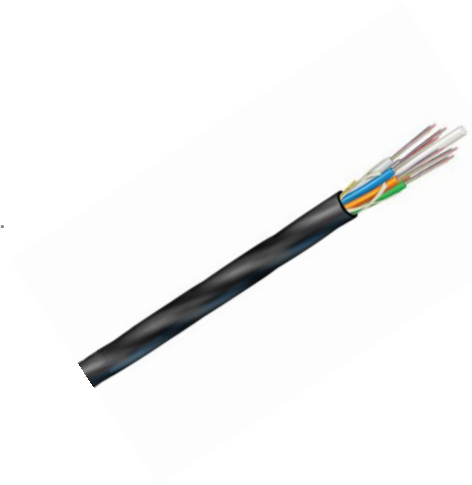


Introduction

LightWave® Air Blown Fiber Cable

Air Blown Fiber Cable dedicated for FTTH systems with minimized diameter corresponding with AIRWAVE microducts diameters.
Characteristic is advantageous proportion of fiber number in thin cable diameter.
Loose tube design, Accurate excess fiber length control to get stable cable performance
Semi-dry cable core design, environment friendly, easy for test and splice
Small outer diameter, light weight, low friction sheath material
High-speed, long-distance air-blowing, efficient installation
Cables are designed to blow by using jetting method.



Technical Specification

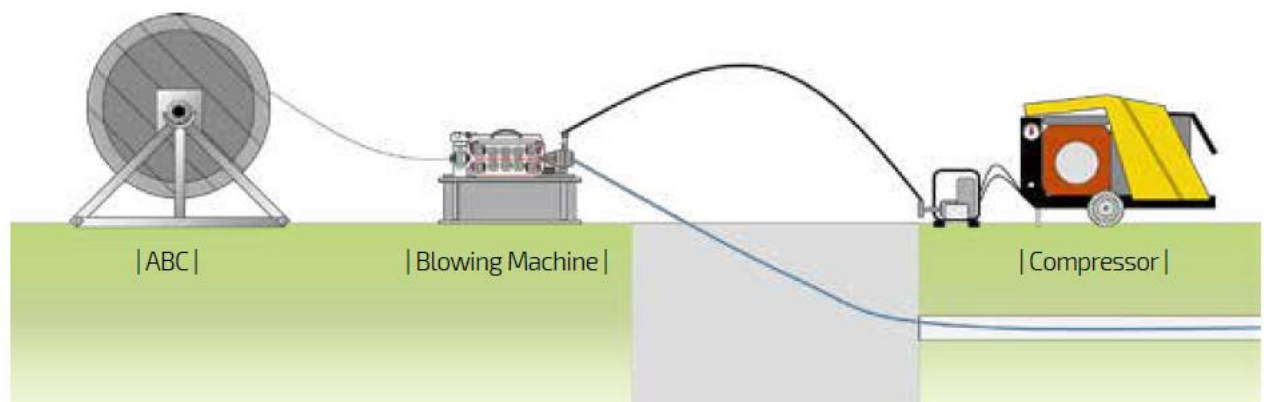
Stranded Loose Tube Type

The fibers are positioned in a loose tube made of PBT.
The tube is filled with a water-resistant filling compound.
A fiber reinforce plastic locates in the center of core as a non-metallic strength member.
The tubes (and the fillers) are stranded around the strength member into a compact and circular core.
The cable is completed with a PE sheath.

Temperature Range: Transportation : -40°C~+70°C ; Installation : -10°C~+50°C ; In use : -40°C~+70°C

Application

- Outdoor and indoor connections,
- FTTH and last mile connections,
- Distribution networks with dense fiber capacity,
- Terminal connections,
- Tele-technical canalization: existing and secondary,

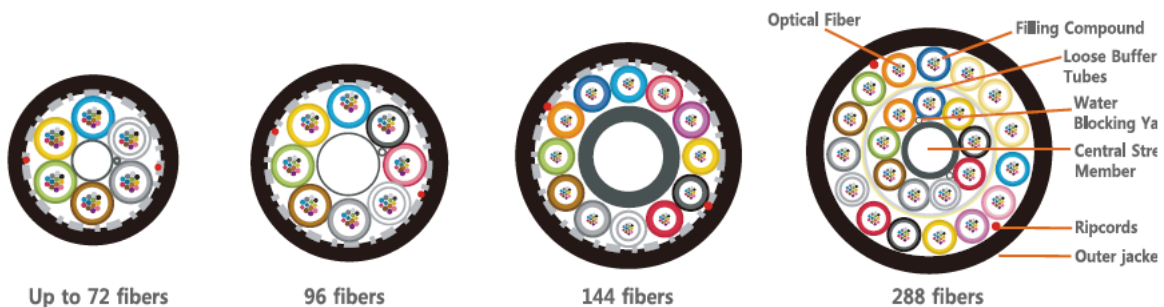


Cable Construction

The construction of the cable shall be in accordance with Table Below:

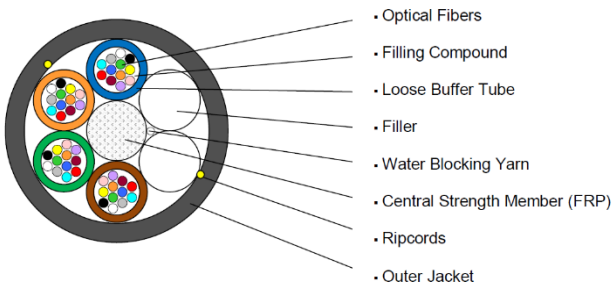
ITEMS	DESCRIPTION						
	Max. 24	Max. 72	96	144	192	216	288
Number of Fibers	4	Max. 12	12	12	12	12	12
No. of Fibers per Tube	Max. 6	Max. 6	8	12	4 + 12	6 + 12	9 + 15
No. of PBT Loose Buffer Tube	Thixotropic Jelly Compound						
Filling Compound in Loose Buffer Tube	Max. 5	Max. 5	0	0	2 + 0	0	0
No. of PE Filler	FRP (with PE coating if necessary)						
Central Strength Member	Water Swellable Yarn around the CSM (If necessary to prevent the ingress of water)						
Water Blocking Material	Two Aramid Yarn						
Rip Cord	Black HDPE						
Outer Jacket	4.5	5.9	6.5	8.0	8.2	8.2	10.4
Cable Diameter (± 0.2mm)	17	28	38	58	52	52	85
Approx. Cable Weight (kg/km)							

Fiber	250µm, G652.D / G657.A1			200µm, G657.A1		
Fiber Count	Up to 72 F	96~216 F	288 F	Up to 144 F	288 F	432 F
Cable Diameter	5.8	6.5 ~ 8.0	10.2	5.1 ~ 6.4	7.9	8.7

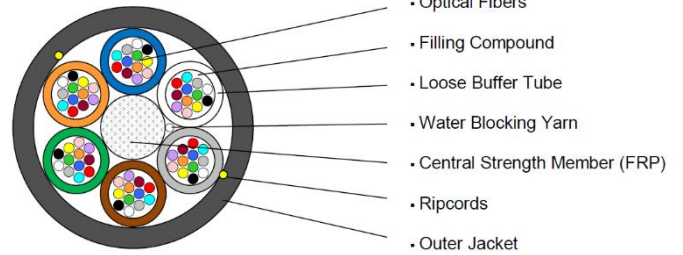


Cross-sectional Drawing of Cable

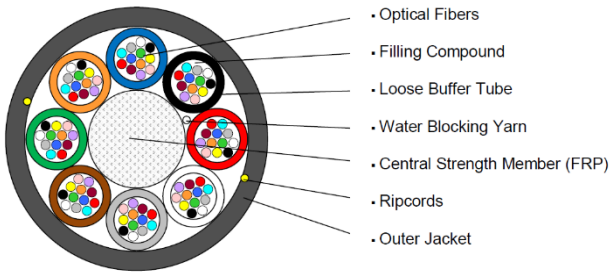
48-Fiber Air Blown Cable Design



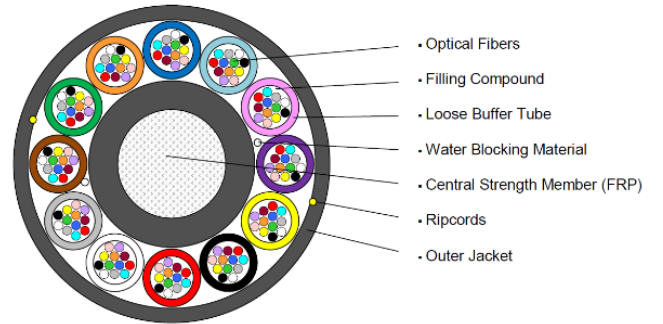
72-Fiber Air Blown Cable Design



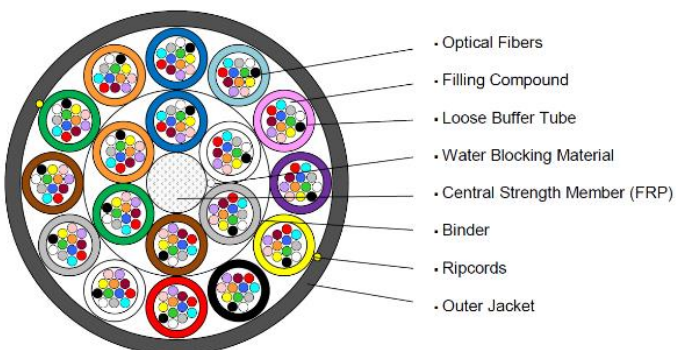
96-Fiber Air Blown Cable Design



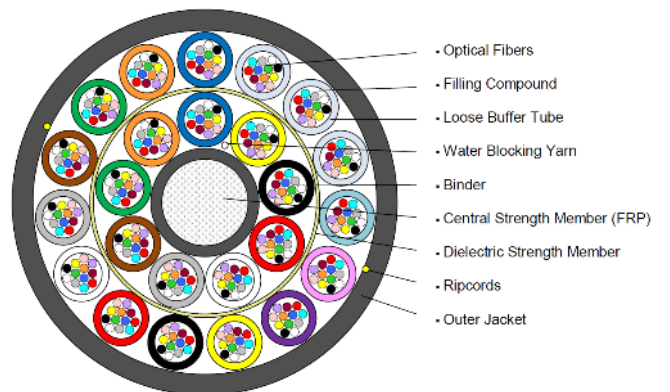
144-Fiber Air Blown Cable Design



192-Fiber Air Blown Cable Design



288-Fiber Air Blown Cable Design



Cable Specifications vs Microduct Configuration

Cable Type	Cable Count	Cable size (OD/mm)	Microduct (ID/mm)	Microduct Configuration	Microduct Configuration
ABF	2 ~12 F	1.2 ~ 1.6mm	2.1mm	4/2.1mm	1, 7, 12, 24way
	2 ~12 F	1.2 ~ 1.6mm	3.5mm	7/3.5mm	1, 2, 3, 4, 5, 6, 7, 12, 14, 19, 24, 24+1way
	2 ~12 F	1.2 ~ 1.6mm	3.5mm	5/3.5mm	1, 2, 4, 7, 12, 19, 24+1way
ABC	Upto 72 F (250 μ m)	5.8mm	8mm	12/8mm	1, 2, 3, 4, 5, 6, 7way
				10/8mm	1, 2, 4, 7way
	Upto 144F (200 μ m)	5.1 ~ 6.4mm	8mm	12/8mm	1, 2, 3, 4, 5, 6, 7way
				10/8mm	1, 2, 4, 7way
	96 ~216F (250 μ m)	6.5 ~ 8.0mm	10mm	14/10mm	1, 2, 3, 4, 5, 6, 7way
				12/10mm	1, 2, 4, 7way
	288F (200 μ m)	7.9mm	10mm	14/10mm	1, 2, 3, 4, 5, 6, 7way
				12/10mm	1, 2, 4, 7way
288F (250 μ m)	10.2mm	12mm	16/12mm	1, 2, 3, 4, 5, 6, 7way	
432F (200 μ m)	8.7mm	12mm	16/12mm	1, 2, 3, 4, 5, 6, 7way	

FIBER IDENTIFICATION

The color code of the individual fibers within the Air blown fiber shall be in accordance with the table below.

Color Code of the individual Fibers:

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

Air Blown Fiber Cable

The Color Code of the Loose Buffer Tubes (Up to 144F, single layer stranding)

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

The Color Code of the Loose Buffer Tubes (192, 216 and 288F, double layer stranding)

No. of Loose Buffer Tubes(1 st layer)	Color	No. of Loose Buffer Tubes(2 nd layer)	Color
1	Blue	1	Blue
2	Orange	2	Orange
3	Green	3	Green
4	Brown	4	Brown
5	Gray	5	Gray
6	White	6	White
7	Red	7	Red
8	Black	8	Black
9	Yellow	9	Yellow
		10	Violet
		11	Pink
		12	Aqua

	1	13	25	37	49	61	73	85	97	109	121	133	
BLUE	1	13	25	37	49	61	73	85	97	109	121	133	BLUE
ORANGE	2	14	26	38	50	62	74	86	98	110	122	134	ORANGE
GREEN	3	15	27	39	51	63	75	87	99	111	123	135	GREEN
BROWN	4	16	28	40	52	64	76	88	100	112	124	136	BROWN
SLATE	5	17	29	41	53	65	77	89	101	113	125	137	SLATE
WHITE	6	18	30	42	54	66	78	90	102	114	126	138	WHITE
RED	7	19	31	43	55	67	79	91	103	115	127	139	RED
BLACK	8	20	32	44	56	68	80	92	104	116	128	140	BLACK
YELLOW	9	21	33	45	57	69	81	93	105	117	129	141	YELLOW
VIOLET	10	22	34	46	58	70	82	94	106	118	130	142	VIOLET
ROSE	11	23	35	47	59	71	83	95	107	119	131	143	ROSE
AQUA	12	24	36	48	60	72	84	96	108	120	132	144	AQUA

FIBER PERFORMANCE

The fiber optical, mechanical and environmental performance of the optical fiber shall be in accordance with Table 1 and Table 2 below.

Table 1. Performance of the Single Mode Fiber (ITU-T G. 652 D)

ITEMS	UNITS	SPECIFICATION
Attenuation	dB/km	≤ 0.36 at 1310nm ≤ 0.35 at 1383nm ≤ 0.22 at 1550nm
Chromatic Dispersion	ps/nm.km	≤ 3.5 at 1285nm ~ 1330nm ≤ 18 at 1550nm
Zero Dispersion Wavelength	nm	1300 ~ 1322
Zero Dispersion Slope	ps/nm ² .km	≤ 0.092
Cable PMD (PMD _Q)	ps/ \sqrt km	≤ 0.2 (20 section link)
Cut-off Wavelength (λ_{cc} , Cabled fiber)	nm	≤ 1260
Attenuation vs. Bending (30mm radius x 100turns)	dB	≤ 0.1 at 1625nm
Mode Field Diameter	μ m	9.2 ± 0.4 at 1310nm 10.4 ± 1.0 at 1550nm
Core/Cladding Concentricity Error	μ m	≤ 0.6
Cladding Diameter	μ m	125 ± 1
Cladding Non-circularity	%	≤ 1.0
Coating Diameter	μ m	245 ± 10
Proof Test	Gpa	≥ 0.69

Table 2. Performance of the Single Mode Fiber (ITU-T G. 657.A1& A2)

ITEMS	UNITS	SPECIFICATION	
		G.657.A1	G.657.A2
Attenuation	dB/km	≤ 0.36 at 1310nm ≤ 0.35 at 1383nm ≤ 0.22 at 1550nm	
Chromatic Dispersion	ps/nm.km	≤ 3.5 at 1285nm ~ 1330nm ≤ 18 at 1550nm	
Zero Dispersion Wavelength	nm	1300 ~ 1324	
Zero Dispersion Slope	ps/nm ² .km	≤ 0.092	
Cable PMD (PMD ₀)	ps/ $\sqrt{\text{km}}$	≤ 0.2 (20 section link)	
Cut-off Wavelength (λ_{cc} , Cabled fiber)	nm	≤ 1260	
Attenuation vs. Bending (15mm radius x 10turns)	dB	≤ 0.25 at 1550nm ≤ 1.0 at 1625nm	≤ 0.03 at 1550nm ≤ 0.1 at 1625nm
Attenuation vs. Bending (10mm radius x 1turn)	dB	≤ 0.75 at 1550nm ≤ 1.5 at 1625nm	≤ 0.1 at 1550nm ≤ 0.2 at 1625nm
Mode Field Diameter	μm	8.9 ± 0.4 at 1310nm	8.6 ± 0.4 at 1310nm
Core/Cladding Concentricity Error	μm	≤ 0.5	
Cladding Diameter	μm	125 ± 0.7	
Cladding Non-circularity	%	≤ 1.0	
Coating Diameter	μm	245 ± 10	
Proof Test	Gpa	≥ 0.69	

Packaging

Standard length of cable is 4,000 meters. Other cable length is also available if required by customer. Each length of the cable shall be wound on a separate wooden reel. Both ends of the cable shall be sealed with a suitable plastic cap to prevent the entry of moisture during shipping, handling and storage. The cable ends shall be securely fastened to the reel to prevent the cable from becoming loose in transit or during placing operations.

Marking

The jacket shall be marked with white characters at intervals of one meter with following information. Other marking is also available if requested by customer.

- 1) Cable type and fiber number
- 2) Name of the manufacturer
- 3) Year of manufacture
- 4) Length marking

Ordering Information

Product Code	Description
LN-LW-ABC-SM-2F	Air Blown Fiber Cable Single Mode 2 cores
LN-LW-ABC-SM-4F	Air Blown Fiber Cable Single Mode 4 cores
LN-LW-ABC-SM-8F	Air Blown Fiber Cable Single Mode 8 cores
LN-LW-ABC-SM-12F	Air Blown Fiber Cable Single Mode 12 cores
LN-LW-ABC-SM-24F	Air Blown Fiber Cable Single Mode 24 cores
LN-LW-ABC-SM-36F	Air Blown Fiber Cable Single Mode 36 cores
LN-LW-ABC-SM-48F	Air Blown Fiber Cable Single Mode 48 cores
LN-LW-ABC-SM-72F	Air Blown Fiber Cable Single Mode 72 cores
LN-LW-ABC-SM-96F	Air Blown Fiber Cable Single Mode 96 cores
LN-LW-ABC-SM-144F	Air Blown Fiber Cable Single Mode 144 cores
LN-LW-ABC-SM-192F	Air Blown Fiber Cable Single Mode 192 cores
LN-LW-ABC-SM-288F	Air Blown Fiber Cable Single Mode 288 cores
LN-LW-ABC-SM-432F	Air Blown Fiber Cable Single Mode 432 cores

Notice: The data in this document are only reference and will be changed without any notice.
This specification is intended as a guide only.