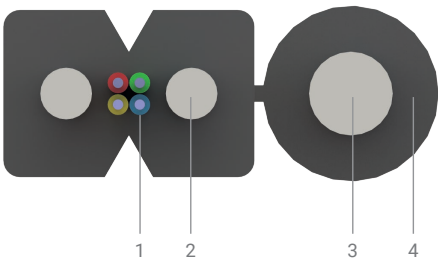
Order Code	Fiber Count	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
001F-U-(ZN-2P)HT-1x1-...-Eca	1	2.0x5.2	18
002F-U-(ZN-2P)HT-1x2-...-Eca	2	2.0x5.2	18
004F-U-(ZN-2P)HT-1x4-...-Eca	4	2.0x5.2	18

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Available colors are White, Black
- * Sample Code: 002F-U-(ZN-2P)HT-1x2-A2-BK-Eca

Flat Drop Cable | Steel Strength Member with Messenger

Design Type U-(ZN-2S)HT

Standards: IEC 60794-1 / IEC 60794-4 / IEC 60793-1



Properties

Indoor and outdoor cable with steel messenger
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	SM/MM (250 μ)
2	Strength Member	Steel ø 0.5 mm
3	Messenger	Steel ø 1.0 mm
4	Outer Jacket	UV Resistant LSZH

Identification

Print Color	White or Black	(length marking 1 m intervals)
Sub-Unit Identification	Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		400 N
Crush Resistance	-	IEC 60794-1-21-E3	4000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-5 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
001F-U-(ZN-2S)HT-1x1-...-Eca	1	2.0x5.2	20
002F-U-(ZN-2S)HT-1x2-...-Eca	2	2.0x5.2	20
004F-U-(ZN-2S)HT-1x4-...-Eca	4	2.0x5.2	20

- * Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4
- * Available colors are White, Black
- * Sample Code: 002F-U-(ZN-2S)HT-1x2-A2-BK-Eca



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SAMM Teknoloji İletişim San. ve Tic. A.Ş.



TURKIYE

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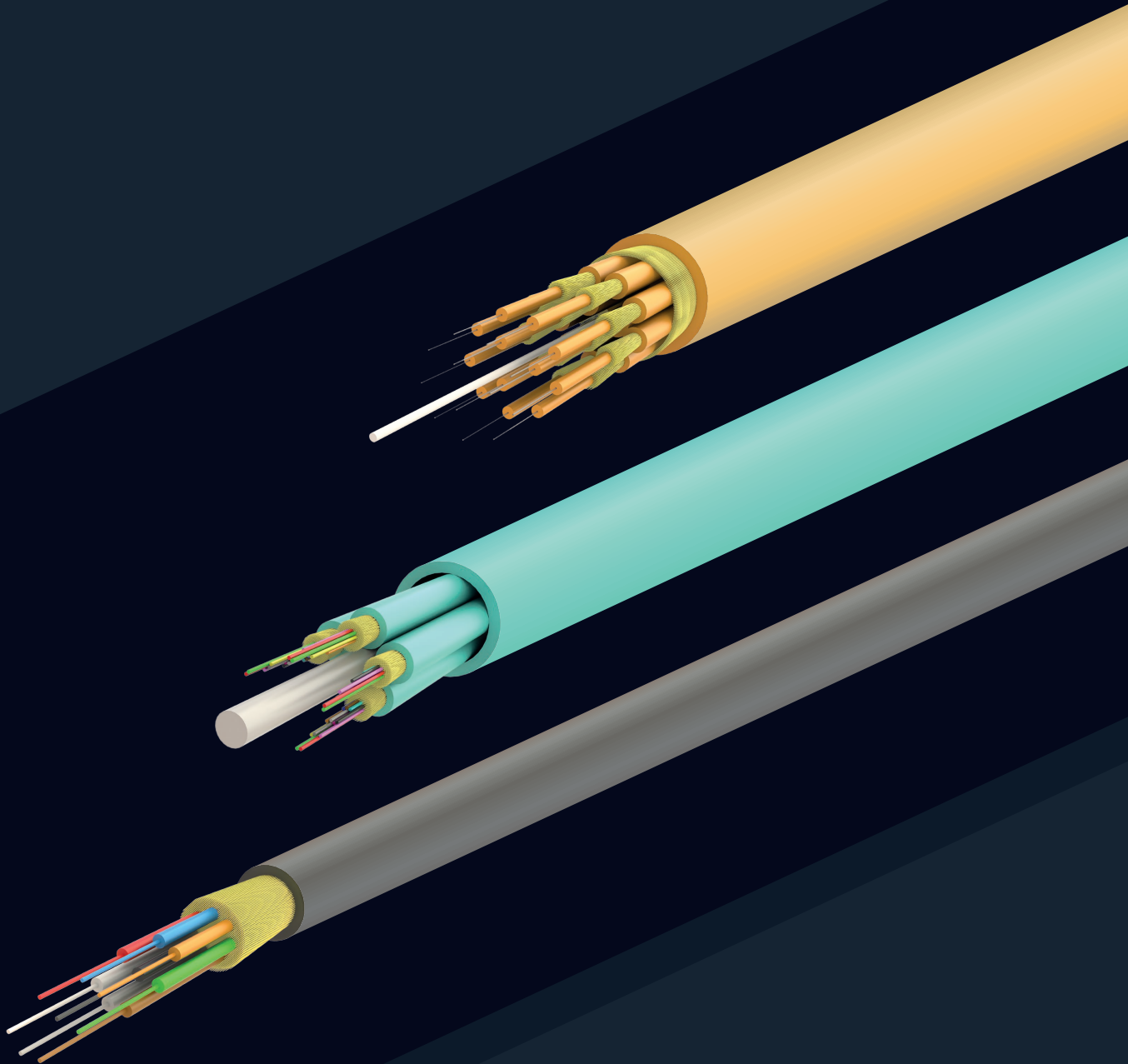


Our Website





FIBER OPTIC CABLES



SPECIAL



Founded in 2003, SAMM Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMM Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

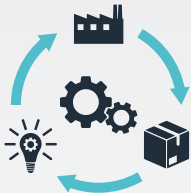
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMM also has a ministry-approved research and development center since 2017.



20+ Years' Experience

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



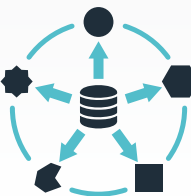
World Class Production

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



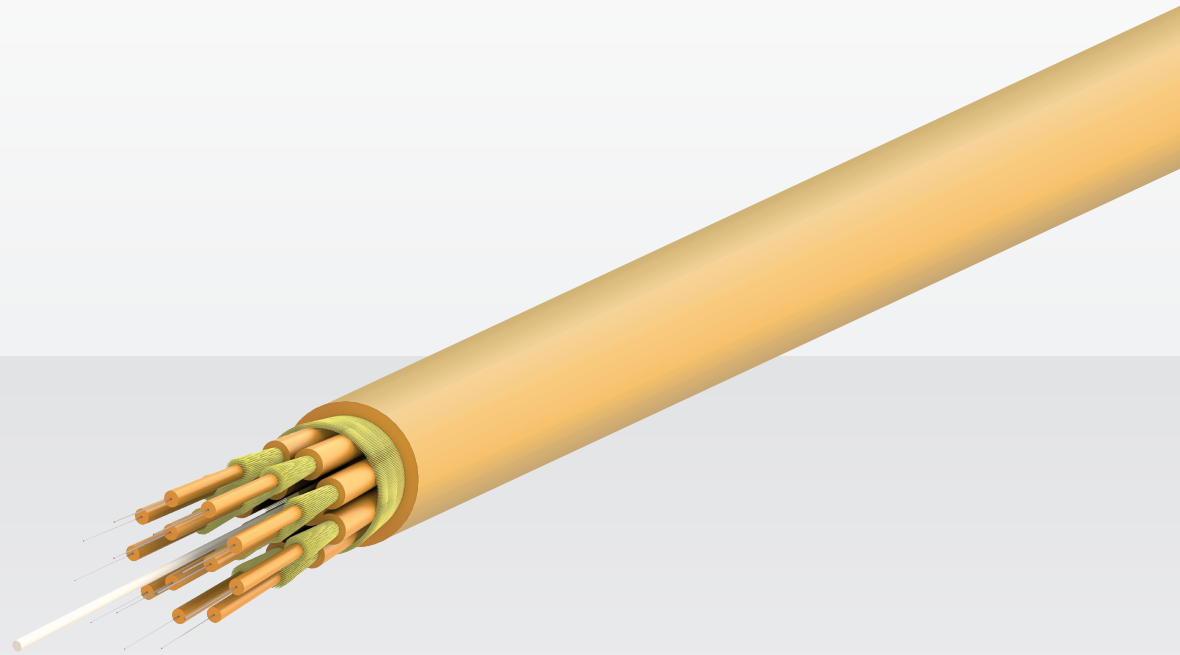
Connecting Continents

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



Innovative Solutions

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



SPECIAL FIBER OPTIC CABLES

Single-mode Fiber Specifications

Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength λ_{cc}	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength λ_0	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at λ_0	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7	125 ± 0.7		
Coating diameter (uncoloured)	μm	235-250	235-245		
Concentricity error core/cladding	μm	≤ 0.6	≤ 0.5		
Concentricity error cladding/coating	μm	≤ 12.0	≤ 12.0		
Cladding non-circularity	%	≤ 1.0	≤ 0.7		
Coating non-circularity	%	≤ 6.0	≤ 6.0		

Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation ≤ 1 %)	N (kpsi)	≥ 9.0 (100)			
Operation temperature range -60 to 85 °C (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			
Water immersion 23 °C for 30 days (1310, 1550 and 1625 nm)	Δ dB/km	≤ 0.05			

Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
	ITU-T G.652.D IEC 60793-2-50 B-652.D	ITU-T G.657.A1 IEC 60793-2-50 B-657.A1	ITU-T G.657.A2 IEC 60793-2-50 B-657.A2	ITU-T G.657.B3 IEC 60793-2-50 B-657.B3
Standards				

Multi-mode Fiber Specifications

Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

Specifications

	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
Standards	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

Fiber Optic Color Coding

Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

Color Abbrivation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

Fiber Optic Cable Design Coding Guide

Design Number = **A₁** **B₁** **C₁** **D₁** **E₁**

Desing Number Example: 30121901

Design Code = **A₂** - **B₂** **C₂** **D₂** - **E₂**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

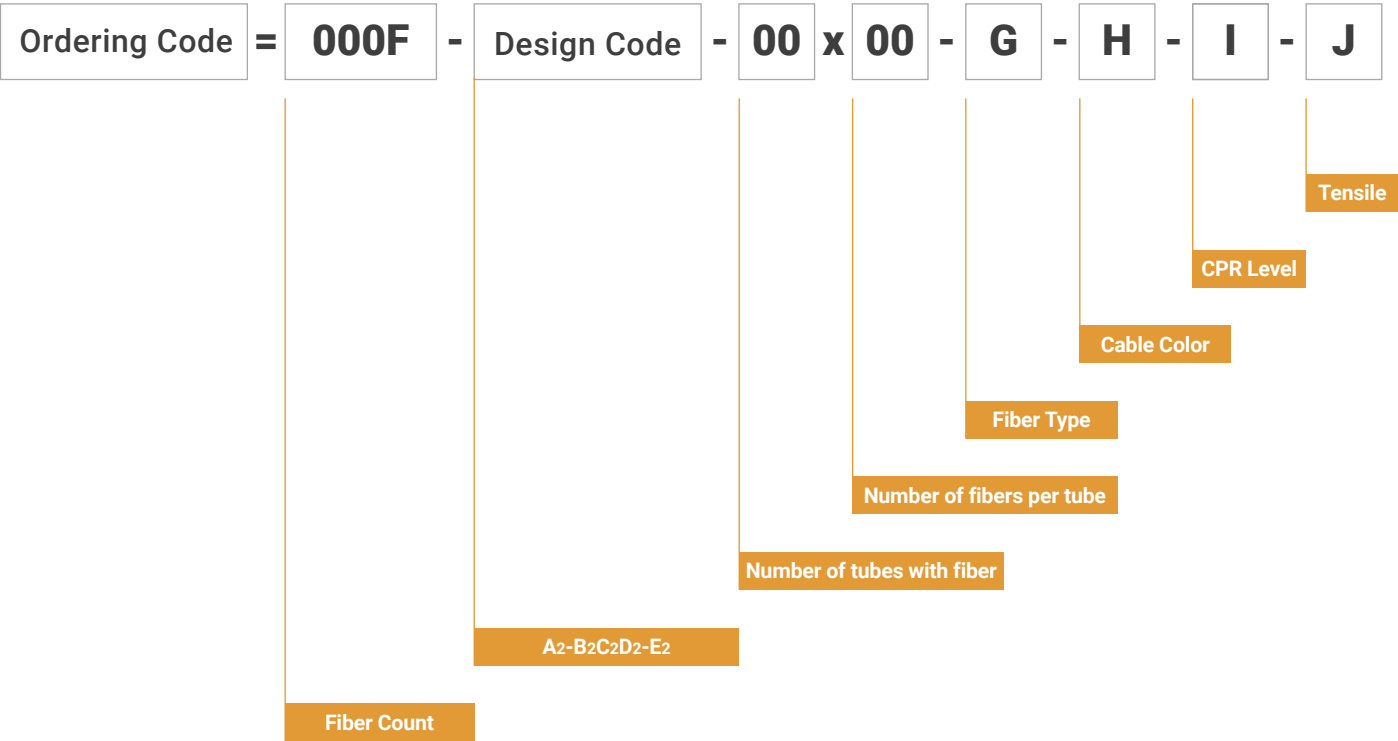
B ₂	B ₁	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

C ₁	C ₂	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E ₁	E ₂	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D ₁	D ₂	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H (ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath

Fiber Optic Cable Order Coding Guide



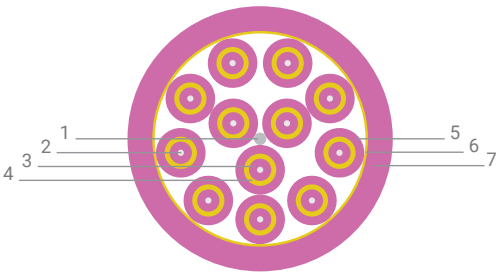
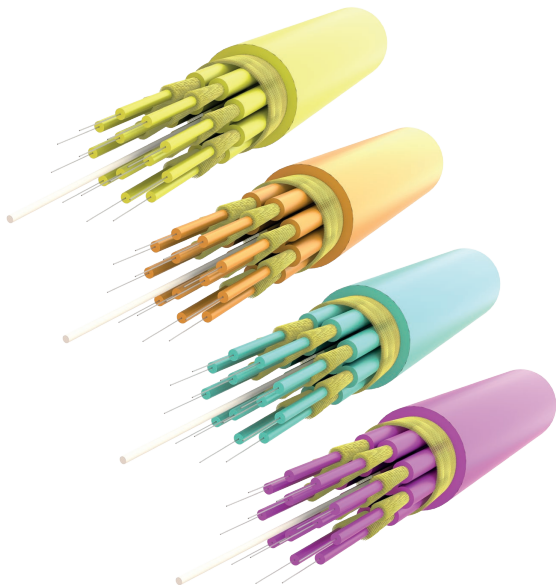
G	Fiber Type	H	Cable Color	I	CPR Level	J	Tensile
2D	Single Mode G652.D	BK	Black		B2ca		kN
A1	Single Mode G657.A1	YE	Yellow		Cca		
A2	Single Mode G657.A2	OG	Orange		Dca		
B3	Single Mode G657.B3	AQ	Aqua		Eca		
M1	Multi Mode G651.OM1	VT	Violet		Fca		
M2	Multi Mode G651.OM2	WH	White				
M3	Multi Mode G651.OM3	IV	Ivory				
M4	Multi Mode G651.OM4	BU	Blue				
M5	Multi Mode G651.OM5						

Ordering Code Example: 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

Breakout Cable up to 24 Fibers

Design Type IT-VT9Q(ZN-AY)H(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor cable
Completely dry design
For direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0

Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Tight / Semi-tight	900μ LSZH
4	Strength Member	Swellable Aramid Yarn
5	Sub-unit	LSZH
6	Strength Member	Swellable Aramid Yarn
7	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			7.2 mm (2F/4F)	8.5 mm (6F)	10.7 mm (12F)	14.2 mm (24F)
Tensile Force	Installation	IEC 60794-1-21-E1	1300 N	1800 N	2000 N	3000 N
	In Service		600 N	1000 N	1000 N	1500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm			
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-20 to +60 °C
	Storage		-20 to +60 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1 (Dop)

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-IT-VT9Q(ZN-AY)H(ZN-AY)H-2U200-2x1-...-B2ca-1.3kN	2	2	2.0	7.2	46
004F-IT-VT9Q(ZN-AY)H(ZN-AY)H-4U200-4x1-...-B2ca-1.3kN	4	4	2.0	7.2	48
006F-IT-VT9Q(ZN-AY)H(ZN-AY)H-6U200-6x1-...-B2ca-1.8kN	6	6	2.0	8.5	70
012F-IT-VT9Q(ZN-AY)H(ZN-AY)H-12U200-12x1-...-B2ca-2.0kN	12	12	2.0	10.7	105
024F-IT-VT9Q(ZN-AY)H(ZN-AY)H-24U200-24x1-...-B2ca-3.0kN	24	24	2.0	14.2	195

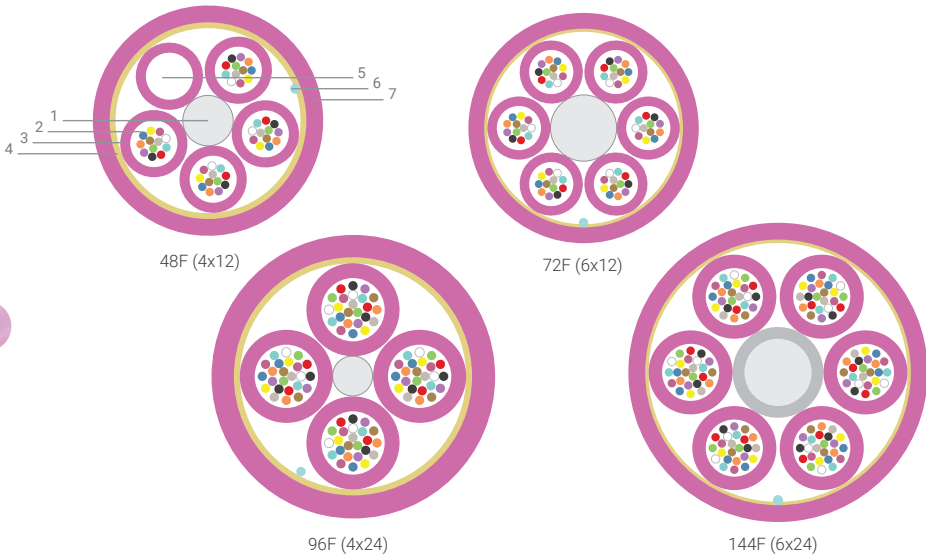
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-IT-VT9Q(ZN-AY)H(ZN-AY)H-24U200-24x1-A2-YE-B2ca-3.0kN

Multi Dry Loose Tube Cable up to 144 Fibers

Design Type IT-B1Q(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor cable
Completely dry design
For direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0

Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Loose Tube	LSZH
4	Strength Member	Aramid yarn
5	Filler Tube	LSZH
6	Ripcord	Polyester
7	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			6.8mm (48F)	7.3mm (72F)	7.5mm (96F)	8.9mm (144F)
Tensile Force	Installation	IEC 60794-1-21-E1	1000 N	1000 N	750 N	1200 N
	In Service		500 N	500 N	400 N	800 N
Crush Resistance	Installation	IEC 60794-1-21-E3	2000 N / 10 cm			
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-20 to +60 °C
	Storage		-20 to +60 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-IT-B1Q(ZN-AY)H-5B200-4x12-...-B2ca-1.0kN	48	4	1	2.0	6.8	38.5
072F-IT-B1Q(ZN-AY)H-6B200-6x12-...-B2ca-1.0kN	72	6	0	2.0	7.3	45.0
096F-IT-B1Q(ZN-AY)H-4B250-4x24-...-B2ca-0.75kN	96	4	0	2.5	7.5	45.0
144F-IT-B1Q(ZN-AY)H-6B250-6x24-...-B2ca-1.2kN	144	6	0	2.5	8.9	67.0

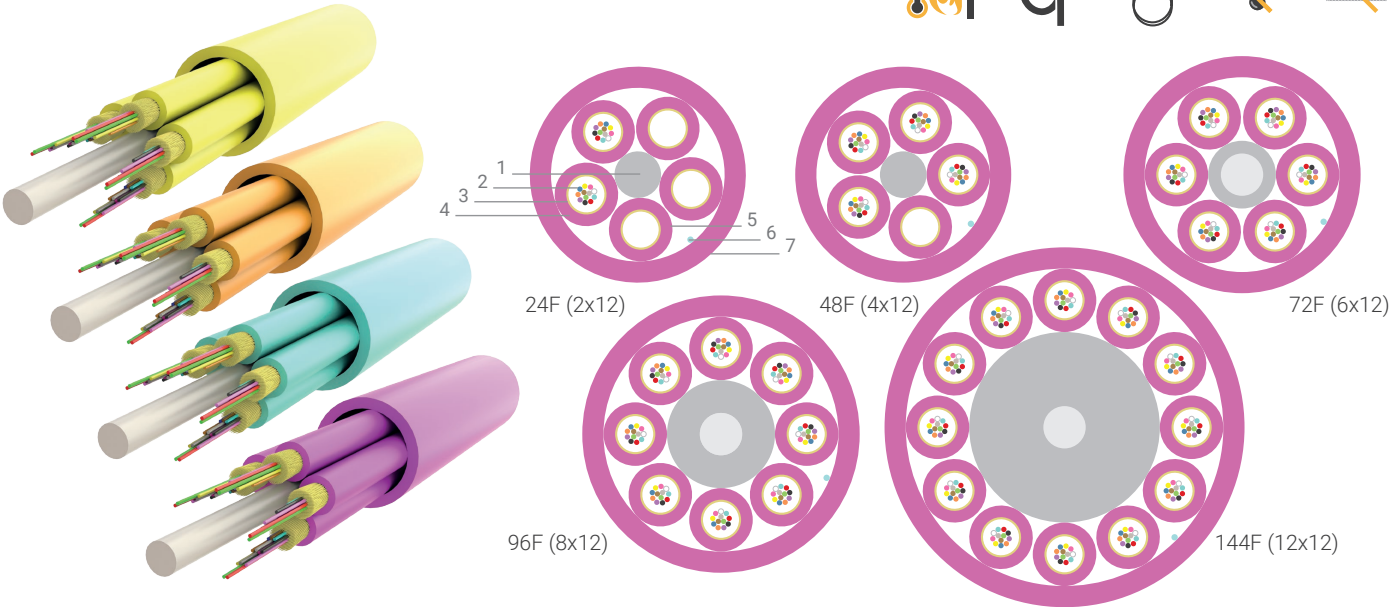
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-IT-B1Q(ZN-AY)H-6B250-6x24-A2-YE-B2ca-1.2kN

Multi-Fiber Breakout Cable up to 144 Fibers

Design Type IT-B3QH

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor cable
Completely dry design
For direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0

Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Strength Member	Swellable Aramid yarn
4	Loose Tube	LSZH
5	Filler Tube	LSZH UV Resistant
6	Ripcord	Polyester
7	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N
	In Service		1500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	2000 N / 10cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-20 to +60 °C
	Storage		-20 to +60 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
024F-IT-B3QH-5B300-2x12-...-B2ca-2.0kN	24	2	3	3.0	10.2	93
048F-IT-B3QH-5B300-4x12-...-B2ca-2.0kN	48	4	1	3.0	10.2	95
072F-IT-B3QH-6B300-6x12-...-B2ca-2.0kN	72	6	0	3.0	11.2	115
096F-IT-B3QH-8B300-8x12-...-B2ca-2.0kN	96	8	0	3.0	13.1	136
144F-IT-B3QH-12B300-12x12-...-B2ca-2.0kN	144	12	0	3.0	17.0	275

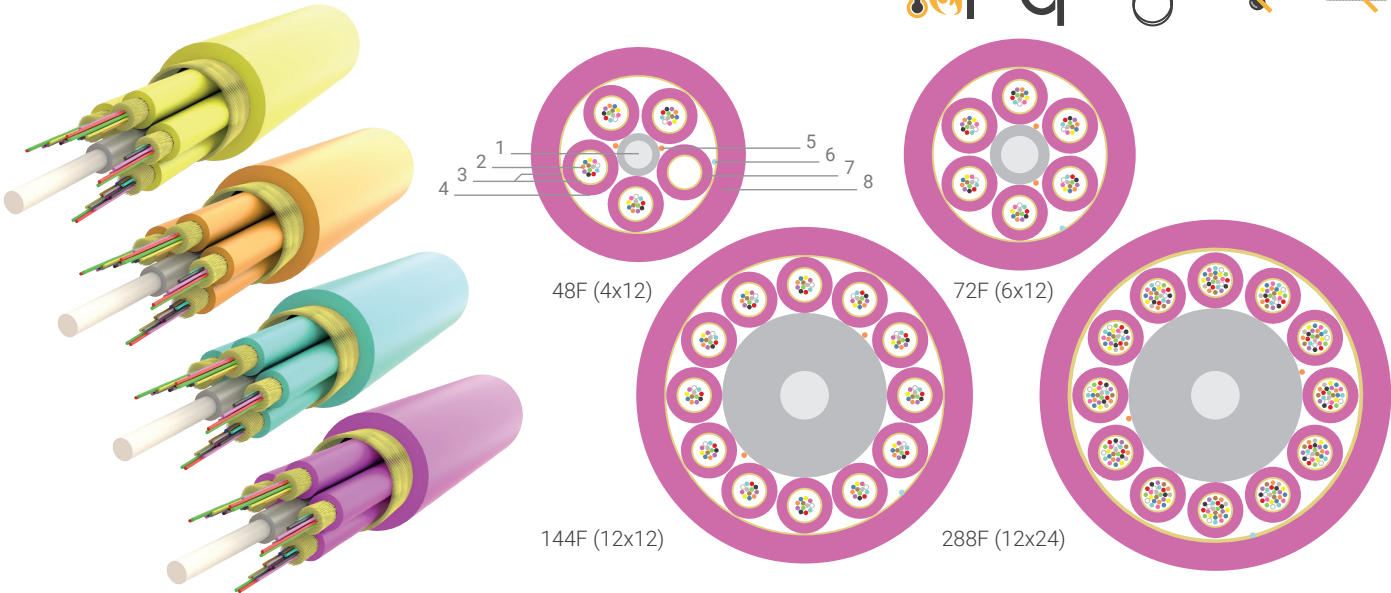
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 144F-IT-B3QH-12B300-12x12-A2-YE-B2ca-2.0kN

Multi-Fiber Breakout Cable up to 288 Fibers

Design Type **UT-B3Q(ZN-AY)H**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Properties

Metal free indoor cable
Completely dry design
For direct connector assembly
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0

Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Strength Member	Swellable Aramid Yarn
4	Loose Tube	LSZH
5	Strength Member	Swellable Aramid Yarn
6	Ripcord	Polyester
7	Filler Tube	LSZH
8	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			11.5mm (48F)	12.4mm (72F)	18.0mm (144F)	18.6mm (288F)
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N	2400 N	2400 N	4000 N
	In Service		1300 N	1500 N	1500 N	3000 N
Crush Resistance	Installation	IEC 60794-1-21-E3	2000 N / 10 cm			
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-20 to +60 °C
	Storage		-20 to +60 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-UT-B3Q(ZN-AY)H-5B300-4x12-...-B2ca-1.8kN	48	4	1	3.0	11.5	124
072F-UT-B3Q(ZN-AY)H-6B300-6x12-...-B2ca-2.4kN	72	6	0	3.0	12.4	127
144F-UT-B3Q(ZN-AY)H-12B300-12x12-...-B2ca-2.4kN	144	12	0	3.0	18.0	315
288F-UT-B3Q(ZN-AY)H-12B300-12x24-...-B2ca-4.0kN	288	24	0	3.0	18.6	350

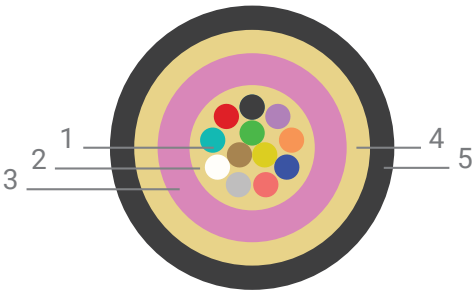
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-UT-B3Q(ZN-AY)H-12B300-12x24-A2-2Y-B2ca-4.0kN

Ruggedized Distribution Cable up to 24 Fibers

Design Type U-B3Q(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

- Metal free universal cable with completely dry design
- Designed for direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- LSZH flame retardant and self-extinguishing jacket material
- Longitudinal and transversal water resistant cable

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Strength Member	Swellable Aramid Yarn
3	Loose Tube	LSZH - FR
4	Strength Member	Swellable Aramid Yarn
5	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		400 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-U-B3Q(ZN-AY)H-1B300-1x4-...-Eca-0.8kN	4	1	3.0	4.8	23
008F-U-B3Q(ZN-AY)H-1B300-1x8-...-Eca-0.8kN	8	1	3.0	4.8	23
012F-U-B3Q(ZN-AY)H-1B300-1x12-...-Eca-0.8kN	12	1	3.0	4.8	23
024F-U-B3Q(ZN-AY)H-1B300-1x24-...-Eca-0.8kN	24	1	3.0	4.8	23

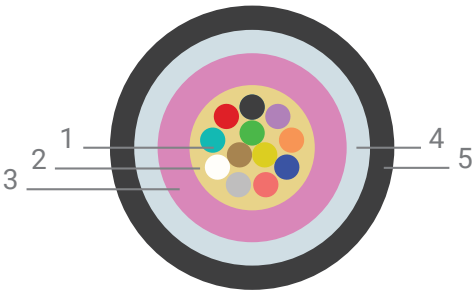
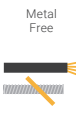
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-U-B3Q(ZN-AY)H-1B300-1x24-OM3-BK-Eca-0.8kN

Ruggedized Distribution Cable up to 24 Fibers

Design Type U-B3Q(ZN-GY)H

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free universal cable with completely dry design
Designed for direct connector assembly
High flexibility, light weight and rodent protection
Halogen free and non-corrosive fire gases
LSZH flame retardant and self-extinguishing jacket material
Longitudinal and transversal water resistant cable

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Strength Member	Swellable Aramid Yarn
3	Loose Tube	LSZH - FR
4	Strength Member	Swellable Glass Yarn
5	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-U-B3Q(ZN-GY)H-1B300-1x4-...-Eca-0.8kN	4	1	3.0	4.8	26
008F-U-B3Q(ZN-GY)H-1B300-1x8-...-Eca-0.8kN	8	1	3.0	4.8	26
012F-U-B3Q(ZN-GY)H-1B300-1x12-...-Eca-0.8kN	12	1	3.0	4.8	26
024F-U-B3Q(ZN-GY)H-1B300-1x24-...-Eca-0.8kN	24	1	3.0	4.8	26

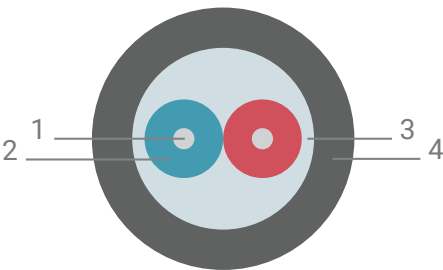
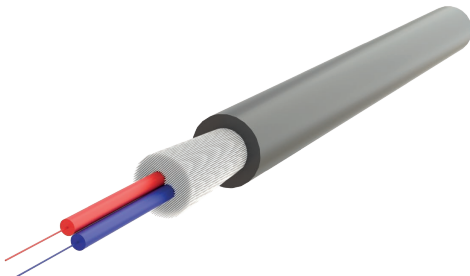
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-U-B3Q(ZN-GY)H-1B300-1x24-A2-BK-Eca-0.8kN

Mini Breakout Cable 2 Fibers

Design Type UT-VT9Q(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free universal cable with a completely dry design
Direct connector assembly, high flexibility and light weight
Water swellable glass yarn strength member
Rodent protected glass armour made for vertical applications
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0
LSZH - FR, UV Resistant Outer Jacket

Cable Construction

1	Fiber	SM or MM (250 µ)
2	Tight Buffer Tube	900µ LSZH
3	Strength Member	Swellable Glass Yarn
4	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	100 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=1J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-UT-VT9Q(ZN-GY)BH-2U090-1x2-...-...-Eca-0.8kN	2	2	3.0	4.8	27

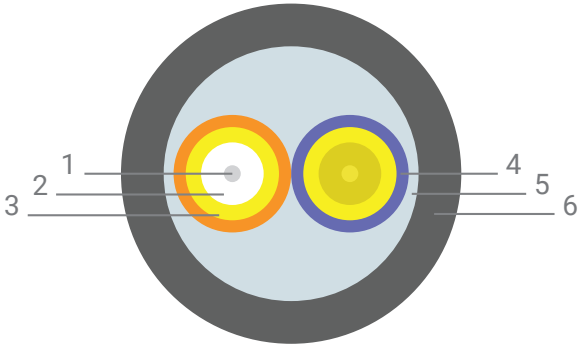
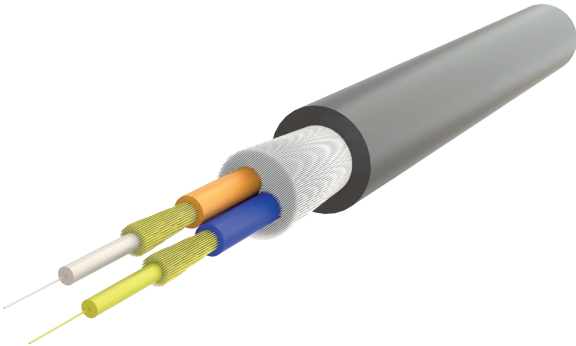
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-UT-VT9Q(ZN-GY)BH-2U090-1x2-M3-BK-Eca-0.8kN

Breakout Cable 2 Fibers

Design Type UT-VT9Q(ZN-AY)H(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

- Metal free indoor and outdoor cable
- Completely dry design
- Rodent-protected with glass-armoured
- For direct connector assembly with strain relief
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- LSZH - FR, UV Resistant Outer Jacket

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Aramid
4	Sub-unit	LSZH
5	Strength Member	Swellable Glass Yarn
6	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1600 N
	In Service		800 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-2U200-1x2-...-...-Eca-1.6kN	2	2	0	2.0	7.0	55

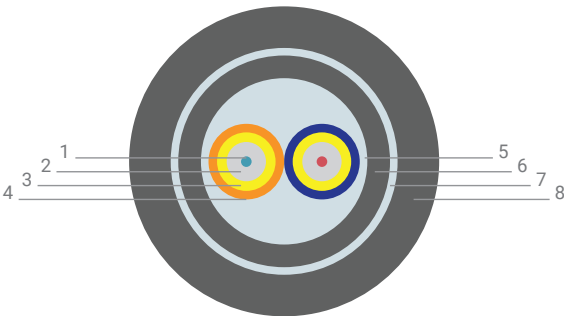
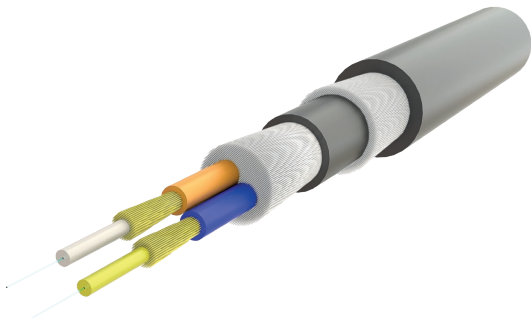
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-2U200-1x2-2D-BK-Eca-1.6kN

Ruggedized Breakout Cable | 2 Fibers

Design Type UT-VT9Q(ZN-AY)H(ZN-GY)H(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free indoor and outdoor cable
Completely dry design
Rodent-protected with glass-armoured
For direct connector assembly with strain relief
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
LSZH - FR, UV Resistant Outer Jacket

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Swellable Aramid
4	Sub-unit Jacket	LSZH
5	Strength Member	Swellable Glass Yarn
6	Inner Jacket	LSZH - FR, UV Resistant
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N
	In Service		1500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1500 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-VT9Q(ZN-AY)H(ZN-GY)H(ZN-GY)BH-2U200-1x2-...-...-Eca-2.0kN	2	2	2.0	8.2	70

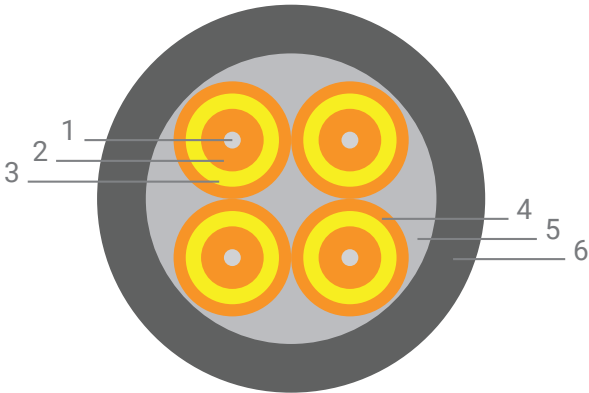
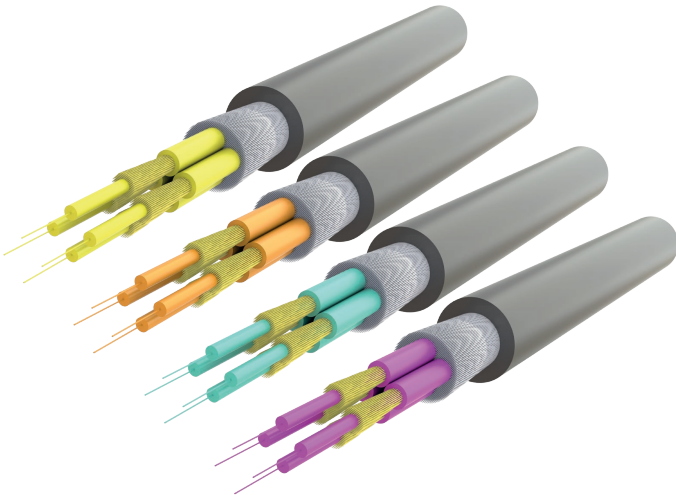
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-UT-VT9Q(ZN-AY)H(ZN-GY)H(ZN-GY)BH-2U200-1x2-M3-BK-Eca-2.0kN

Breakout Cable 4 Fibers

Design Type UT-VT9Q(ZN-AY)H(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Metal free indoor and outdoor cable
Completely dry design
Rodent-protected with glass-armoured
For direct connector assembly with strain relief
High flexibility and light weight
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
LSZH - FR, UV Resistant Outer Jacket

Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Aramid
4	Sub-unit	LSZH
5	Strength Member	Swellable Glass Yarn
6	Outer Jacket	LSZH - FR, UV Resistant

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N
	In Service		1000 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10cm
Impact	-	IEC 60794-1-21-E4	Wp=5J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
004F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-4U200-4x1-...-BK-Eca-2.0kN	4	4	0	2.0	7.5	60

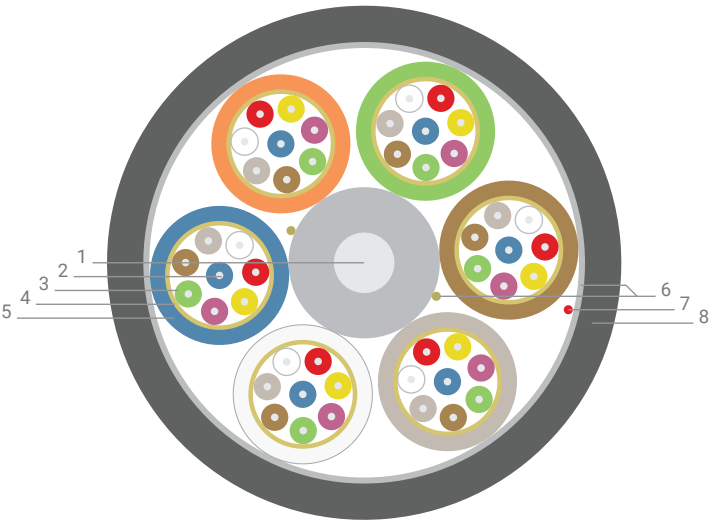
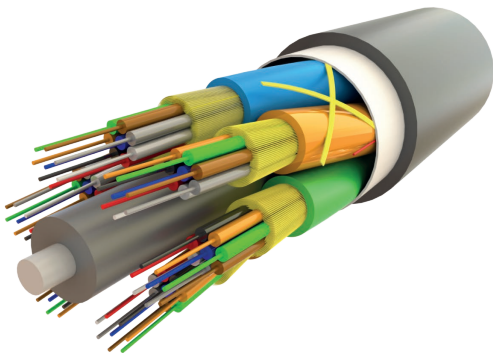
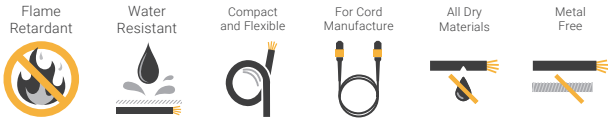
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 004F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-4U200-4x1-OM2-BK-Eca-2.0kN

Multi-Tight Breakout Cable - 48 Fibers

Design Type UT-VT9Q(ZN-AY)HH

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tight Buffer	LSZH
4	Strength Member	Swellable Aramid Yarn
5	Sub Unit Sheath	LSZH
6	Water Blocking	Tape & Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant LSZH

Properties

Metal free indoor and outdoor cable with tight buffered fibers
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Has a ripcord for easy stripping
Up to 48 Fiber

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	Installation	IEC 60794-1-21-E3	1000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=10J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +60 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-UT-VT9Q(ZN-AY)HH-6U460-6x8-....-Eca-4.0kN	48	6	0	4.6	17	245

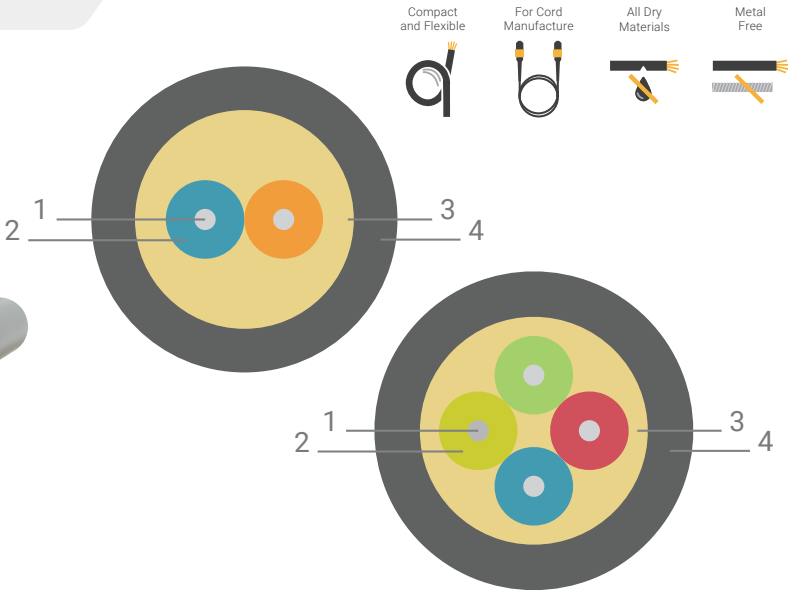
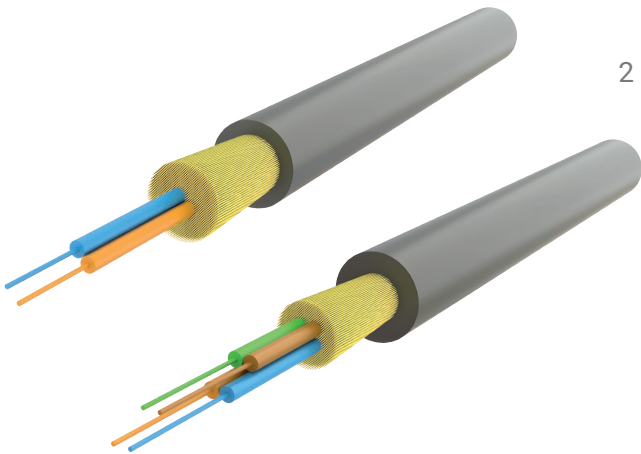
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 048F-UT-VT9Q(ZN-AY)HH-6U460-6x8-2D-BK-Eca-4.0kN

Ruggedised PUR Jacket Distribution Cable | 2-4 Fibers

Design Type UT-WT9Q(ZN-AY)11Y

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Universal indoor/outdoor tactical cable for harsh environments
High tensile strength with crush resistance
Lightweight, strong, and flexible for deployment and reuse
Dry design, compatible with direct connector assembly
Easy stripping with excellent coiling capability
Resistant to acids, alkalies, and chemicals
Superior mechanical and thermal stability
Metal-free, halogen-free, and non-corrosive
UV-protected, abrasion and cut-resistant
Suitable for military tactical use

Cable Construction

1	Fiber	Single-mode or Multi-mode 245 μ
2	Tight Buffer Tube	900 μ TPE
3	Strength Member	Water Blocking Swellable Aramid yarn
4	Outer Jacket	TPU

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		600 N
Crush Resistance	Installation	IEC 60794-1-21-E3	18000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 200 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 50mm, 20000 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, $\pm 1440^\circ$, 1000 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 25mm, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-46 to +85 °C
	In Service		-46 to +85 °C
	Storage		-57 to +85 °C
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-WT9Q(ZN-AY)11Y-2U090-1x2-...-Eca-1.8kN	2	2	0.9	5.6	25
004F-UT-WT9Q(ZN-AY)11Y-4U090-1x4-...-Eca-1.8kN	4	4	0.9	5.8	25

* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 004F-UT-WT9Q(ZN-AY)11Y-4U090-1x4-A1-BK-Eca-1.8kN

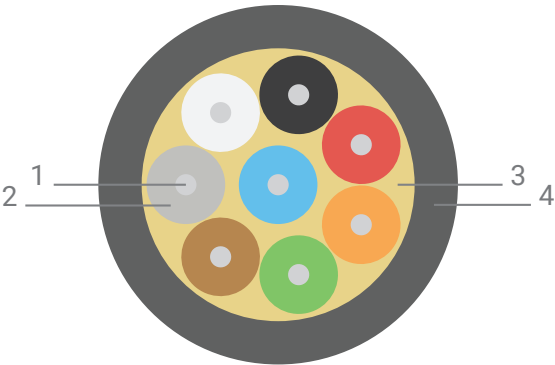
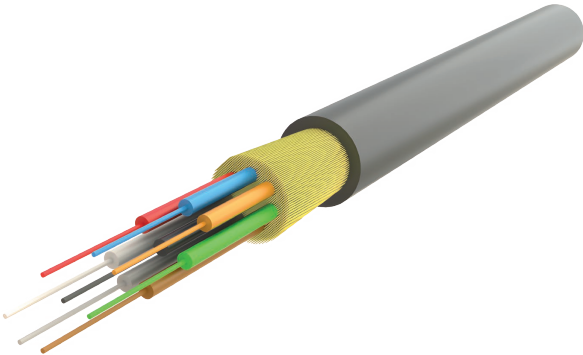
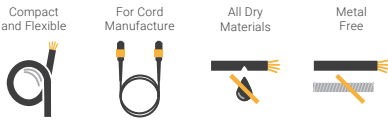
Available Fiber Types

Fiber Type	Compliance Standards
Single Mode	9/125-A1 IEC 60793-2-50 Type B6_a1 + ITU G.657.A1
	9/125-A2 IEC 60793-2-50 Type B6_a2 + ITU G.657.A2
Multi-Mode	50/125-OM3 IEC 60793-2-10 A1a2 + ITU G.651 BendOptimized
	50/125-OM4 IEC 60793-2-10 A1a3 + ITU G.651 BendOptimized

Ruggedised PUR Jacket Distribution Cable | 8F

Design Type UT-WT9Q(ZN-AY)11Y

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Universal indoor/outdoor tactical cable for harsh environments
High tensile strength with crush resistance
Lightweight, strong, and flexible for deployment and reuse
Dry design, compatible with direct connector assembly
Easy stripping with excellent coiling capability
Resistant to acids, alkalies, and chemicals
Superior mechanical and thermal stability
Metal-free, halogen-free, and non-corrosive
UV-protected, abrasion and cut-resistant
Suitable for military tactical use

Cable Construction

1	Fiber	Single-mode or Multi-mode 245 μ
2	Tight Buffer Tube	900 μ TPE
3	Strength Member	Water Blocking Swellable Aramid yarn
4	Outer Jacket	TPU

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		600 N
Crush Resistance	Installation	IEC 60794-1-21-E3	18000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 200 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 50mm, 20000 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, $\pm 1440^\circ$, 1000 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 25mm, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-46 to +85 °C
	In Service		-46 to +85 °C
	Storage		-57 to +85 °C
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-UT-WT9Q(ZN-AY)11Y-8U090-8x1-...-Eca-1.8kN	8	8	0.9	6.5	30

* Sample Code: 008F-UT-WT9Q(ZN-AY)11Y-8U090-8x1-A2-BK-Eca-1.8kN

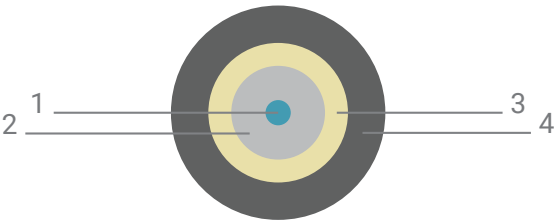
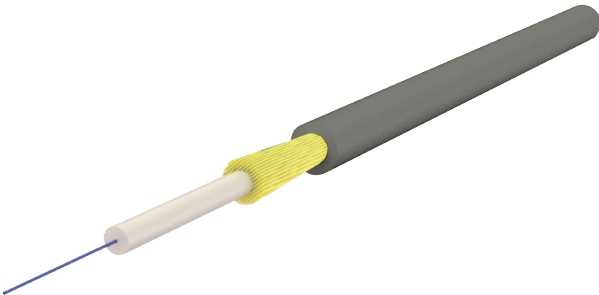
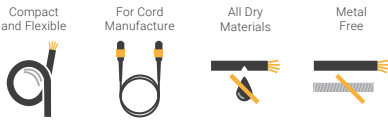
Available Fiber Types

Fiber Type		Compliance Standards
Single Mode	9/125-A1	IEC 60793-2-50 Type B6_a1 + ITU G.657.A1
	9/125-A2	IEC 60793-2-50 Type B6_a2 + ITU G.657.A2
Multi-Mode	50/125-OM3	IEC 60793-2-10 A1a2 + ITU G.651 BendOptimized
	50/125-OM4	IEC 60793-2-10 A1a3 + ITU G.651 BendOptimized

Ruggedised PUR Jacket Distribution Cable | 1F

Design Type U-WT9Q(ZN-AY)11Y

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Universal indoor/outdoor tactical cable for harsh environments
High tensile strength with crush resistance
Lightweight, strong, and flexible for deployment and reuse
Dry design, compatible with direct connector assembly
Easy stripping with excellent coiling capability
Resistant to acids, alkalies, and chemicals
Superior mechanical and thermal stability
Metal-free, halogen-free, and non-corrosive
UV-protected, abrasion and cut-resistant
Suitable for military tactical use

Cable Construction

1	Fiber	Single-mode or Multi-mode 245 μ
2	Tight Buffer Tube	900 μ TPE
3	Strength Member	Water Blocking Swellable Aramid yarn
4	Outer Jacket	TPU

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	200 N
	In Service		66 N
Crush Resistance	Installation	IEC 60794-1-21-E3	4400 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 200 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 50mm, 20000 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, $\pm 1440^\circ$, 1000 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 45mm, 6 turns, 10 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-46 to +85 °C
	In Service		-46 to +85 °C
	Storage		-57 to +85 °C
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
001F-U-WT9Q(ZN-AY)11Y-1U090-1x1-...-...-Eca-0.2kN	1	1	0.9	1.8	3.3

* Sample Code: 001F-U-WT9Q(ZN-AY)11Y-1U090-1x1-A2-BK-Eca-0.2kN

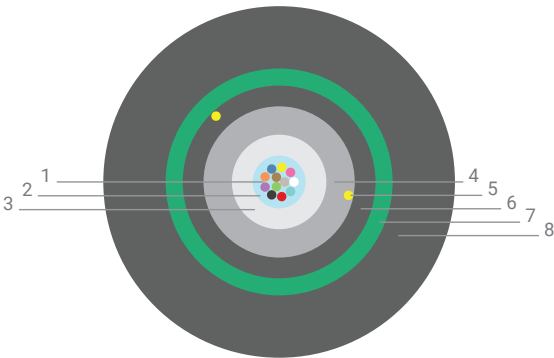
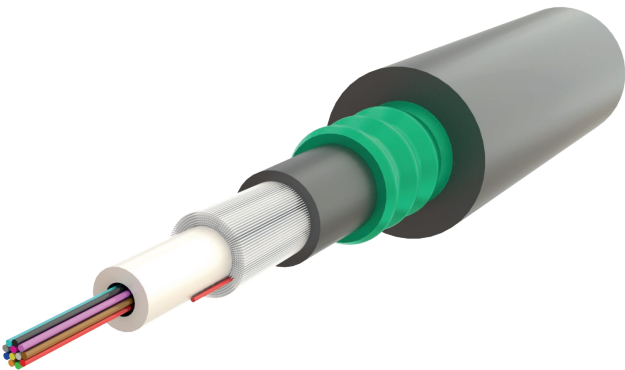
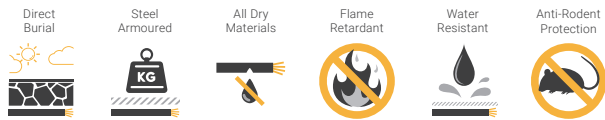
Available Fiber Types

Fiber Type		Compliance Standards
Single Mode	9/125-A1	IEC 60793-2-50 Type B6_a1 + ITU G.657.A1
	9/125-A2	IEC 60793-2-50 Type B6_a2 + ITU G.657.A2
Multi-Mode	50/125-OM3	IEC 60793-2-10 A1a2 + ITU G.651 BendOptimized
	50/125-OM4	IEC 60793-2-10 A1a3 + ITU G.651 BendOptimized

Marine Type, CLT, Gel-Filled, Dry Core, Steel Armoured, DJ, PE

Design Type A-D1Q(ZN-GY)2Y(SR)2Y

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



Properties

Corrugated Steel Armoured Marine Type Outdoor Cable
Glass yarn strength member
Gel-filled tube
PE outer jacket for use in ducts and unprotected environments
Longitudinal and transversal water resistant cable
Has ripcords for easy stripping
Up to 24Fibers
Double Jacket for Direct Burial

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tube Filling Material	Thixotropic Gel
3	Loose Tube	PBT
4	Strength Member	Swellable Glass Yarn
5	Ripcord	Aramid
6	Inner Jacket	PE 1.2 mm
7	Armoured Material	Corrugated Steel Tape
8	Outer Jacket	UV Resistant HDPE 3.0 mm

Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1500 N
	In Service		750 N
Crush Resistance	-	IEC 60794-1-21-E3	3000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=20J, R:30cm, 3 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 25 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 5 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	-	-30 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +80 °C
Water Penetration	3 meter specimen,1 m water altitude	IEC 60794-1-22-F5B	No leakage in 24 hours
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Fca

Ordering Codes

Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x8-...-BK-1.5kN	8	1	2.5	13.4	163
012F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x12-...-BK-1.5kN	12	1	2.5	13.4	163
024F-A-D1Q(ZN-GY)2Y(SR)2Y-1D300-1x24-...-BK-1.5kN	24	1	3.0	13.9	174

* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-A-D1Q(ZN-GY)2Y(SR)2Y-1D300-1x24-2D-BK-1.5kN

Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1300 mm
Drum core diameter	500 mm	500 mm
Outside width	1000 mm	1000 mm



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TURKIYE

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