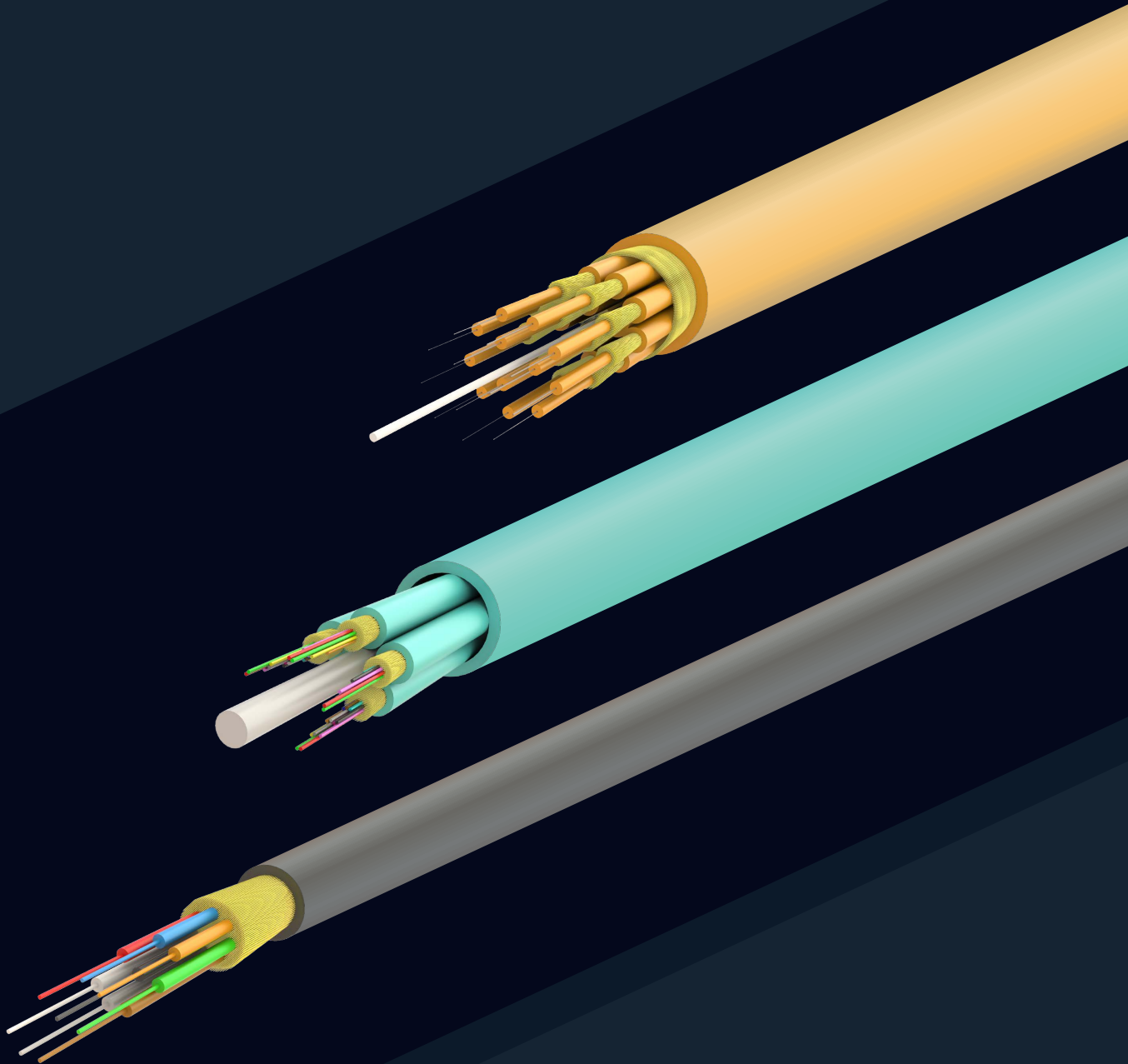




FIBER OPTIC CABLES



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.

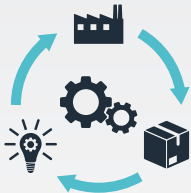
SAMM Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

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.



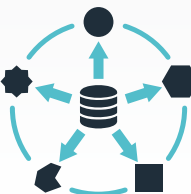
World Class Production

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



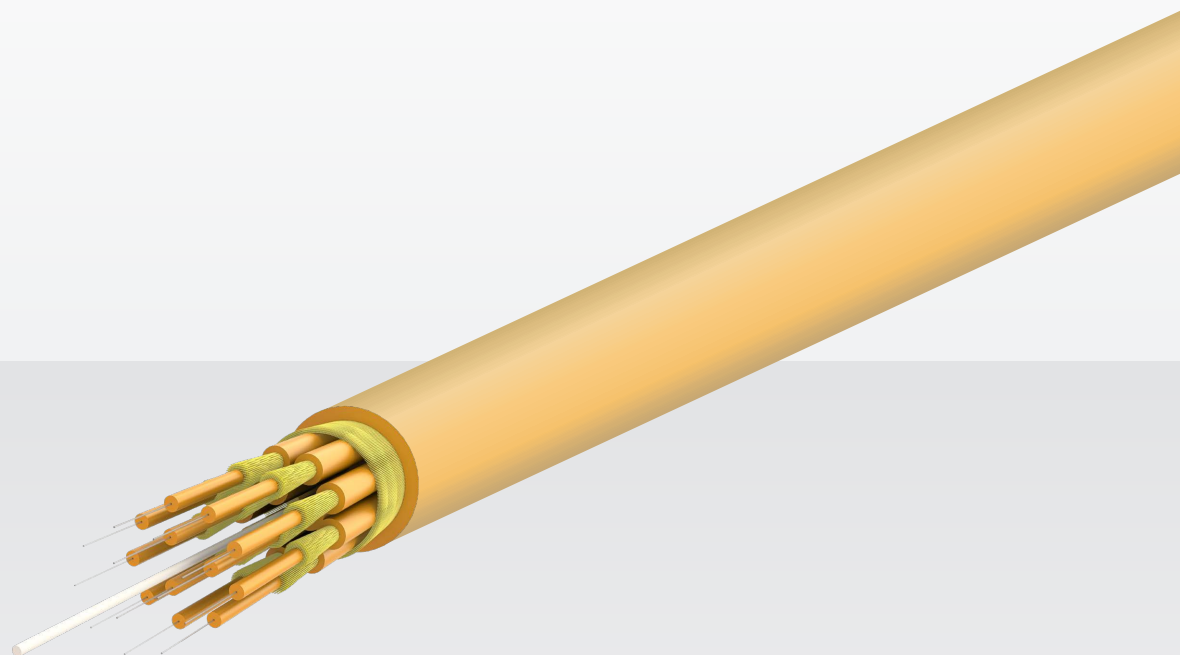
Connecting Continents

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 (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

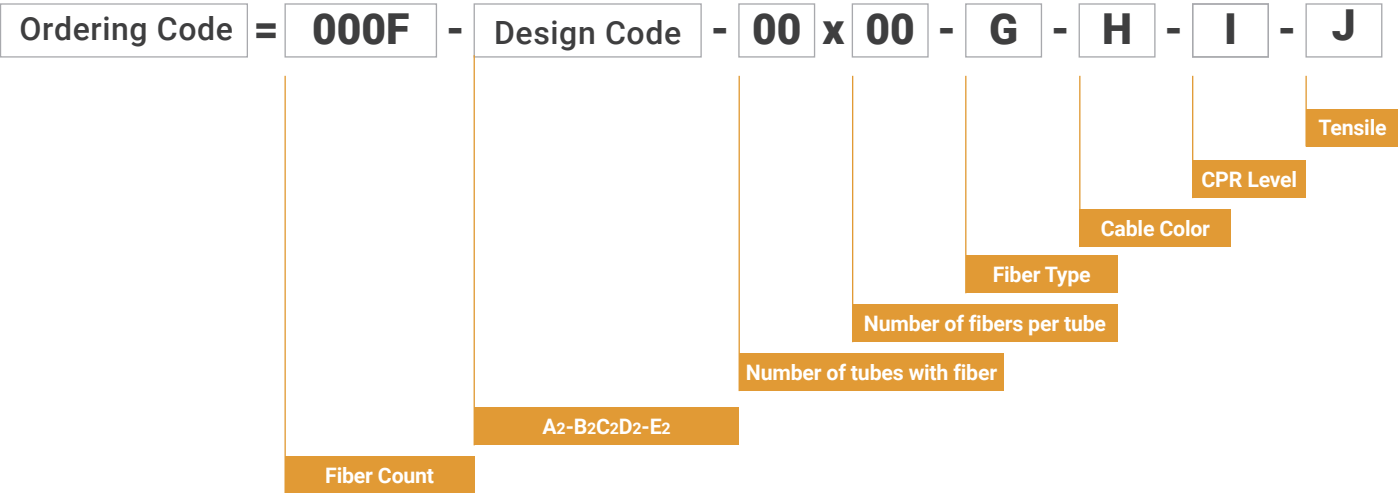
A ₁	A ₂	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

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

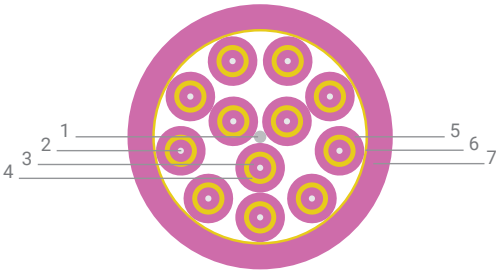
I	CPR Level
	B2ca
	Cca
	Dca
	Eca
	Fca

J	Tensile
	kN

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		-25 to +60 °C
	Storage		-40 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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
41222925	002F-IT-VT9Q(ZN-AY)H(ZN-AY)H-2U200-2x1-...-B2ca-1.3kN	2	2	2.0	7.2	46
41222926	004F-IT-VT9Q(ZN-AY)H(ZN-AY)H-4U200-4x1-...-B2ca-1.3kN	4	4	2.0	7.2	48
41222927	006F-IT-VT9Q(ZN-AY)H(ZN-AY)H-6U200-6x1-...-B2ca-1.8kN	6	6	2.0	8.5	70
41222930	012F-IT-VT9Q(ZN-AY)H(ZN-AY)H-12U200-12x1-...-B2ca-2.0kN	12	12	2.0	10.7	105
41222934	024F-IT-VT9Q(ZN-AY)H(ZN-AY)H-24U200-24x1-...-B2ca-3.0kN	24	24	2.0	14.2	195

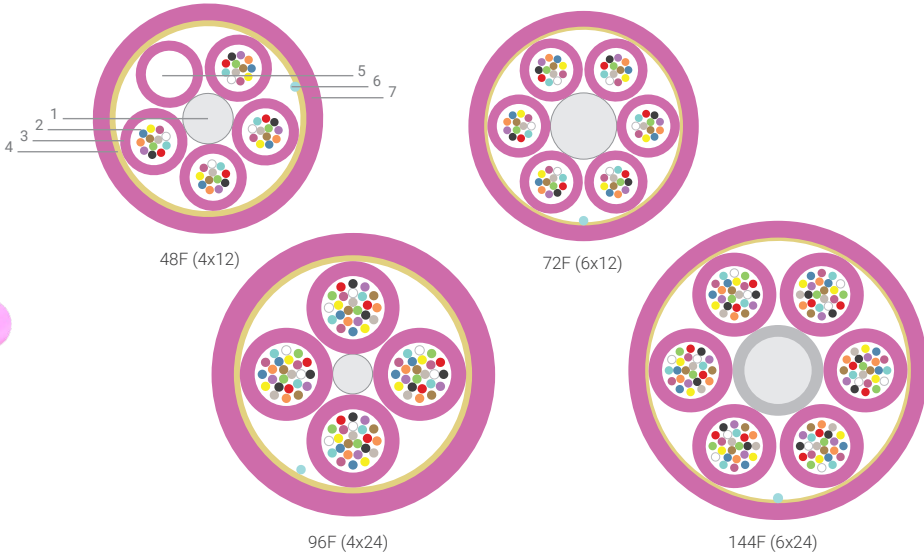
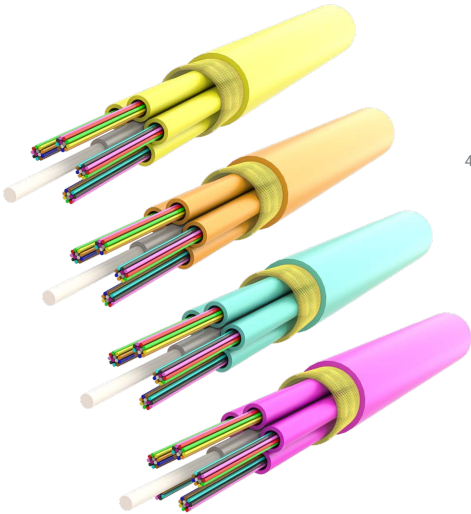
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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		-25 to +60 °C
	Storage		-40 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
40621135	048F-IT-B1Q(ZN-AY)H-5B200-4x12-...-...-B2ca-1.0kN	48	4	1	2.0	6.8	38.5
40621121	072F-IT-B1Q(ZN-AY)H-6B200-6x12-...-...-B2ca-1.0kN	72	6	0	2.0	7.3	45.0
40621136	096F-IT-B1Q(ZN-AY)H-4B250-4x24-...-...-B2ca-0.75kN	96	4	0	2.5	7.5	45.0
40621122	144F-IT-B1Q(ZN-AY)H-6B250-6x24-...-...-B2ca-1.2kN	144	6	0	2.5	8.9	67.0

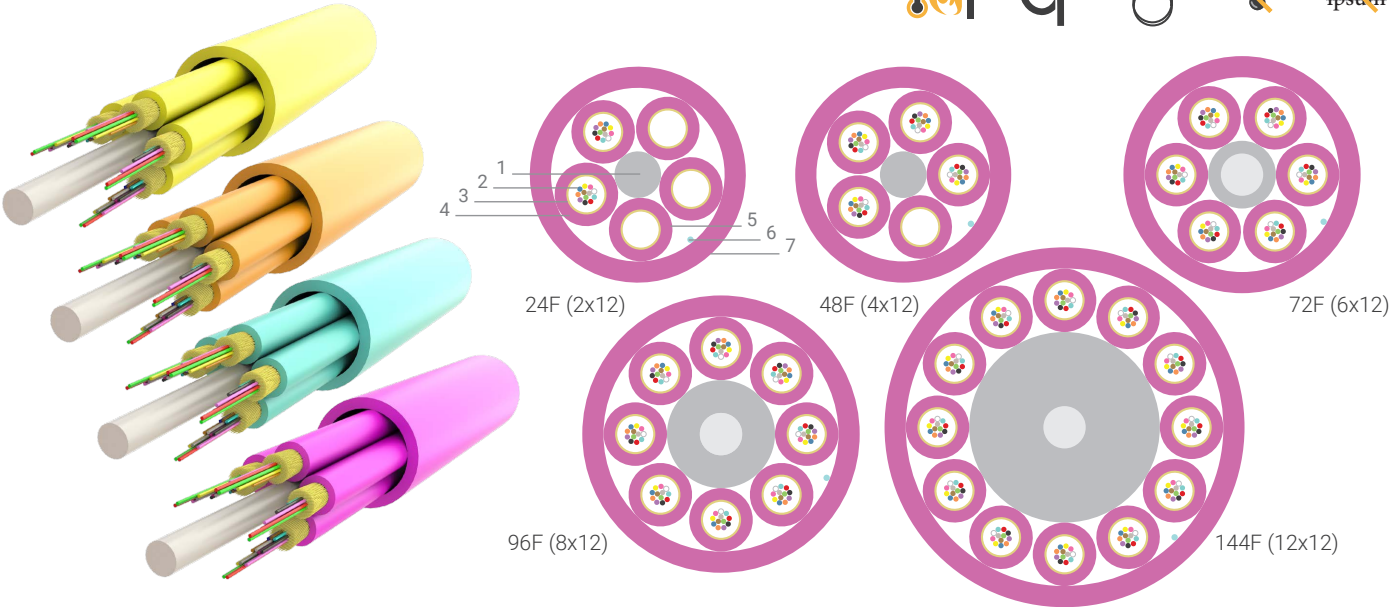
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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		-25 to +60 °C
	Storage		-40 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, s1b, d0, a1

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.
40820257	024F-IT-B3QH-5B300-2x12-...-B2ca-2.0kN	24	2	3	3.0	10.2	93
40820257	048F-IT-B3QH-5B300-4x12-...-B2ca-2.0kN	48	4	1	3.0	10.2	95
40820258	072F-IT-B3QH-6B300-6x12-...-B2ca-2.0kN	72	6	0	3.0	11.2	115
40820261	096F-IT-B3QH-8B300-8x12-...-B2ca-2.0kN	96	8	0	3.0	13.1	136
40820259	144F-IT-B3QH-12B300-12x12-...-B2ca-2.0kN	144	12	0	3.0	17.0	275

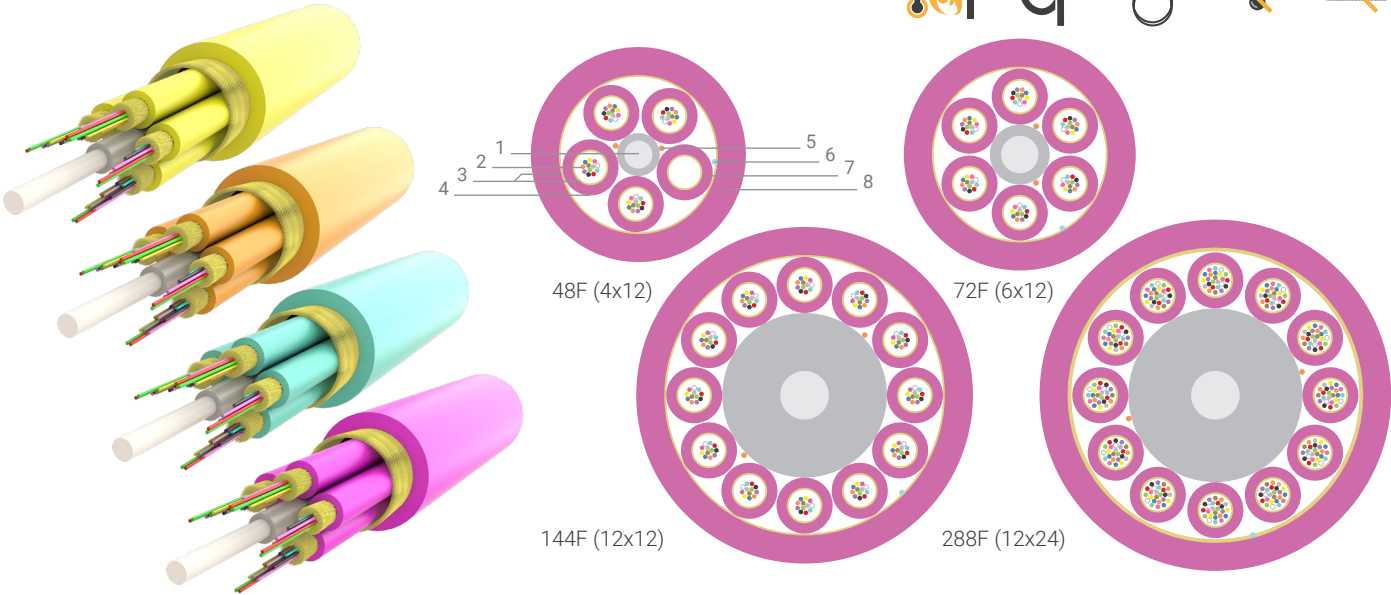
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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		-25 to +60 °C
	Storage		-40 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

Design Number	Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
50821157	048F-UT-B3Q(ZN-AY)H-5B300-4x12-...-B2ca-1.8kN	48	4	1	3.0	11.5	124
50821158	072F-UT-B3Q(ZN-AY)H-6B300-6x12-...-B2ca-2.4kN	72	6	0	3.0	12.4	127
50821159	144F-UT-B3Q(ZN-AY)H-12B300-12x12-...-B2ca-2.4kN	144	12	0	3.0	18.0	315
50821159	288F-UT-B3Q(ZN-AY)H-12B300-12x24-...-B2ca-4.0kN	288	24	0	3.0	18.6	350

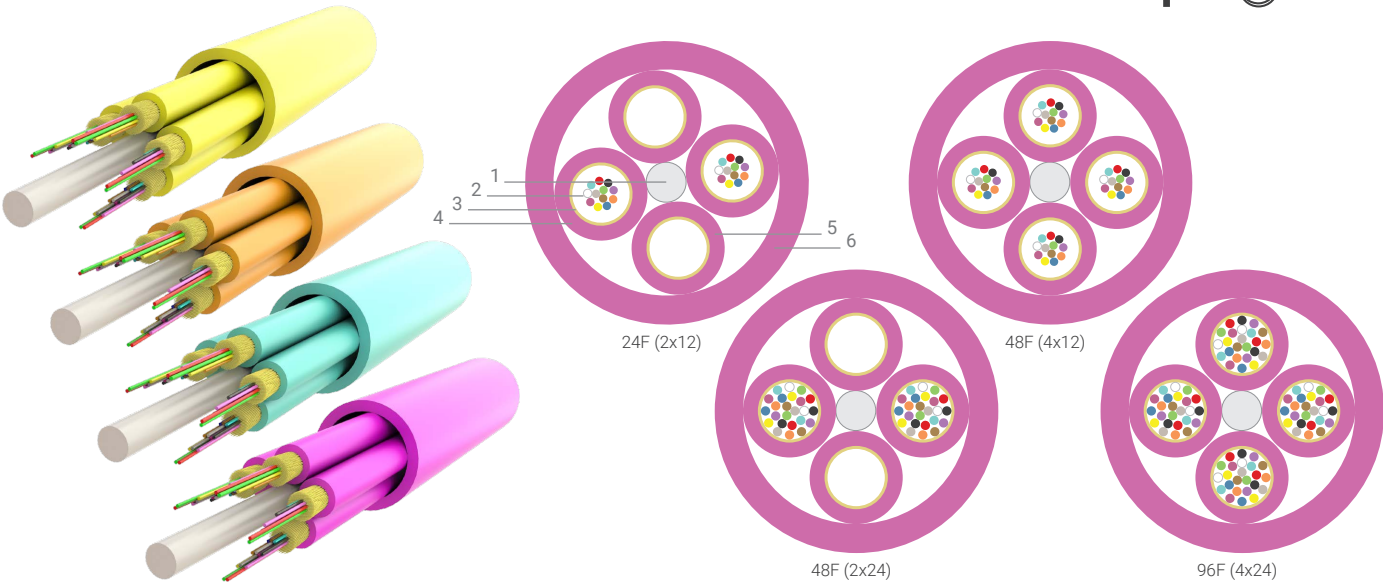
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 288F-UT-B3Q(ZN-AY)H-12B300-12x24-A2-2Y-B2ca-4.0kN

Multi-Fiber Breakout Cable - up to 96 Fibers

Design Type IT-B3H

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



Properties

Metal free indoor cable
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	Aramid yarn
4	Loose Tube	LSZH
5	Filler Tube	LSZH
6	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	1000 N
	In Service		600 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		-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

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.
40800263	024F-IT-B3H-4B300-2x12-...-Dca-1.0kN	24	2	2	3.0	9.0	73
40800263	048F-IT-B3H-4B300-4x12-...-Dca-1.0kN	48	4	0	3.0	9.0	67
40800263	048F-IT-B3H-4B300-2x24-...-Dca-1.0kN	48	2	2	3.0	9.0	74
40800263	096F-IT-B3H-4B300-4x24-...-Dca-1.0kN	96	4	0	3.0	9.0	68

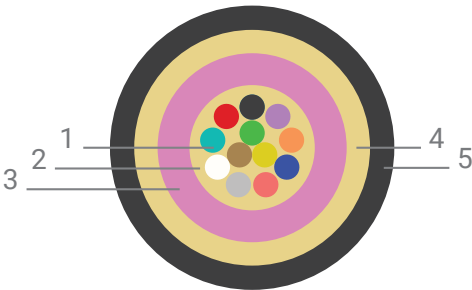
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 096F-IT-B3H-4B300-4x24-M4-VT-Dca-1.0kN

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	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=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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
20801119	004F-U-B3Q(ZN-AY)H-1B300-1x4-...-Eca-0.5kN	4	1	3.0	4.8	23
20801119	008F-U-B3Q(ZN-AY)H-1B300-1x8-...-Eca-0.5kN	8	1	3.0	4.8	23
20801119	012F-U-B3Q(ZN-AY)H-1B300-1x12-...-Eca-0.5kN	12	1	3.0	4.8	23
20801119	024F-U-B3Q(ZN-AY)H-1B300-1x24-...-Eca-0.5kN	24	1	3.0	4.8	23

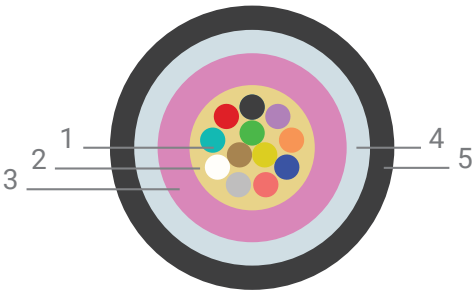
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 024F-U-B3Q(ZN-AY)H-1B300-1x24-OM3-BK-Eca-0.5kN

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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
20821219	004F-U-B3Q(ZN-GY)H-1B300-1x4-...-Eca-0.8kN	4	1	3.0	4.8	26
20821219	008F-U-B3Q(ZN-GY)H-1B300-1x8-...-Eca-0.8kN	8	1	3.0	4.8	26
20821219	012F-U-B3Q(ZN-GY)H-1B300-1x12-...-Eca-0.8kN	12	1	3.0	4.8	26
20821219	024F-U-B3Q(ZN-GY)H-1B300-1x24-...-Eca-0.8kN	24	1	3.0	4.8	26

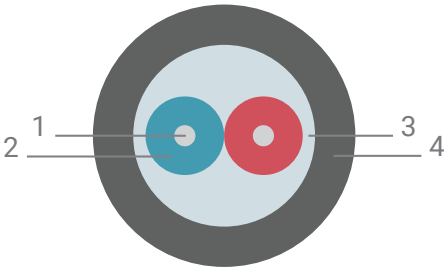
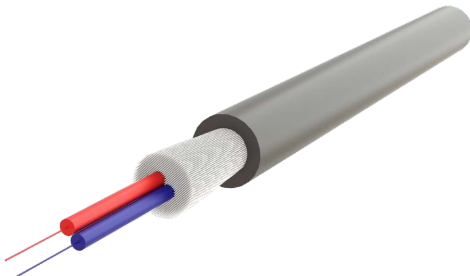
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51221740	002F-UT-VT9Q(ZN-GY)BH-2U090-1x2-...-...-Eca-0.8kN	2	2	3.0	4.8	27

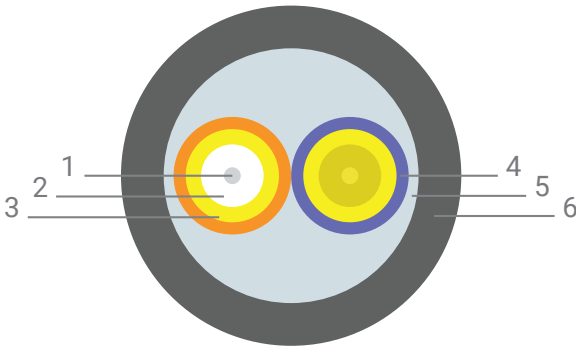
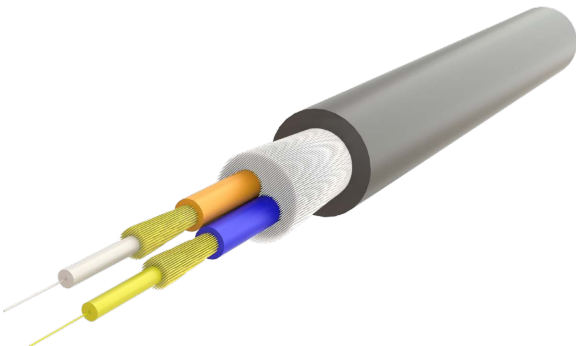
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51223625	002F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-2U200-1x2-....-Eca-1.6kN	2	2	2.0	7.0	55

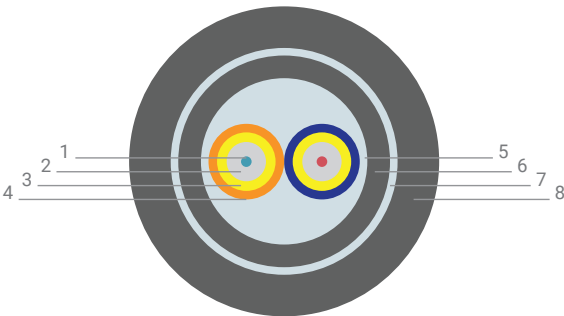
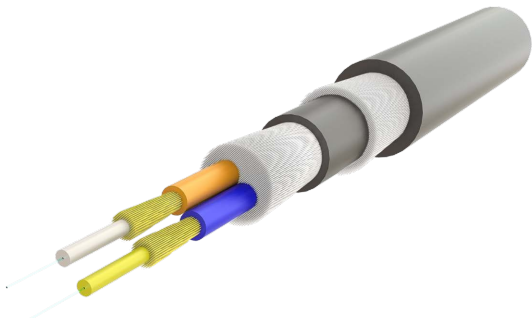
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51223725	002F-UT-VT9Q(ZN-AY)H(ZN-GY)H(ZN-GY)BH-2U200-1x2-...-Eca-2.0kN	2	2	2.0	8.2	70

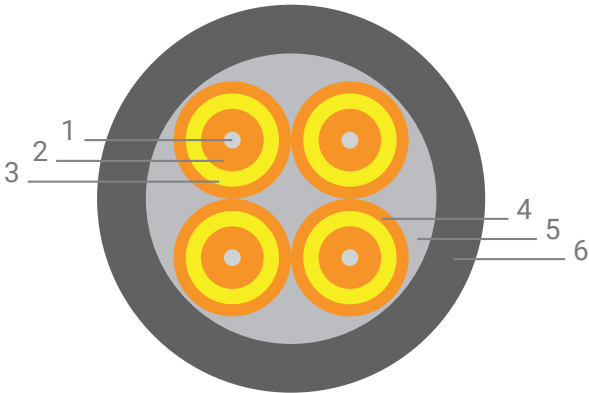
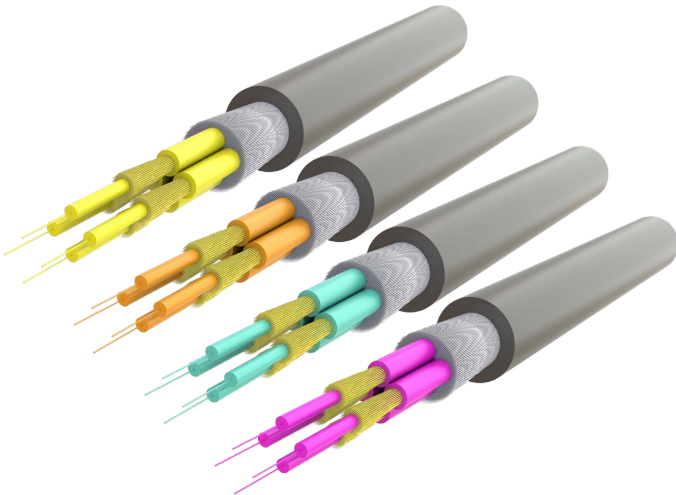
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51223626	004F-UT-VT9Q(ZN-AY)H(ZN-GY)BH-4U200-4x1-....-BK-Eca-2.0kN	4	4	2.0	7.5	60

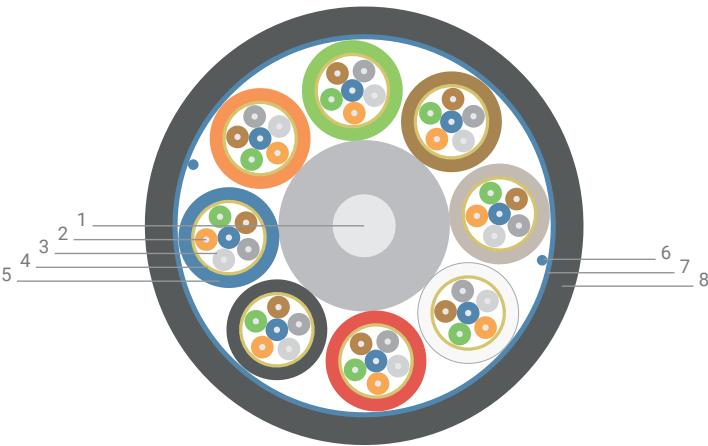
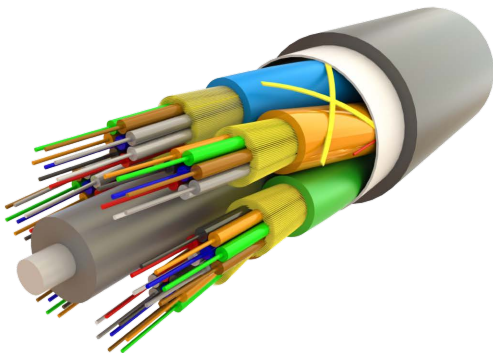
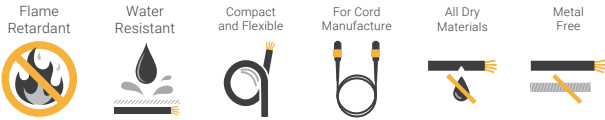
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* 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



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

Cable Construction

1	Central Strength Member	FRP / Coated
2	Fiber	Single-mode or Multi-mode
3	Tight Buffer	LSZH
4	Strength Member	Swellable Aramid Yarn
5	Sub Unit Jacket	LSZH
6	Core Wrapping	Polyester Tape
7	Ripcord	Polyester
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	4500 N
	In Service		2250 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 +50 °C
	In Service		-25 to +60 °C
	Storage		-40 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	Eca

Ordering Codes

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51222760	048F-UT-VT9Q(ZN-AY)HH-8U400-8x6-...-Eca-4.5kN	48	8	2.0	17.4	280

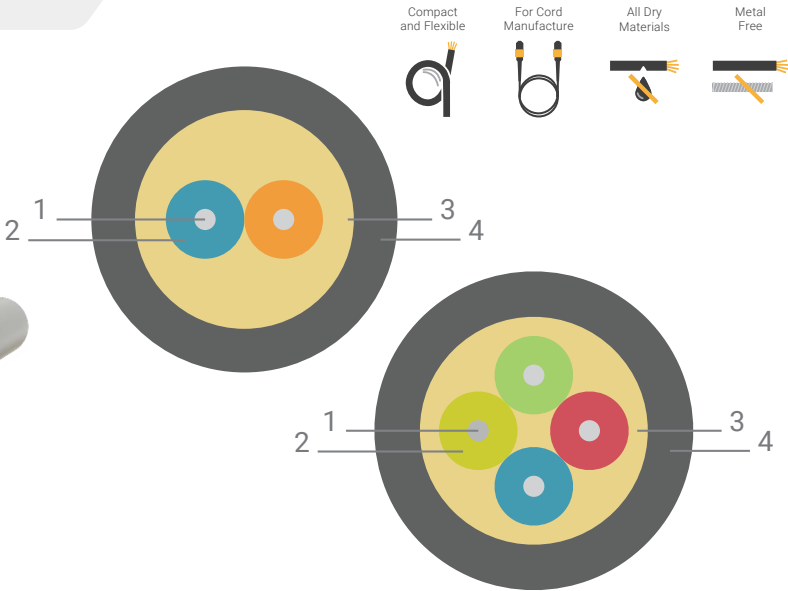
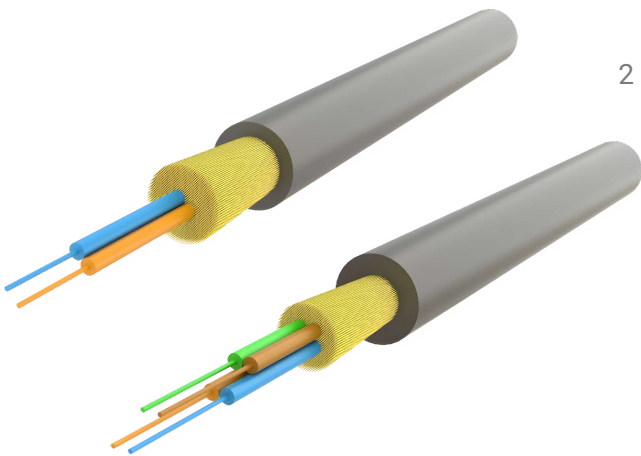
* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 048F-UT-VT9Q(ZN-AY)HH-8U400-8x6-2D-BK-Eca-4.5kN

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	900μ 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, ±1440°, 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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51523840	002F-UT-WT9Q(ZN-AY)11Y-2U090-1x2-...-...-Eca-1.8kN	2	2	0.9	5.6	25
51523841	004F-UT-WT9Q(ZN-AY)11Y-4U090-1x4-...-...-Eca-1.8kN	4	4	0.9	5.8	25

* Sample Code: 004F-UT-WT9Q(ZN-AY)11Y-4U090-1x4-A1-BK-Eca-1.8kN

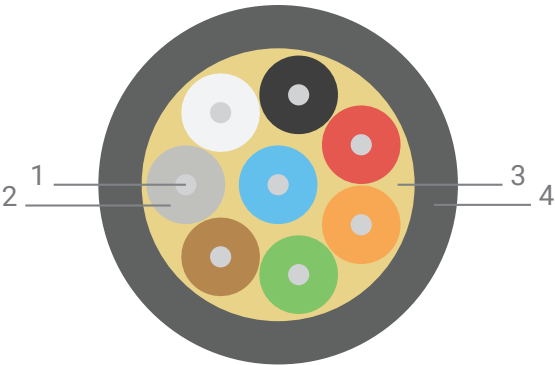
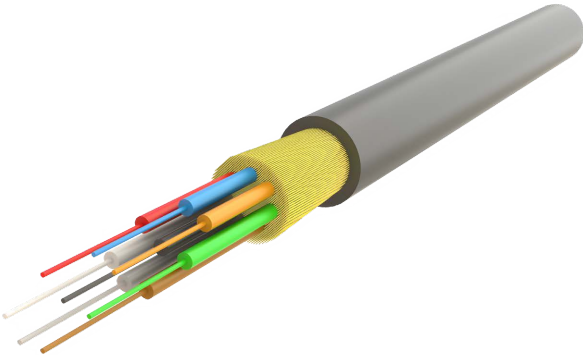
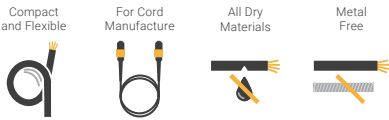
Available Fiber Types

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	900μ 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, ±1440°, 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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
51523843	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

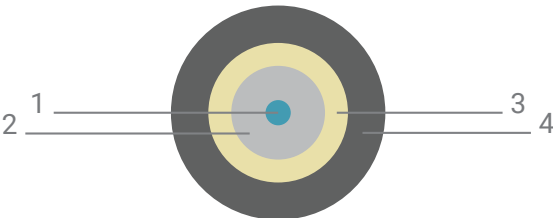
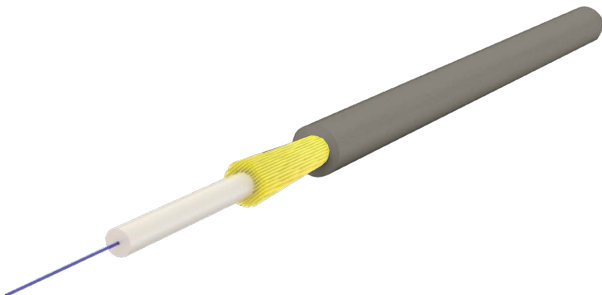
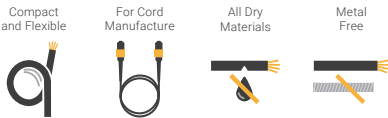
Available Fiber Types

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

Design Number	Order Code	Fiber Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
21523839	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

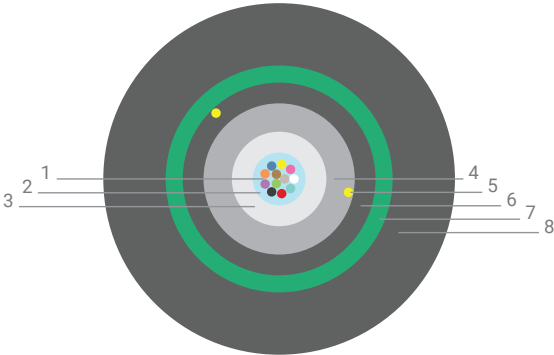
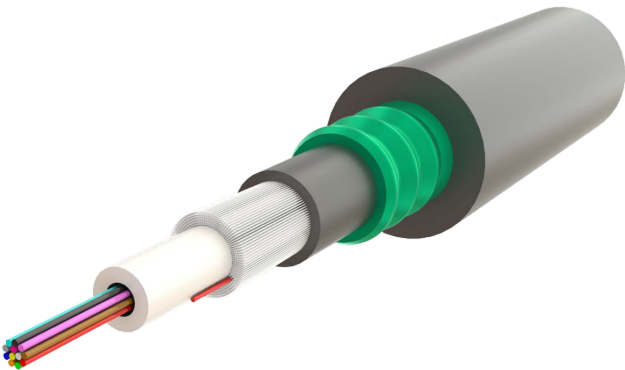
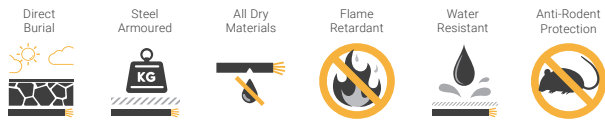
Available Fiber Types

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/Km) 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

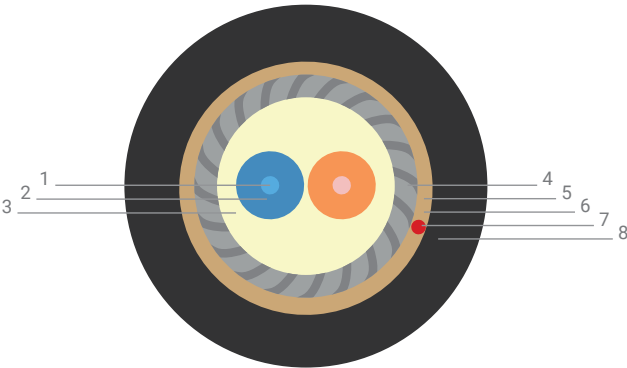
Packaging

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

Steel Spiral Tube, SJ, LSZH, Optical Patch Cable - 2 Fibers

Design Type U-VT9-ST(ZN-AY)H-2U090

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



Properties

Steel spiral tube universal patch cable with a completely dry design
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Longitudinal and transversal water resistant cable
Ripcord for easy outer sheath stripping

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Tube Filling Material	Swellable Yarn
4	Central Tube	Steel Spiral Tube
5	Strength Member	Aramid Yarn
6	Water Blocking Material	Water-Swellable Yarn
7	Ripcord	Polyester
8	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
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	400 N
	In Service		250 N
Crush Resistance	Installation	IEC 60794-1-21-E3	800 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 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
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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
21203924	002F-U-VT9-ST(ZN-AY)H-2U090-1x2-...-...-Eca-0.4kN	2	2	1	2.9	4.8	32

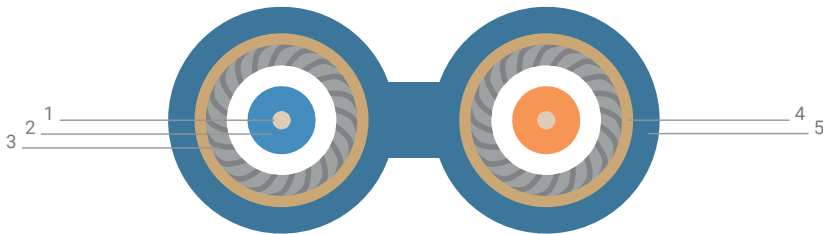
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-U-VT9-ST(ZN-AY)H-2U090-1x2-A2-BK-Eca-0.4kN

Steel Spiral Tube, SJ, LSZH, Fig-8 Optical Patch Cable - 2 Fibers

Design Type I-VT9-ST(ZN-AY)H-2U090

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



Properties

Steel spiral tube indoor patch cable with a Fig-8 design
Designed for direct connector assembly
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Central Tube	Steel Spiral Tube
4	Strength Member	Aramid Yarn
5	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
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	400 N
	In Service		250 N
Crush Resistance	Installation	IEC 60794-1-21-E3	800 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 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		-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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
11203923	002F-I-VT9-ST(ZN-AY)H-2U090-2x1-...-...-Eca-0.4kN	2	2	2	2.0	3.0 x 6.1	29

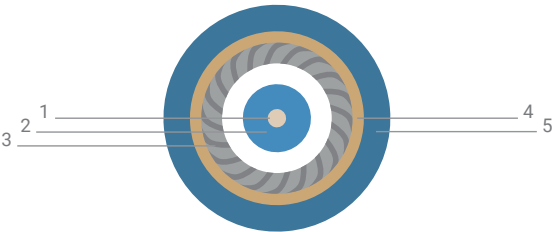
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-I-VT9-ST(ZN-AY)H-2U090-2x1-A2-BU-Eca-0.4kN

Steel Spiral Tube, SJ, LSZH, Optical Patch Cable - 1 Fiber

Design Type I-VT9-ST(ZN-AY)H-1U090

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



Properties

Steel spiral tube indoor patch cable
Designed for direct connector assembly
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Central Tube	Steel Spiral Tube
4	Strength Member	Aramid Yarn
5	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
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	200 N
	In Service		125 N
Crush Resistance	Installation	IEC 60794-1-21-E3	800 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 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		-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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
11203923	001F-I-VT9-ST(ZN-AY)H-1U090-1x1-...-...-Eca-0.2kN	1	1	1	2.0	3.0	14.5

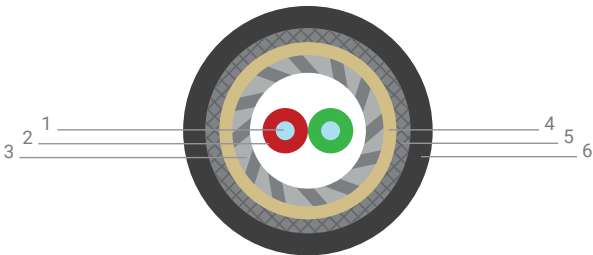
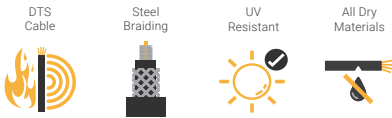
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 001F-I-VT9-ST(ZN-AY)H-1U090-1x1-A2-BU-Eca-0.2kN

Steel Spiral Tube, SJ, LSZH, Steel Braided Sensing Cable - 2 Fibers

Design Type **U-VT6(ST)(SB)H-2U060**

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



Properties

Steel spiral tube universal sensing cable with a steel braided design
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Ideal for distributed temperature sensing (DTS) systems.
Designed for high fire-safety environments.

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Central Tube	Steel Spiral Tube
4	Strength Member	Aramid Yarn
5	Armoured Material	Braided Steel
6	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
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	400 N
	In Service		200 N
Crush Resistance	Installation	IEC 60794-1-21-E3	3000 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 4 turns, 3 cycles

Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	In Service (Short Term)	IEC 60794-1-22-F12	-40 to +120 °C
	In Service (Long Term)		-40 to +85 °C
	Storage		-40 to +85 °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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (Kg/Km) nom.
21104023	002F-U-VT6(ST)(SB)H-2U060-1x2-...-...-Eca-0.4kN	2	2	1	2.0	3.3	12

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

* Sample Code: 002F-U-VT6(ST)(SB)H-2U060-1x2-M1-BK-Eca-0.4kN

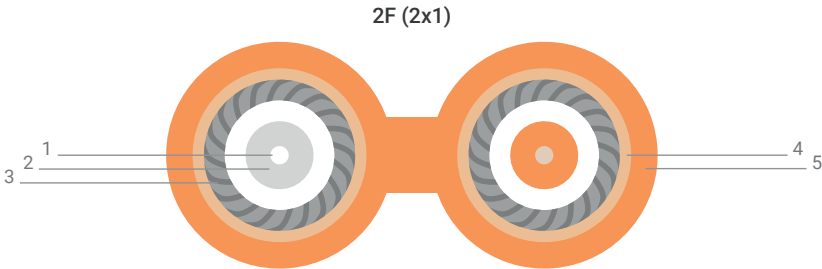
Order Code

- 004F-U-B3Q(ZN-AY)H-1B300-1x4-...-...-Eca-0.5kN
- 008F-U-B3Q(ZN-AY)H-1B300-1x8-...-...-Eca-0.5kN
- 012F-U-B3Q(ZN-AY)H-1B300-1x12-...-...-Eca-0.5kN
- 024F-U-B3Q(ZN-AY)H-1B300-1x24-...-...-Eca-0.5kN

Steel Spiral Tube, SJ, LSZH, Fig-8 Optical Patch Cable - 2 Fibers

Design Type I-VS9-ST(ZN-AY)H-2U090

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



Properties

Steel spiral tube indoor patch cable with a Fig-8 design
Designed for direct connector assembly
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Central Tube	Steel Spiral Tube
4	Strength Member	Aramid Yarn
5	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
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	400 N
	In Service		250 N
Crush Resistance	Installation	IEC 60794-1-21-E3	800 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 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		-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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
11001640	002F-I-VS9-ST(ZN-AY)H-2U090-2x1-...-...-Eca-0.4kN	2	2	2	1.8	3.0 x 6.1	31

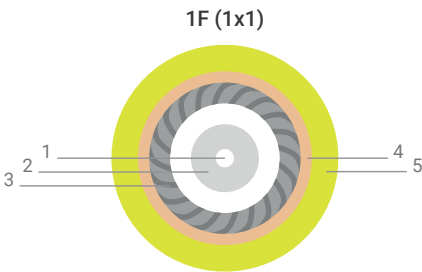
* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

* Sample Code: 002F-I-VS9-ST(ZN-AY)H-2U090-2x1-M1-OG-Eca-0.4kN

Steel Spiral Tube, SJ, LSZH, Optical Patch Cable - 1 Fiber

Design Type I-VS9-ST(ZN-AY)H-1U090

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



Properties

Steel spiral tube indoor patch cable
Designed for direct connector assembly
Aramid yarn strength member
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements

Cable Construction

1	Fiber	Single-mode or Multi-mode
2	Tight Buffer	LSZH
3	Central Tube	Steel Spiral Tube
4	Strength Member	Aramid Yarn
5	Outer Sheath	UV Resistant LSZH

Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
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	200 N
	In Service		100 N
Crush Resistance	Installation	IEC 60794-1-21-E3	800 N / 10 cm
	-		
Impact	-	IEC 60794-1-21-E4	Wp=10J, 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, 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		-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

Design Number	Order Code	Fiber Count	Tight Count	Tube Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
11001639	001F-I-VS9-ST(ZN-AY)H-1U090-1x1-...-...-Eca-0.2kN	1	1	1	1.8	3.0	16

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

* Sample Code: 001F-I-VS9-ST(ZN-AY)H-1U090-1x1-A2-YE-Eca-0.2kN



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TURKIYE

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