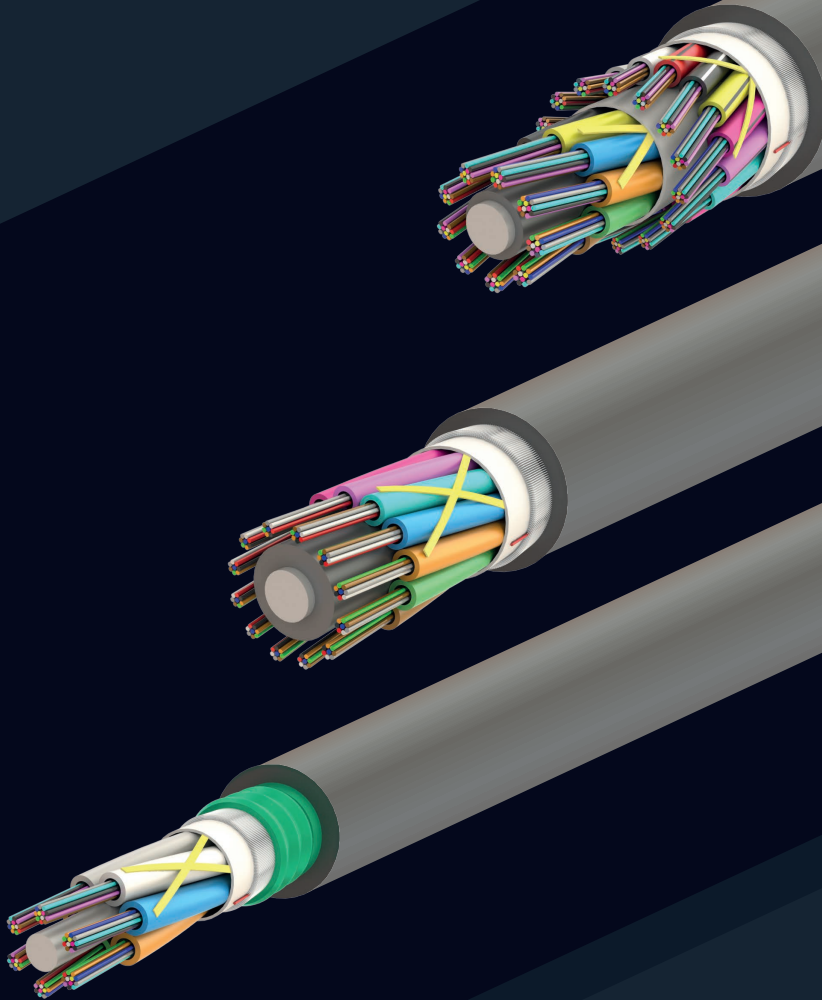




FIBER OPTIC CABLES

samm
teknoloji



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.

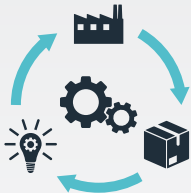
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

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.



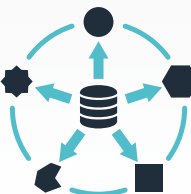
World Class Production

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



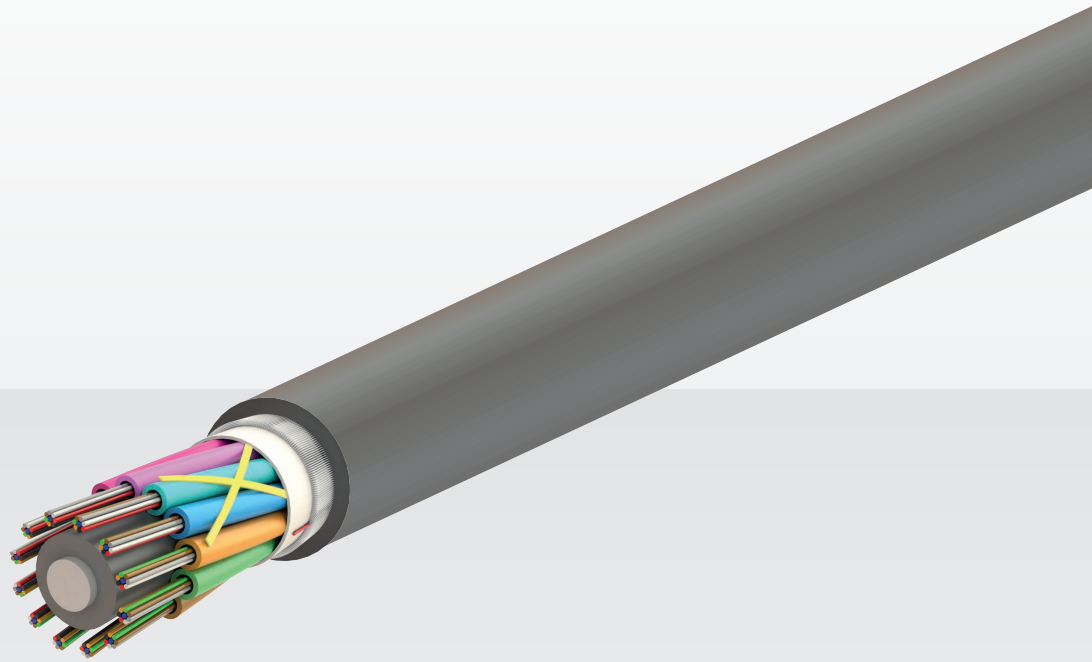
Connecting Continents

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

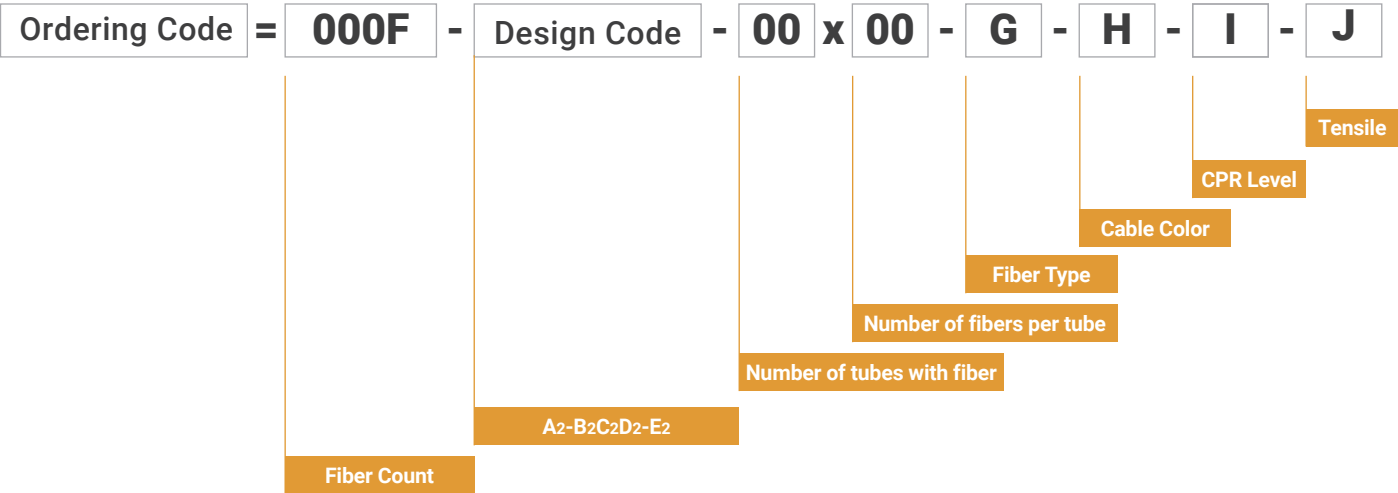
A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

B ₂	B ₁	Description
00		No Tube
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 (with Aramid)
09	B4	Gel-Free Loose Flex-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

C ₁	C ₂	Description
0		Non-Loose Tbe
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
23	1S200	1 Steel Spiral Tube 2.0 mm
24	1S290	1 Steel Spiral Tube 2.9 mm
25	2U200	2 Simplex Tube 2.0 mm
26	4U200	4 Simplex Tube 2.0 mm
27	6U200	6 Simplex Tube 2.0 mm
28	8U200	8 Simplex Tube 2.0 mm
29	10U200	10 Simplex Tube 2.0 mm
30	12U200	12 Simplex Tube 2.0 mm
31	16U200	16 Simplex Tube 2.0 mm
32	18U200	18 Simplex Tube 2.0 mm
33	20U200	20 Simplex Tube 2.0 mm
34	24U200	24 Simplex Tube 2.0 mm
35	5B200	5 Gel-free Loose Tube 2.0 mm
36	4B250	4 Gel-free Loose Tube 2.5 mm
37	1U060	1 Tight Tube 0.6 mm
38	2U060	2 Tight Tube 0.6 mm
39	1U090	1 Tight Tube 0.9 mm
40	2U090	2 Tight Tube 0.9 mm
41	4U090	4 Tight Tube 0.9 mm
42	6U090	6 Tight Tube 0.9 mm
43	8U090	8 Tight Tube 0.9 mm
44	12U090	12 Tight Tube 0.9 mm
45	16U090	16 Tight Tube 0.9 mm
46	18U090	18 Tight Tube 0.9 mm
47	20U090	20 Tight Tube 0.9 mm
48	22U090	22 Tight Tube 0.9 mm
49	24U090	24 Tight Tube 0.9 mm
50	6D230	6 Gel-filled Loose Tube 2.3 mm
51	8D230	8 Gel-filled Loose Tube 2.3 mm
52	6D250	6 Gel-filled Loose Tube 2.3 mm
53	8D250	8 Gel-filled Loose Tube 2.3 mm
54	1B090	1 Flex tube 0.9 mm
55	1B105	1 Flex tube 1.05 mm
56	1B110	1 Flex tube 1.10 mm
57	5B300	5 Gel-free Loose Tube 3.0 mm
58	6B300	6 Gel-free Loose Tube 3.0 mm
59	12B300	12 Gel-free Loose Tube 3.0 mm
60	8U400	8 MTBO LSZH Tube
61	8B300	8 Gel-free Loose Tube 3.0 mm
62	X	No Tube
63	4B300	4 Gel-free Loose Tube 3.0 mm

Fiber Optic Cable Order Coding Guide



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

D ₁	D ₂	Description
00		
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		
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)H	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
39	(ST)(ZN-AY)H	Steel Spiral Tube and aramid yarn under LSZH sheath
40	(ST)(SB)H	Steel Spiral tube and Steel braiding under LSZH sheath
41	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
42	2Y(ZN-AY)2Y+ATR	PE sheath, under, aramid yarn, under anti track resistance PE sheath
43	(ZN-AY)2Y+ATR	Aramid yarn, under anti track resistance PE sheath

G	Fiber Type
2D	Single Mode G652.D
A1	Single Mode G657.A1
A2	Single Mode G657.A2
B3	Single Mode G657.B3
5D	Single Mode G655.D
M1	Multi Mode G651.OM1
M2	Multi Mode G651.OM2
M3	Multi Mode G651.OM3
M4	Multi Mode G651.OM4
M5	Multi Mode G651.OM5

H	Cable Color
BK	Black
YE	Yellow
OG	Orange
AQ	Aqua
VT	Violet
WH	White
IV	Ivory
BU	Blue
LG	Lime Green

I	CPR Level
	B2ca
	Cca
	Dca
	Eca
	Fca

J	Tensile
	kN

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

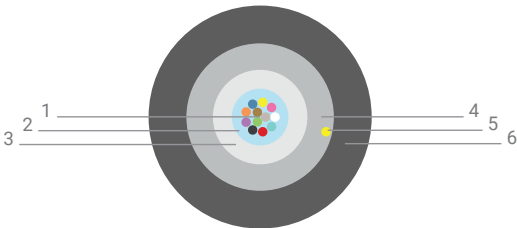
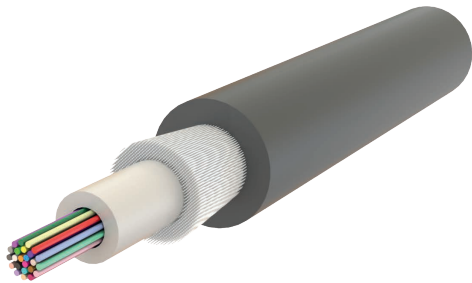


Fig.01 Scale 5:1

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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
30121501	004F-A-D1Q(ZN-GY)B2Y-1D250-1x4-...BK-Fca-1.2kN	4	1	2.5	5.9	31
30121501	008F-A-D1Q(ZN-GY)B2Y-1D250-1x8-...BK-Fca-1.2kN	8	1	2.5	5.9	31
30121501	012F-A-D1Q(ZN-GY)B2Y-1D250-1x12-...BK-Fca-1.2kN	12	1	2.5	5.9	31
30121501	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

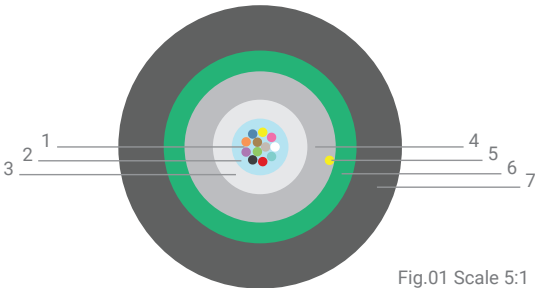
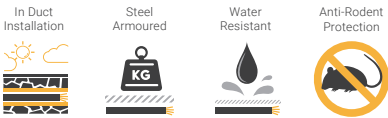


Fig.01 Scale 5:1

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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
30121901	004F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x4-...-BK-Fca-1.2kN	4	1	2.5	7.5	60
30121901	008F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x8-...-BK-Fca-1.2kN	8	1	2.5	7.5	60
30121901	012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-...-BK-Fca-1.2kN	12	1	2.5	7.5	60
30121901	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

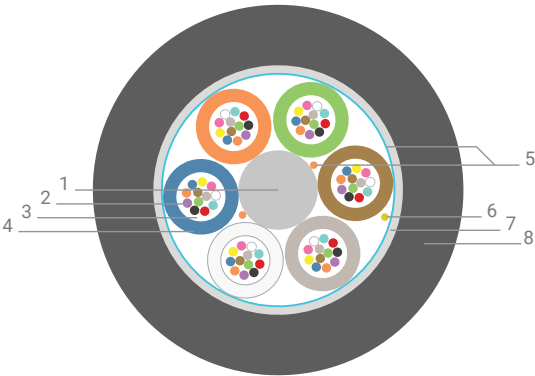
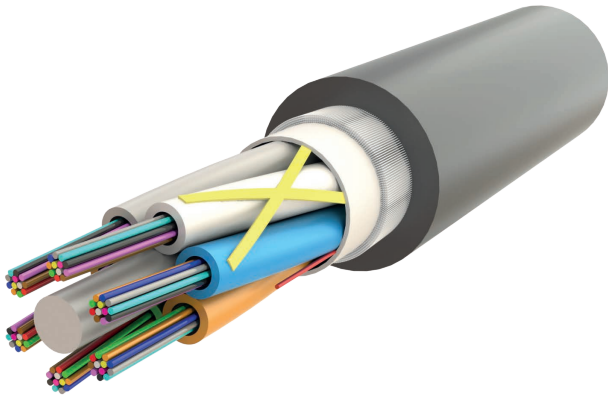
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121503	008F-AT-D1Q(ZN-GY)B2Y-6D200-1x8-...-BK-Fca-2.7kN	8	1	5	2.0	9.8	70
60121503	008F-AT-D1Q(ZN-GY)B2Y-6D200-2x4-...-BK-Fca-2.7kN	8	2	4	2.0	9.8	71
60121503	008F-AT-D1Q(ZN-GY)B2Y-6D200-4x2-...-BK-Fca-2.7kN	8	4	2	2.0	9.8	73
60121503	012F-AT-D1Q(ZN-GY)B2Y-6D200-1x12-...-BK-Fca-2.7kN	12	1	5	2.0	9.8	70
60121503	012F-AT-D1Q(ZN-GY)B2Y-6D200-6x2-...-BK-Fca-2.7kN	12	6	0	2.0	9.8	76
60121503	016F-AT-D1Q(ZN-GY)B2Y-6D200-2x8-...-BK-Fca-2.7kN	16	2	4	2.0	9.8	71
60121503	016F-AT-D1Q(ZN-GY)B2Y-6D200-4x4-...-BK-Fca-2.7kN	16	4	2	2.0	9.8	73
60121503	024F-AT-D1Q(ZN-GY)B2Y-6D200-2x12-...-BK-Fca-2.7kN	24	2	4	2.0	9.8	71
60121503	024F-AT-D1Q(ZN-GY)B2Y-6D200-6x4-...-BK-Fca-2.7kN	24	6	0	2.0	9.8	76
60121503	048F-AT-D1Q(ZN-GY)B2Y-6D200-4x12-...-BK-Fca-2.7kN	48	4	2	2.0	9.8	73
60121503	048F-AT-D1Q(ZN-GY)B2Y-6D200-6x8-...-BK-Fca-2.7kN	48	6	0	2.0	9.8	76
60121503	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

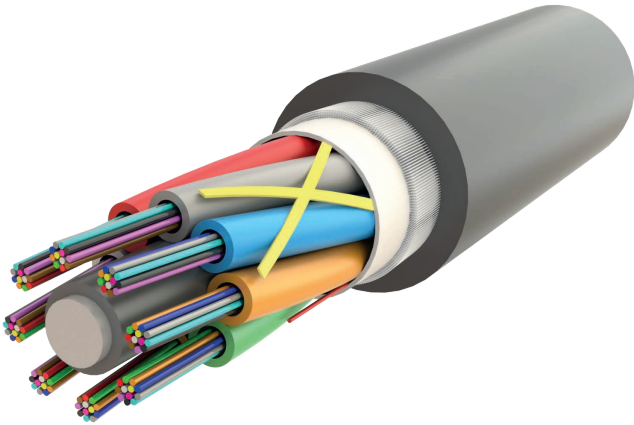
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1000 mm
Drum core diameter	500 mm	400 mm
Outside width	650 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121504	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

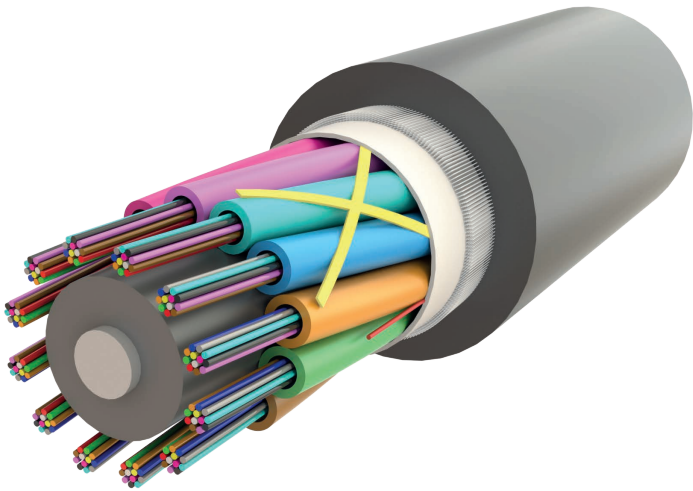
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121505	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

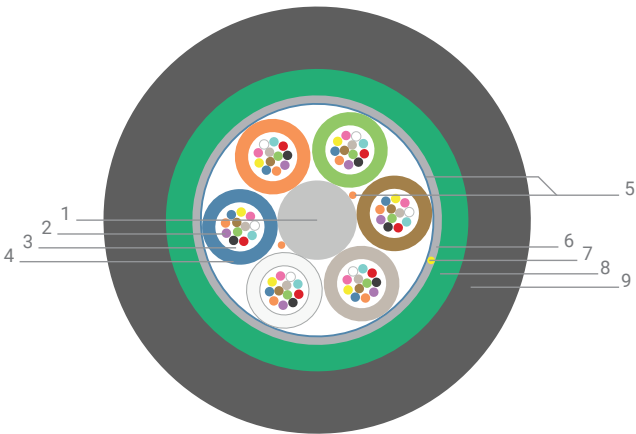
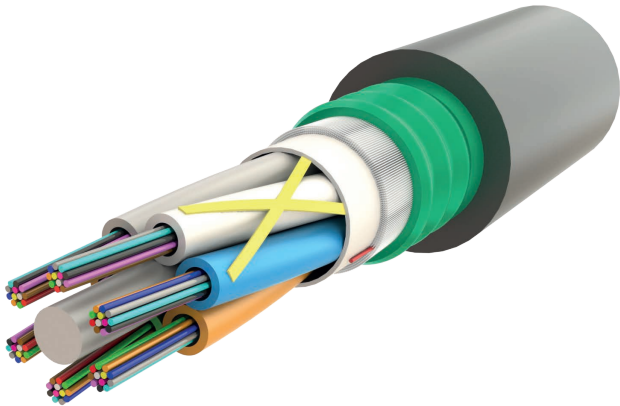
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121903	008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-1x8-..-BK-Fca-2.7kN	8	1	5	2.0	11.3	121
60121903	008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x4-..-BK-Fca-2.7kN	8	2	4	2.0	11.3	122
60121903	008F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x2-..-BK-Fca-2.7kN	8	4	2	2.0	11.3	123
60121903	012F-AT-D1Q(ZN-GY)(SR)2Y-6D200-1x12-..-BK-Fca-2.7kN	12	1	5	2.0	11.3	121
60121903	012F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x2-..-BK-Fca-2.7kN	12	6	0	2.0	11.3	125
60121903	016F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x8-..-BK-Fca-2.7kN	16	2	4	2.0	11.3	122
60121903	016F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x4-..-BK-Fca-2.7kN	16	4	2	2.0	11.3	124
60121903	024F-AT-D1Q(ZN-GY)(SR)2Y-6D200-2x12-..-BK-Fca-2.7kN	24	2	4	2.0	11.3	122
60121903	024F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x4-..-BK-Fca-2.7kN	24	6	0	2.0	11.3	125
60121903	048F-AT-D1Q(ZN-GY)(SR)2Y-6D200-4x12-..-BK-Fca-2.7kN	48	4	2	2.0	11.3	125
60121903	048F-AT-D1Q(ZN-GY)(SR)2Y-6D200-6x8-..-BK-Fca-2.7kN	48	6	0	2.0	11.3	125
60121903	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

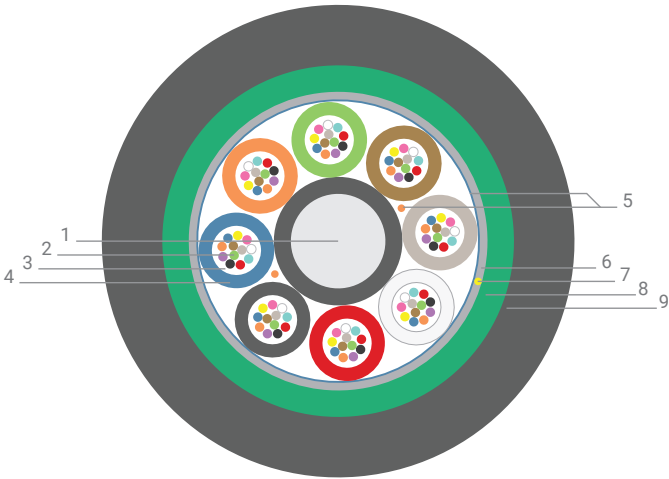
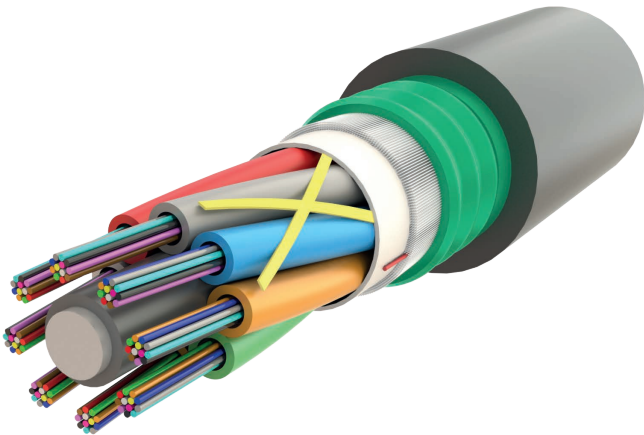
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121904	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

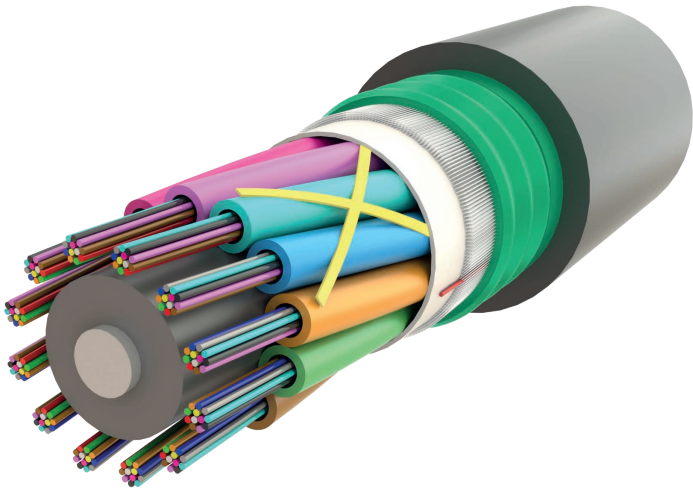
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121905	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

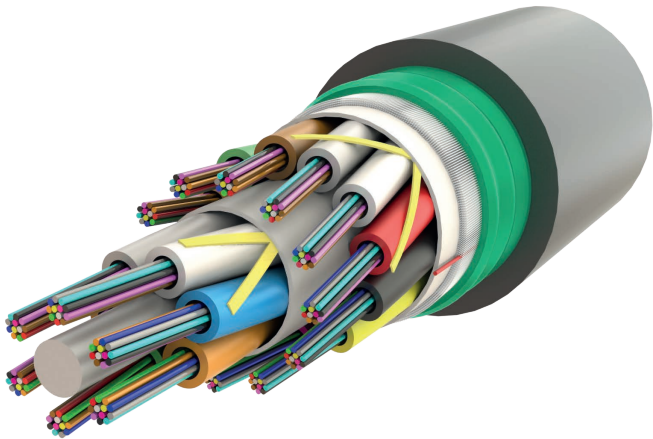
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	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-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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121906	192F-AT-D1Q(ZN-GY)(SR)2Y-18D200-16x12-.-BK-Fca-3.5kN	192	16	2	2.0	15.6	215
60121906	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

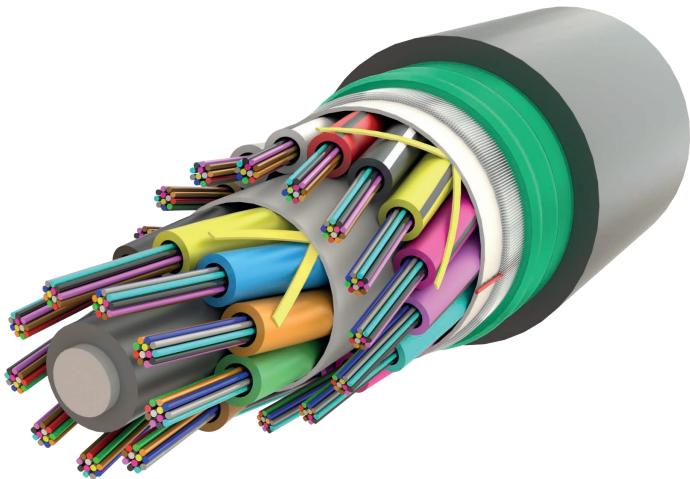
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1200 mm	1600 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121908	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

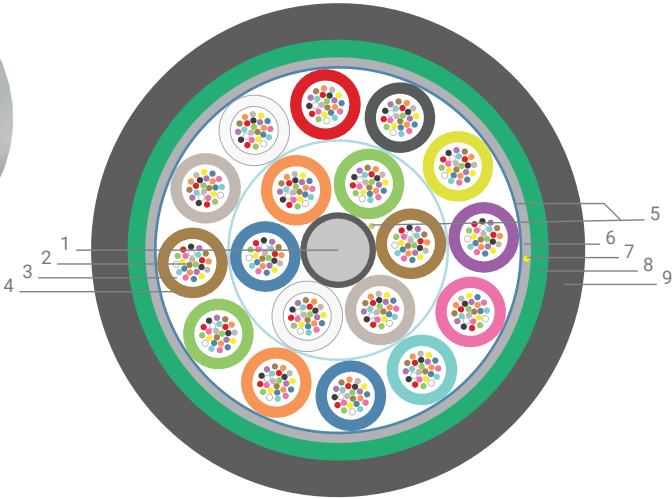
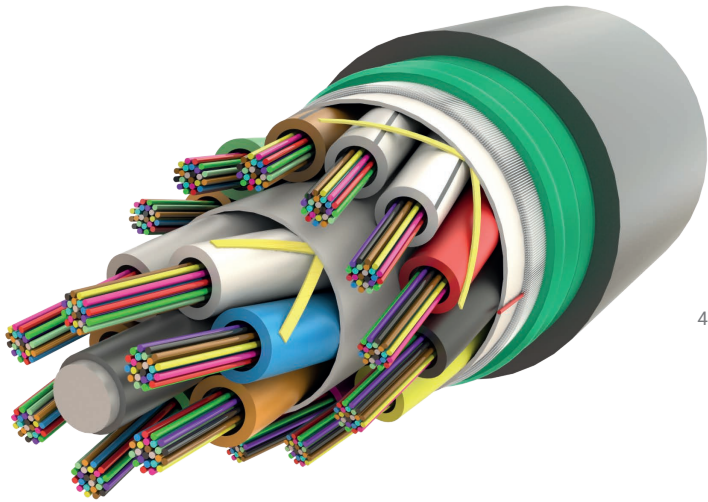
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1400 mm
Drum core diameter	700 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60121907	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

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

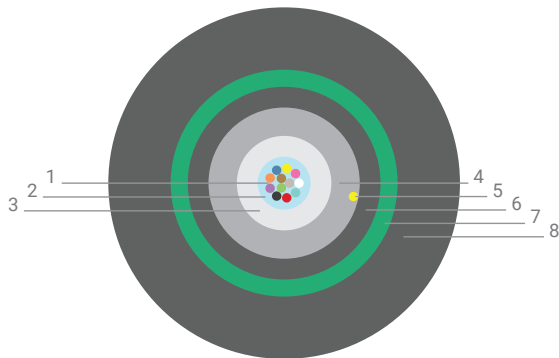
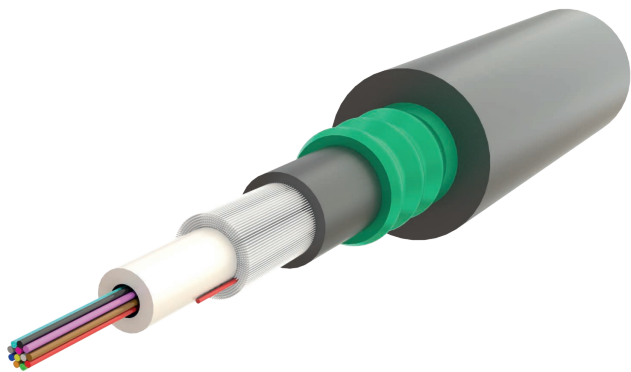
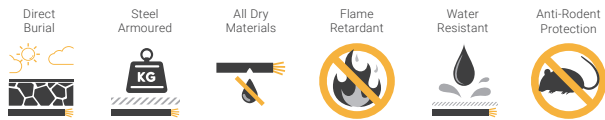
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1500 mm
Drum core diameter	800 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
30123201	004F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x4-..-BK-Fca-1.5kN	4	1	0	2.5	9.3	92
30123201	008F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x8-..-BK-Fca-1.5kN	8	1	0	2.5	9.3	92
30123201	012F-A-D1Q(ZN-GY)2Y(SR)2Y-1D250-1x12-..-BK-Fca-1.5kN	12	1	0	2.5	9.3	92
30123201	024F-A-D1Q(ZN-GY)2Y(SR)2Y-1D300-1x24-..-BK-Fca-1.5kN	24	1	0	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

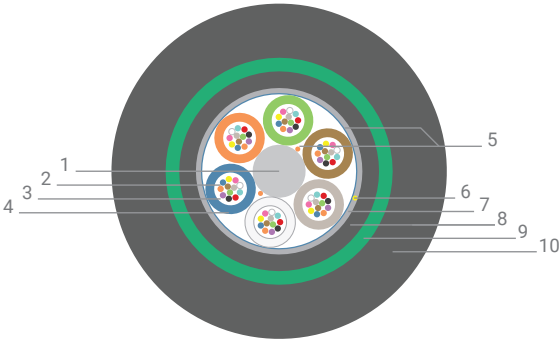
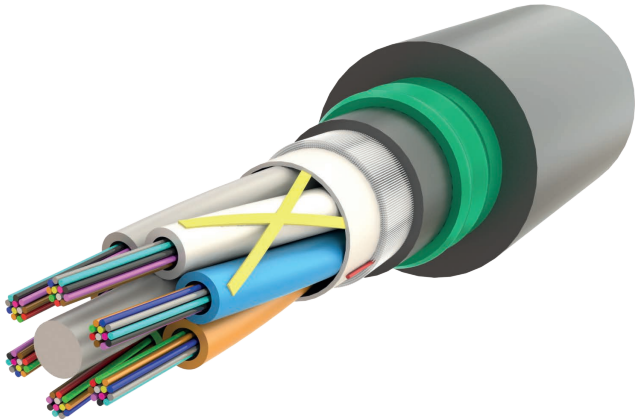
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1000 mm
Drum core diameter	400 mm	400 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-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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60123203	008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-1x8-...-BK-Fca-2.7kN	8	1	5	2.0	13.3	159
60123203	008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x4-...-BK-Fca-2.7kN	8	2	4	2.0	13.3	160
60123203	008F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x2-...-BK-Fca-2.7kN	8	4	2	2.0	13.3	161
60123203	012F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-1x12-...-BK-Fca-2.7kN	12	1	5	2.0	13.3	159
60123203	012F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x2-...-BK-Fca-2.7kN	12	6	0	2.0	13.3	163
60123203	016F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x8-...-BK-Fca-2.7kN	16	2	4	2.0	13.3	160
60123203	016F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x4-...-BK-Fca-2.7kN	16	4	2	2.0	13.3	162
60123203	024F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-2x12-...-BK-Fca-2.7kN	24	2	4	2.0	13.3	160
60123203	024F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x4-...-BK-Fca-2.7kN	24	6	0	2.0	13.3	163
60123203	048F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-4x12-...-BK-Fca-2.7kN	48	4	2	2.0	13.3	162
60123203	048F-AT-D1Q(ZN-GY)2Y(SR)2Y-6D200-6x8-...-BK-Fca-2.7kN	48	6	0	2.0	13.3	163
60123203	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

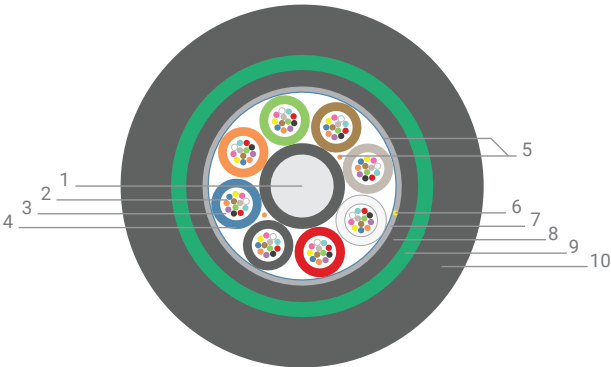
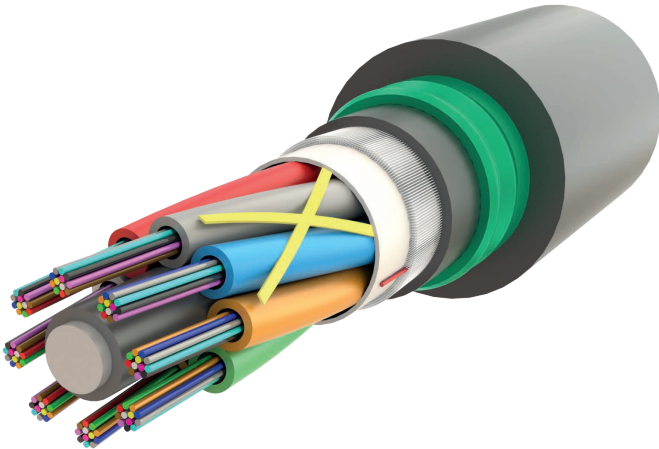
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1400 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-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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60123204	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

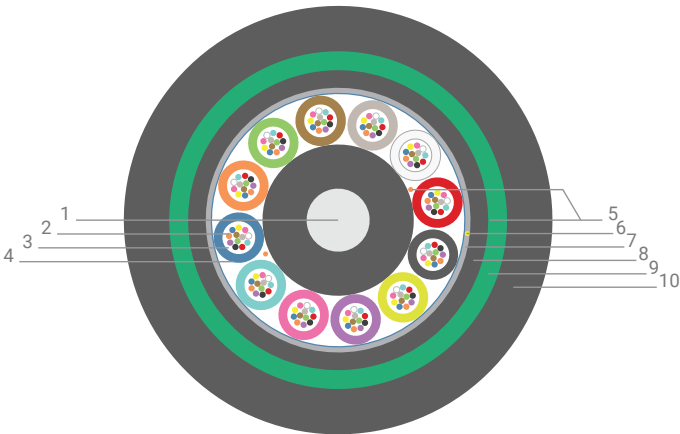
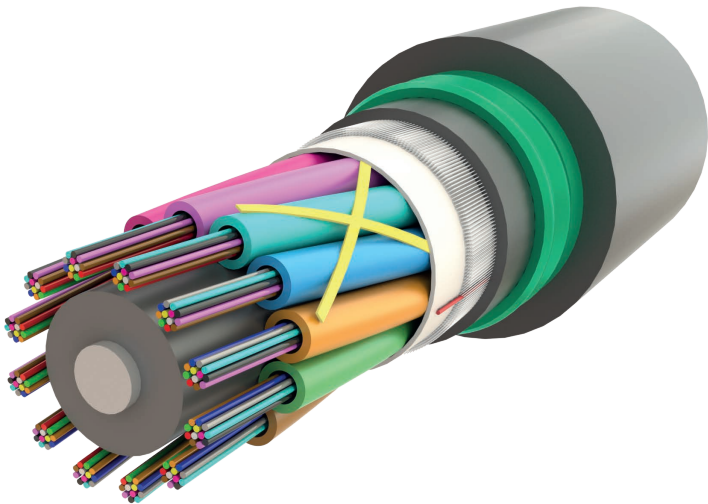
Packaging

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60123205	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

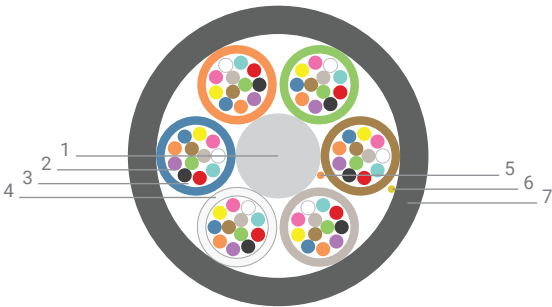
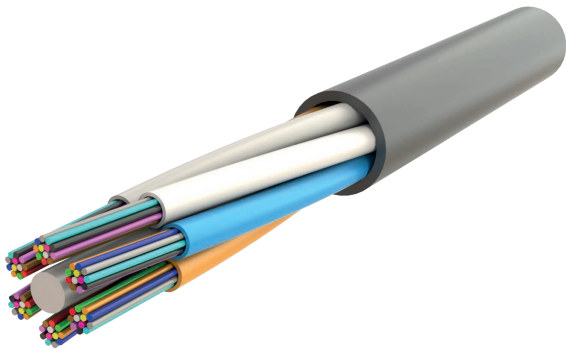
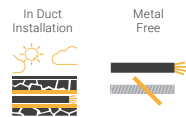
Packaging

Drum length/Tolerance	2000 m ± 5%
Drum Flange diameter	1400 mm
Drum core diameter	700 mm
Outside width	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60320313	002F-AT-D3Q2Y-6D140-1x2-...-BK-Fca-0.5kN	2	1	5	1.4	5.3	22
60320313	004F-AT-D3Q2Y-6D140-1x4-...-BK-Fca-0.5kN	4	1	5	1.4	5.3	22
60320313	004F-AT-D3Q2Y-6D140-2x2-...-BK-Fca-0.5kN	4	2	4	1.4	5.3	22
60320313	008F-AT-D3Q2Y-6D140-1x8-...-BK-Fca-0.5kN	8	1	5	1.4	5.3	22
60320313	008F-AT-D3Q2Y-6D140-2x4-...-BK-Fca-0.5kN	8	2	4	1.4	5.3	22
60320313	008F-AT-D3Q2Y-6D140-4x2-...-BK-Fca-0.5kN	8	4	2	1.4	5.3	22
60320313	012F-AT-D3Q2Y-6D140-1x12-...-BK-Fca-0.5kN	12	1	5	1.4	5.3	22
60320313	012F-AT-D3Q2Y-6D140-6x2-...-BK-Fca-0.5kN	12	6	0	1.4	5.3	22
60320313	016F-AT-D3Q2Y-6D140-2x8-...-BK-Fca-0.5kN	16	2	4	1.4	5.3	22
60320313	016F-AT-D3Q2Y-6D140-4x4-...-BK-Fca-0.5kN	16	4	2	1.4	5.3	22
60320313	024F-AT-D3Q2Y-6D140-2x12-...-BK-Fca-0.5kN	24	2	4	1.4	5.3	22
60320313	024F-AT-D3Q2Y-6D140-6x4-...-BK-Fca-0.5kN	24	6	0	1.4	5.3	22
60320313	048F-AT-D3Q2Y-6D140-4x12-...-BK-Fca-0.5kN	48	4	2	1.4	5.3	22
60320313	048F-AT-D3Q2Y-6D140-6x8-...-BK-Fca-0.5kN	48	6	0	1.4	5.3	22
60320313	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

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

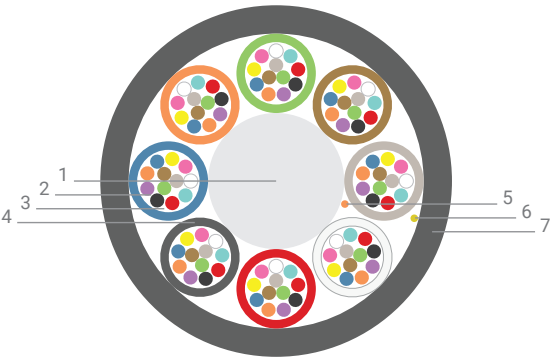
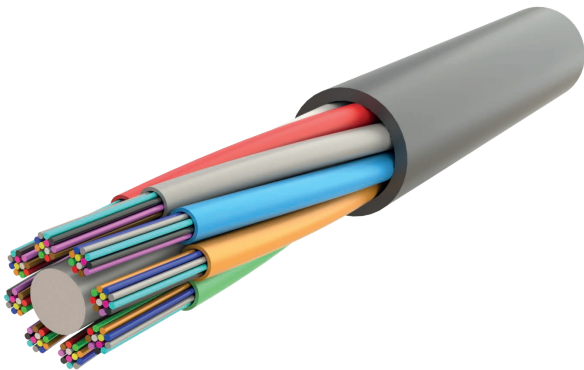
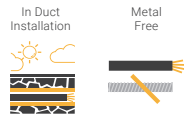
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	630 mm	800 mm
Drum core diameter	300 mm	400 mm
Outside width	400 mm	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60320314	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
- * Sample Code: 096F-AT-D3Q2Y-8D140-8x12-2D-BK-Fca-1.0kN

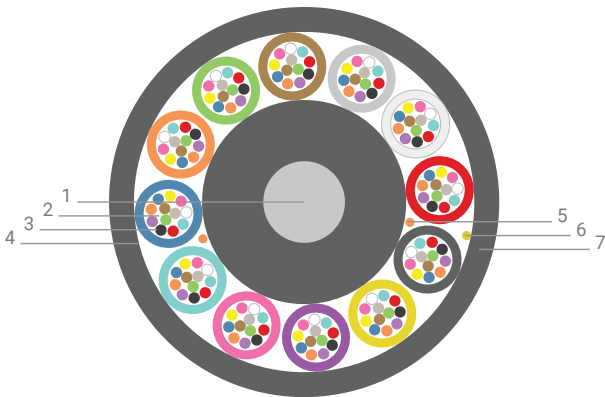
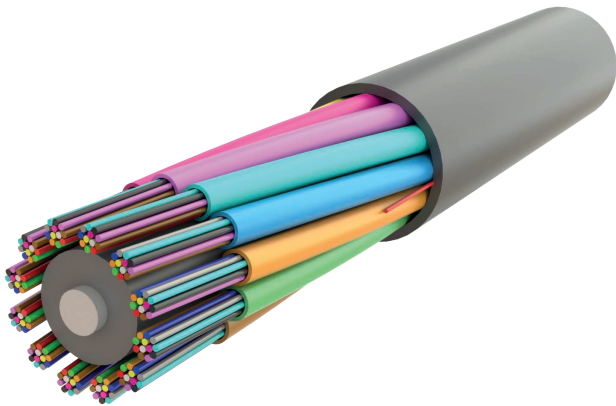
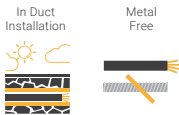
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	710 mm	900 mm
Drum core diameter	400 mm	400 mm
Outside width	600 mm	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60320315	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

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

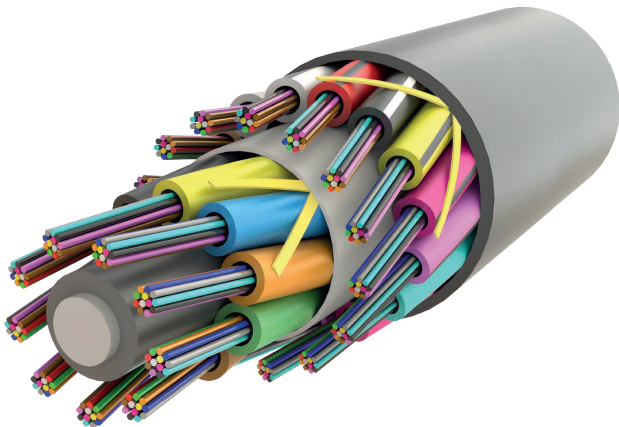
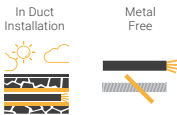
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1100 mm
Drum core diameter	500 mm	580 mm
Outside width	650 mm	780 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60320316	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
- * Sample Code: 288F-AT-D3Q2Y-24D140-24x12-2D-BK-Fca-1.0kN

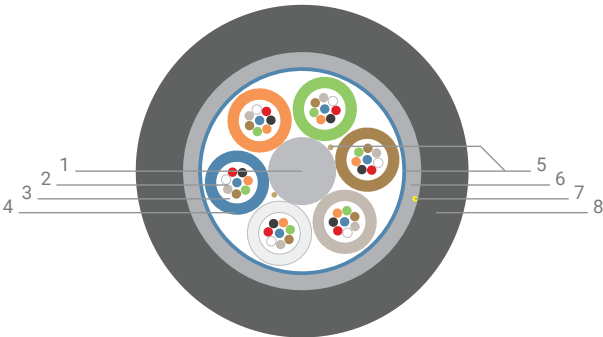
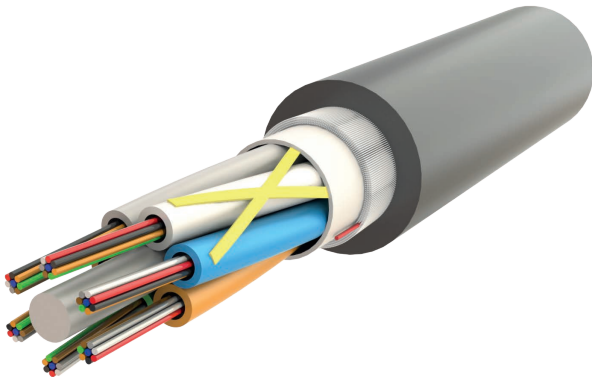
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1000 mm	1100 mm
Drum core diameter	580 mm	600 mm
Outside width	780 mm	1000 mm

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

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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60120509	008F-AT-D1Q(ZN-GY)B2Y-6D170-1x8-...-BK-Fca-2.7kN	8	1	5	1.7	8.8	59
60120509	008F-AT-D1Q(ZN-GY)B2Y-6D170-2x4-...-BK-Fca-2.7kN	8	2	4	1.7	8.8	59
60120509	008F-AT-D1Q(ZN-GY)B2Y-6D170-4x2-...-BK-Fca-2.7kN	8	4	2	1.7	8.8	60
60120509	012F-AT-D1Q(ZN-GY)B2Y-6D170-1x12-...-BK-Fca-2.7kN	12	1	5	1.7	8.8	59
60120509	012F-AT-D1Q(ZN-GY)B2Y-6D170-6x2-...-BK-Fca-2.7kN	12	6	0	1.7	8.8	62
60120509	016F-AT-D1Q(ZN-GY)B2Y-6D170-2x8-...-BK-Fca-2.7kN	16	2	4	1.7	8.8	60
60120509	016F-AT-D1Q(ZN-GY)B2Y-6D170-4x4-...-BK-Fca-2.7kN	16	4	2	1.7	8.8	60
60120509	024F-AT-D1Q(ZN-GY)B2Y-6D170-2x12-...-BK-Fca-2.7kN	24	2	4	1.7	8.8	60
60120509	024F-AT-D1Q(ZN-GY)B2Y-6D170-6x4-...-BK-Fca-2.7kN	24	6	0	1.7	8.8	62
60120509	036F-AT-D1Q(ZN-GY)B2Y-6D170-6x6-...-BK-Fca-2.7kN	36	6	0	1.7	8.8	63
60120509	036F-AT-D1Q(ZN-GY)B2Y-6D170-3x12-...-BK-Fca-2.7kN	36	3	3	1.7	8.8	63
60120509	048F-AT-D1Q(ZN-GY)B2Y-6D170-4x12-...-BK-Fca-2.7kN	48	4	2	1.7	8.8	61
60120509	048F-AT-D1Q(ZN-GY)B2Y-6D170-6x8-...-BK-Fca-2.7kN	48	6	0	1.7	8.8	62
60120509	072F-AT-D1Q(ZN-GY)B2Y-6D170-6x12-...-BK-Fca-2.7kN	72	6	0	1.7	8.8	62

* Available fiber types are G652.D, G657.A1, G657.A2
* Sample Code: 072F-AT-D1Q2(ZN-GY)Y-6D170-6x12-2D-BK-Fca-2.7kN

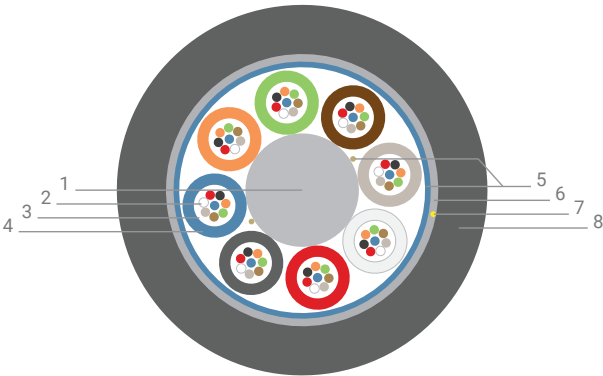
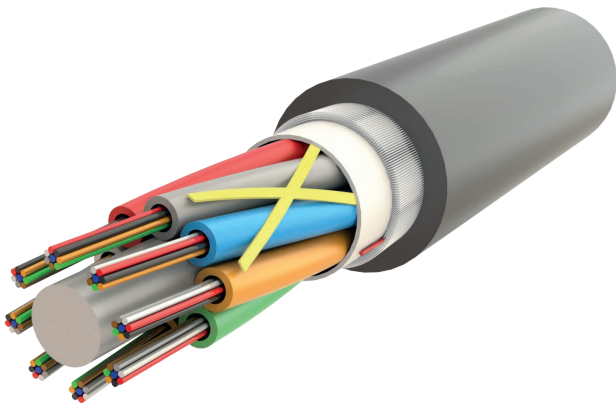
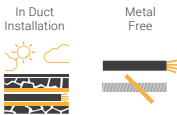
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1000 mm
Drum core diameter	500 mm	500 mm
Outside width	650 mm	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60120510	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

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

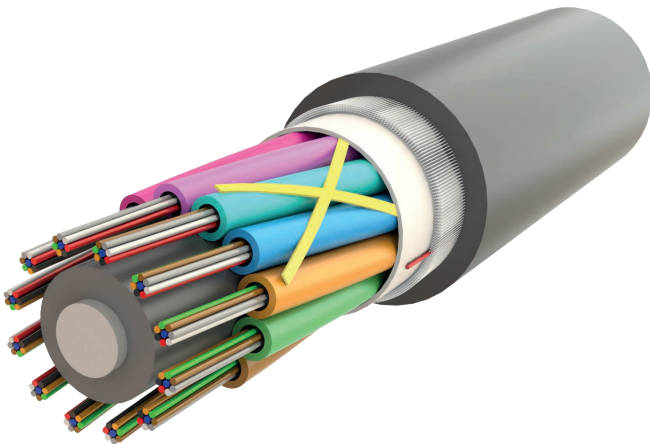
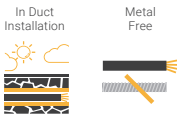
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	900 mm	1000 mm
Drum core diameter	400 mm	400 mm
Outside width	650 mm	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60120511	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

* Sample Code: 144F-AT-D1Q(ZN-GY)2Y-12D170-12x12-2D-BK-Fca-2.7kN

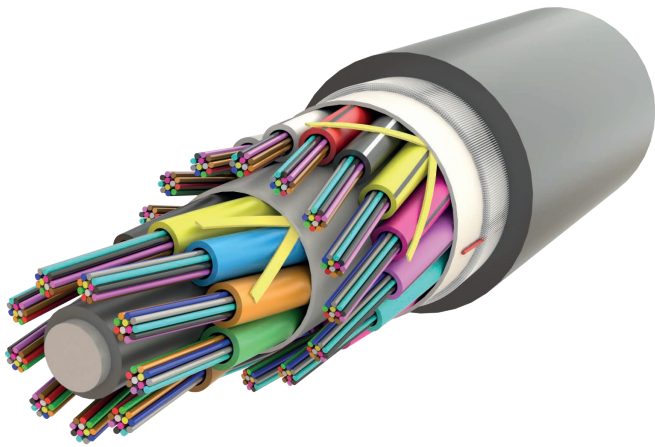
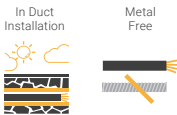
Packaging

Drum length/Tolerance	2000 m ± 5%	4000 m ± 5%
Drum Flange diameter	1100 mm	1300 mm
Drum core diameter	500 mm	600 mm
Outside width	650 mm	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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
60120512	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

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



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TURKIYE

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