TAIHAN
ELECTRIC WIRE CO., LTD

COMMUNICATION CABLES

DATA CABLES · FIBER OPTICS · OPGW · FTTH

TAIHAN's new production plant in Dangjin, South Korea

One of the world's largest plant currently built to suit the demand in the Energy & Telecommunications field.

TAIHAN's environment-friendly plant which produces wide range of cables and industrial products.

With its core capacity developed through more than 50 years in the cable business, TAIHAN is gearing up for a new future.

TAIHAN, a leading company in Korea in the power, telecommunication, and material, is now competing head to head with leading companies around the world.

Based on its corporate values of harmony, trust, and following the virtuous path, we will grow together with all of the stakeholders including the customers, investors, employees, and the local communities.

We will be opening doors to a happier world and a more prosperous future.


OPGW
TAIHAN
ELECTRIC WIRE CO., LTD.

DATA CABLE

Unshielded Twisted Pair UTP

Foiled Shielded Twisted Pair FTP

Foil-foil Shielded Twisted Pair STP

Patch Cable

Others

FIBER OPTICS

Optical Fibers & Cables

OPGW

Optical Fiber Ground

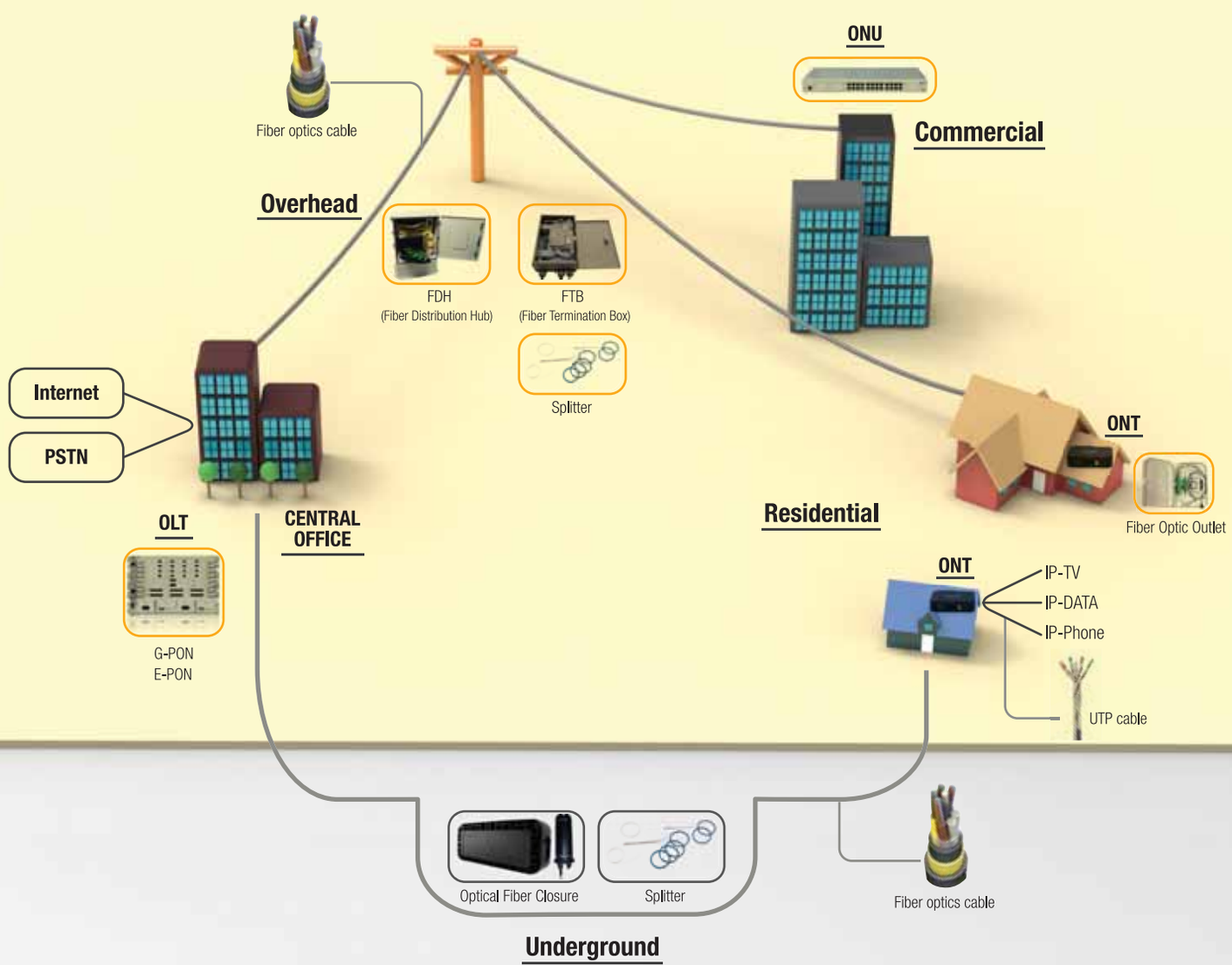
FTTH

APPENDIX

Taihan leads the way to high speed digital world by its FTTH system

Feels ubiquitous life at home by connecting the broadband optical fiber cable to the home. The dream of digital world comes true with Taihans FTTH at extremely high speed of more than 100Mbps. You can enjoy much advanced services of HDTV, IPTV, video conference, IP telephony, remote medical service and high quality internet through Taihans FTTH system. Taihan provides Futuristic IT network to be connected at super high speed with its own FTTH system.

Triple Play Service



Unshielded Twisted Pair Category 6

CAT. 6 - 4P

Specification

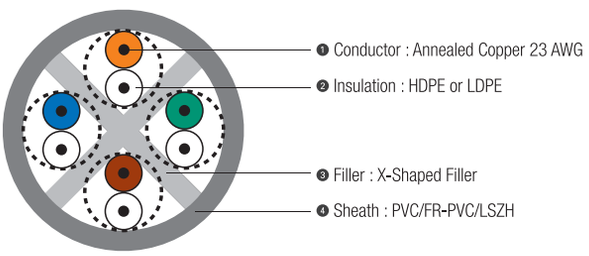
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- High Speed Horizontal Cabling (250MHz)
- 100Mbps TPDDI
- 100 Base T / 1000 Base T
- ATM 622Mbps, Data rate 4x155.5Mbps
- IEEE 802.3, 802.5
- Digital Video
- Gigabit Ethernet, Data rate 1000Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	1.0	6.5	11.5	Box
LSZH	1.0	6.5	11.5	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	ELFEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±15	20.0	2.0	74.3	72.3	67.8	64.8
4	100±15	23.0	3.8	65.3	63.3	55.8	52.8
8	100±15	24.5	5.3	60.8	58.8	49.7	46.7
10	100±15	25.0	6.0	59.3	57.3	47.8	44.8
16	100±15	25.0	7.6	56.2	54.3	43.7	40.7
20	100±15	25.0	8.5	54.8	52.8	41.8	38.8
25	100±15	24.3	9.5	53.3	51.3	39.8	36.8
31.25	100±15	23.6	10.7	51.9	49.9	37.9	34.9
62.5	100±15	21.5	15.4	47.4	45.4	31.9	28.9
100	100±15	20.1	19.8	44.3	42.3	27.8	24.8
200	100±22	18.0	29.0	39.8	37.8	21.8	18.8
250	100±22	17.3	32.8	38.3	36.3	19.8	16.8

Unshielded Twisted Pair Category 6

Cat. 6 - Premium 4P

Specification

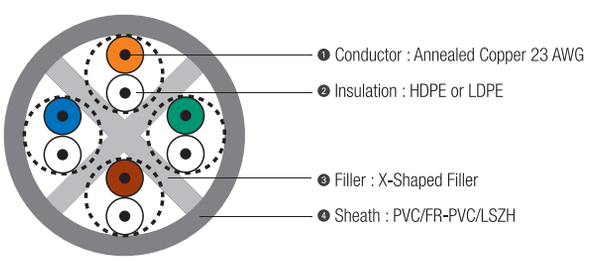
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- High Speed Horizontal Cabling (300MHz)
- 100Mbps TPDDI
- 100 Base T / 1000 Base T
- ATM 622Mbps, Data rate 4x155.5Mbps
- IEEE 802.3, 802.5
- Digital Video
- Gigabit Ethernet, Data rate 1000Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	1.0	6.8	12.0	Box
LSZH	1.0	6.8	12.0	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	ELFEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	74.3	72.3	67.8	64.8
4	100±5	23.0	3.8	65.4	63.3	55.7	52.7
8	100±5	24.5	5.3	60.8	58.8	49.7	46.7
10	100±5	25.0	6.0	59.3	57.3	47.8	44.8
16	100±5	25.0	7.6	56.3	54.3	43.7	40.7
20	100±5	25.0	8.5	54.8	52.8	41.7	38.7
25	100±5	24.3	9.5	53.3	51.3	39.8	36.8
31.25	100±5	23.6	10.7	51.9	49.9	37.9	34.9
62.5	100±5	21.5	15.4	47.4	45.4	31.8	28.8
100	100±5	20.1	19.8	44.3	42.3	27.8	24.8
200	100±5	18.0	29.0	39.8	37.8	21.7	18.7
250	100±5	17.3	32.8	38.3	36.3	19.8	16.8
300	100±5	16.8	36.4	37.2	35.2	18.2	15.2

Unshielded Twisted Pair Enhanced Category 5

Cat. 5E - 4P

Specification

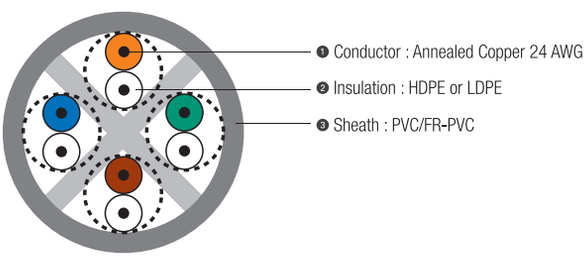
- ANSI/EIA/TIA-568B.2
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz)
- 155Mbps ATM
- IEEE 802.3, 802.5
- Token Ring 16Mbps, Data rate 16Mbps
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.5
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	0.90	5.5	10	Box
LSZH	0.90	5.5	10	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Unshielded Twisted Pair Enhanced Category 5

Cat. 5E - Premium 4P

Specification

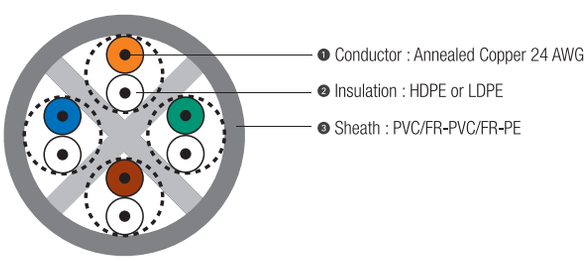
- ANSI/EIA/TIA-568C.2
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (350MHz)
- 155Mbps ATM
- IEEE 802.3, 802.5
- Token Ring 16Mbps, Data rate 100Mbps
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	1.0	6.5	11.5	Box
LSZH	1.0	6.5	11.5	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	ELFEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.8	48.8
8	100±5	24.5	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.2	44.2	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.8	34.8
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	38.4	35.4	27.9	24.9
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8
150	100±5	18.9	28.1	32.7	29.7	20.3	17.3

Unshielded Twisted Pair Enhanced Category 5

Cat. 5E - 25P

Specification

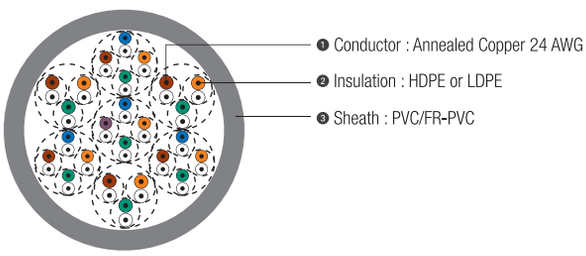
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz)
- 155Mbps ATM
- IEEE 802.3, 802.5
- Token Ring 16Mbps, Data rate 16Mbps
- 100 Base-TX Ethernet, Data rate 100Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	0.98	12.0	200	Drum

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Unshielded Twisted Pair Category 5

Cat. 5 - 25~100P

Specification

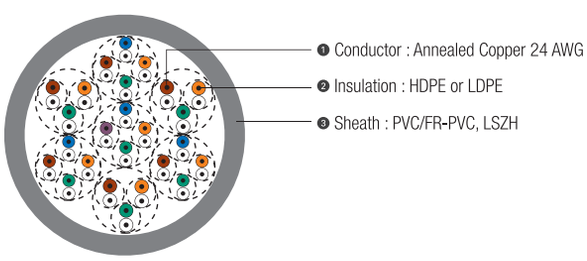
- ANSI/EIA/TIA-568B.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz)
- 155Mbps ATM
- IEEE 802.3, 802.5
- Token Ring 16Mbps, Data rate 16Mbps
- 100 Base-TX Ethernet, Data rate 100Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
50	0.98	17.8	380	Drum
75	0.98	20.0	530	Drum
100	0.98	24.6	810	Drum
CM/CMR/LSZH	0.98	12.0	200	Drum

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)
0.772	-	-	1.8	64.0
1	100±5	23.0	2.0	62.0
4	100±5	23.0	4.1	53.0
8	100±5	23.0	5.8	48.0
10	100±5	23.0	6.5	47.0
16	100±5	23.0	8.2	44.0
20	100±5	23.0	9.3	42.0
25	100±5	22.0	10.4	41.0
31.25	100±5	21.1	11.7	39.0
62.5	100±5	18.1	17.0	35.0
100	100±5	16.0	22.0	32.0

Riser Category 5

Riser Cat. 5 - 25P

Specification

- ANSI/EIA/TIA-568B.2
- ISO/IEC 11801
- UL 444
- UL 1666 (CMR)

Application

- Horizontal Distribution and Backbone Cabling (100MHz)
- 155Mbps ATM
- IEEE 802.3, 802.5

Construction (CMR)

- Conductor : Annealed Copper 24 AWG
- Insulation : HDPE or LDPE
- Shield : Corrugated Al Tape
  Sheath : FR-PVC

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330

Type	**Insulation Dia.** (mm)	**Outer Cable Dia.** (mm)	**Weight** (kg/1000ft)	**Packaging**
CMR	0.9	17.0	300	Drum

Frequency (MHz)	**Characteristic Impedance** (Ω)	**SRL** (Min. dB)	**Attenuation** (Max. dB/100m)	**NEXT** (Min. dB/100m)
0.772	-	-	1.8	64
1	100±5	23	2.0	62
4	100±5	23	4.1	53
8	100±5	23	5.8	48
10	100±5	23	6.5	47
16	100±5	23	8.2	44
20	100±5	23	9.3	42
25	100±5	22	10.4	41
31.25	100±5	21	11.7	39
62.5	100±5	18	17.0	35
100	100±5	16	22.0	32

Unshielded Twisted Pair Category 3

Cat.3 - 25~600P

Specification

- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Backbone Cabling (16MHz)
- 10 Base-T Ethernet, Data rate 10Mbps
- Token Ring 4Mbps, Data rate 4Mbps

Construction (CM/CMR)

- Conductor : Annealed Copper 24 AWG
- Insulation : HDPE or LDPE
- Sheath : PVC/FR-PVC

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 6.6
- Capacitance Unbalance (pF/100m) : Max. 330

Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Approx. Weight (kg/1000m)	Packaging
25	0.86	12.0	170	Drum
50	0.86	14.0	300	Drum
75	0.86	19.0	450	Drum
100	0.86	21.0	570	Drum
150	0.86	25.0	800	Drum
200	0.86	29.0	1050	Drum
300	0.86	34.0	1600	Drum
400	0.86	39.0	2150	Drum
500	0.86	43.0	2750	Drum
600	0.86	48.0	3400	Drum

Frequency (MHz)	Characteristic Impedance (Ω)	SRL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)
0.772	-	-	2.2	43.0
1	100±5	12.0	2.6	41.3
4	100±5	12.0	5.6	32.8
8	100±5	12.0	8.5	27.8
10	100±5	12.0	9.7	26.3
16	100±5	10.0	13.1	23.2

Unshielded Twisted Pair Category 3

Cat.3 Premium 25~100P

Specification

- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Backbone Cabling (100MHz)
- 10 Base-T Ethernet, Data rate 10Mbps
- Token Ring 4Mbps, Data rate 4Mbps

Construction (CM/CMR)

- Conductor : Annealed Copper 24 AWG
- Insulation : HDPE or LDPE
- Sheath : PVC/FR-PVC/LSZH

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 6.6
- Capacitance Unbalance (pF/100m) : Max. 330

Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Approx. Weight (kg/1000m)	Packaging
25	0.86	12.0	170	Drum
50	0.86	14.0	300	Drum
75	0.86	19.0	450	Drum
100	0.86	21.0	570	Drum

Frequency (MHz)	Characteristic Impedance (Ω)	SRL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)
0.772	-	-	2.2	43.0
1	100±5	12.0	2.6	41.3
4	100±5	12.0	5.6	32.3
8	100±5	12.0	8.5	27.8
10	100±5	12.0	9.7	26.3
16	100±5	10.0	13.1	23.3
20	100±5	4.0	15.1	21.8
25	100±5	8.0	17.5	20.3
31.25	100±5	7.1	20.4	18.9
62.5	100±5	4.0	33.2	14.4
100	100±5	2.0	47.0	11.3

Riser Category 3

Cat.3-25~600P

Specification

- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1666 (CMR)

Application

- Backbone Cabling (16MHz)
- IEEE 802.3
- Token Ring 4Mbps, Data rate 4Mbps
- IBM 3270

Construction (CMR)

- Conductor : Annealed Copper 24 AWG
- Insulation : Foamed HDPE + FR-PE Skin
- Individual Shield : Taping
- Shield : Corrugated Al Tape
- Sheath : FR-PVC

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 6.5
- Capacitance Unbalance (pF/100m) : Max. 330

Pair No.	**Insulation Dia.** (mm)	**Outer Cable Dia.** (mm)	**Approx. Weight** (kg/1000m)	**Packaging**
25	0.86	14.0	200	Drum
50	0.86	16.0	350	Drum
75	0.86	20.0	500	Drum
100	0.86	23.0	630	Drum
200	0.86	30.0	1150	Drum
300	0.86	36.0	1700	Drum
400	0.86	42.0	2250	Drum
600	0.86	54.0	3550	Drum

Frequency (MHz)	**Characteristic Impedance** (Ω)	**SRL** (Min. dB)	**Attenuation** (Max. dB/100m)	**NEXT** (Min. dB/100m)
0.772	-	-	2.2	43.0
1	100±5	12.0	2.6	41.0
4	100±5	12.0	5.6	32.0
8	100±5	12.0	8.5	27.0
10	100±5	12.0	9.7	26.0
16	100±5	10.0	13.1	23.0

UTP Cable For Outdoor Category 5E

Cat.5E - 2P/4P

Specification

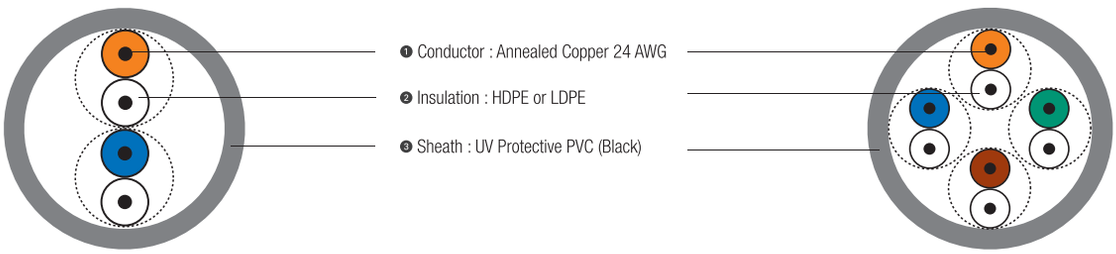
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444

Application

- For Outdoor Duct (100MHz)
- IEEE 802.3, 802.5

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Pair No.	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
2	0.92	5.0	5.6	Box
4	0.92	5.5	8.0	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

UTP Cable For Aerial Category 5

Cat.5E - 2P/4P

Specification

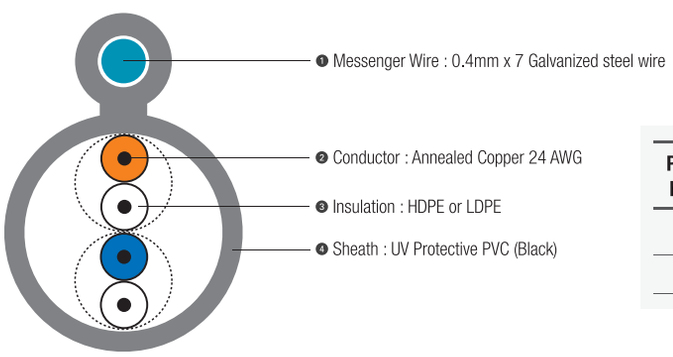
- ANSI/EIA/TIA-568B.2, 568C.2
- ISO/IEC 11801
- UL 444

Application

- For Outdoor Aerial (100MHz)
- IEEE 802.3, 802.5
- 155Mbps ATM
- Token Ring 16Mbps, Data rate 16Mbps
- 100 Base-TX Ethernet, Data rate 100Mbps
- 100VG-Any LAN, Data rate 100Mbps
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



[2Pr]

Pair No.	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Galvanized Steel Wire Dia. (mm)	Weight (kg/1000ft)	Packaging
2	0.92	8.0	1.0	10.0	Box
4	0.92	10.0	1.0	16.5	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Foiled Shielded Twisted Pair Category 6

Cat. 6 - 4P

Specification

- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CMX, CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling
- (250MHz, EMI Proof)
- IEEE 802.3, 802.5
- 155/622Mbps ATM
- Gigabit Ethernet, Data rate 100Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330

Type	**Insulation Dia.** (mm)	**Outer Cable Dia.** (mm)	**Weight** (kg/1000ft)	**Packaging**
CM/CMR	1.0	7	13	Box
LSZH	1.0	7	13	Box

Frequency (MHz)	**Characteristic Impedance** (Ω)	**RL** (Min. dB)	**Attenuation** (Max. dB/100m)	**NEXT** (Min. dB/100m)	**PSNEXT** (Min. dB/100m)	**ELFEXT** (Min. dB/100m)	**PSELFEXT** (Min. dB/100m)
1	100±15	20.0	2.0	74.3	72.3	67.8	64.8
4	100±15	23.0	3.8	65.3	63.3	55.8	52.8
8	100±15	24.5	5.3	60.8	58.8	49.7	46.7
10	100±15	25.0	6.0	59.3	57.3	47.8	44.8
16	100±15	25.0	7.6	56.2	54.3	43.7	40.7
20	100±15	25.0	8.5	54.8	52.8	41.8	38.8
25	100±15	24.3	9.5	53.3	51.3	39.8	36.8
31.25	100±15	23.6	10.7	51.9	49.9	37.9	34.9
62.5	100±15	21.5	15.4	47.4	45.4	31.9	28.9
100	100±15	20.1	19.8	44.3	42.3	27.8	24.8
200	100±22	18.0	29.0	39.8	37.8	21.8	18.8
250	100±22	17.3	32.8	38.3	36.3	19.8	16.8

Foiled Shielded Twisted Pair Enhanced Category 5

Cat. 5E - 4P

Specification

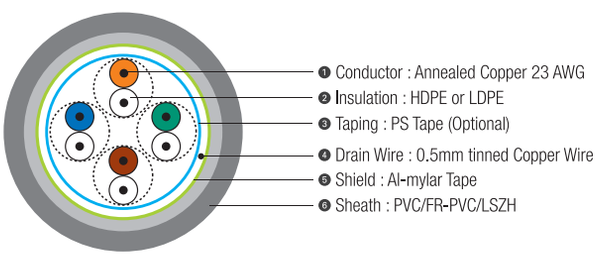
- ANSI/EIA/TIA-568B
- ISO/IEC 11801
- UL 444
- UL 1581 (CMX, CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling
- (100MHz, EMI Proof)
- IEEE 802.3, 802.5
- 155Mbps ATM
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	0.95	6.5	12	Box
LSZH	0.95	6.5	12	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Foiled Shielded Twisted Pair Category 5

Cat. 5 - 4P

Specification

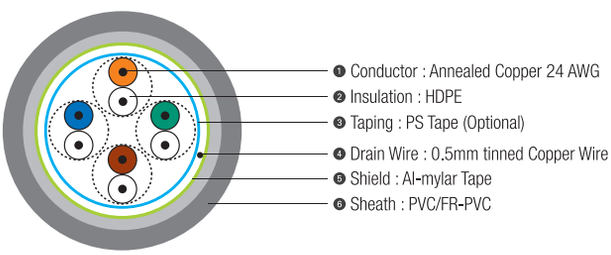
- ANSI/EIA/TIA-568B.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz, EMI Proof)
- IEEE 802.3, 802.5
- 155Mbps ATM
- Token Ring 16Mbps, Data rate 16Mbps
- 100 Base-VG, -T4, -X

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.5
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	0.95	6.5	12	Box or Reel

Frequency (MHz)	Characteristic Impedance (Ω)	SRL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)
0.772	-	-	1.8	64.0
1	100±15	23.0	2.0	62.0
4	100±15	23.0	4.1	53.0
8	100±15	23.0	5.8	48.0
10	100±15	23.0	6.5	47.0
16	100±15	23.0	8.2	44.0
20	100±15	23.0	9.3	42.0
25	100±15	22.0	10.4	41.0
31.25	100±15	21.1	11.7	39.0
62.5	100±15	18.1	17.0	35.0
100	100±22	16.0	22.0	32.0

Shielded Twisted Pair Category 6

Cat. 6 - 4P

Specification

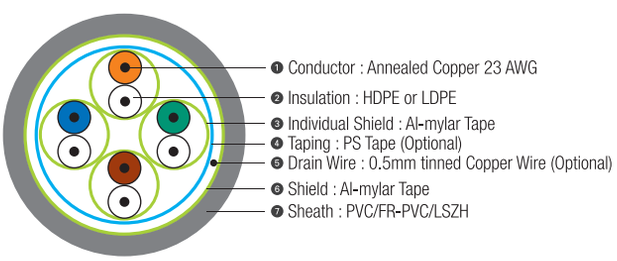
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CMX, CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (250MHz, EMI Proof)
- IEEE 802.3, 802.5
- 155/622Mbps ATM
- Gigabit Ethernet, Data rate 1000Mbps

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	1.0	6.5	15.0	Reel
LSZH	1.0	6.5	15.0	Reel

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	ELFEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±15	20.0	2.0	74.3	72.3	67.8	64.8
4	100±15	23.0	3.8	65.3	63.3	55.8	52.8
8	100±15	24.5	5.3	60.8	58.8	49.7	46.7
10	100±15	25.0	6.0	59.3	57.3	47.8	44.8
16	100±15	25.0	7.6	56.2	54.3	43.7	40.7
20	100±15	25.0	8.5	54.8	52.8	41.8	38.8
25	100±15	24.3	9.5	53.3	51.3	39.8	36.8
31.25	100±15	23.6	10.7	51.9	49.9	37.9	34.9
62.5	100±15	21.5	15.4	47.4	45.4	31.9	28.9
100	100±15	20.1	19.8	44.3	42.3	27.8	24.8
200	100±22	18.0	29.0	39.8	37.8	21.8	18.8
250	100±22	17.3	32.8	38.3	36.3	19.8	16.8

Shielded Twisted Pair Enhanced Category 5

Cat. 5 - 4P

Specification

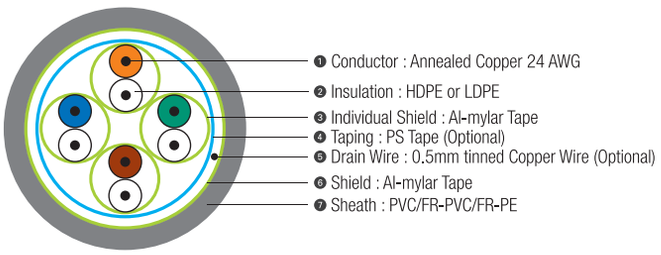
- ANSI/EIA/TIA-568C.2
- ISO/IEC 11801
- UL 444
- UL 1581 (CMX, CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz, EMI Proof)
- IEEE 802.3, 802.5
- 155Mbps ATM
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	1.0	7.5	18	Reel
LSZH	1.0	7.5	18	Reel

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Patch Cable Enhanced Category 5

Cat. 5E - 4P

Specification

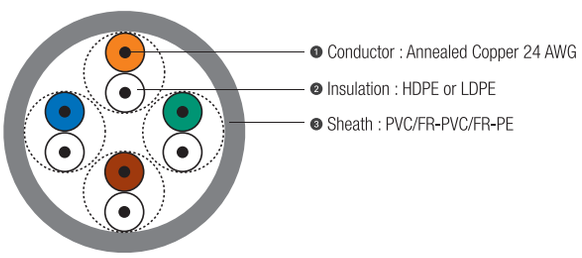
- ANSI/EIA/TIA-568B
- ISO/IEC 11801
- UL 444
- UL 1581 (CMX, CM), UL 1666 (CMR), IEC 60332-1 (LSZH)

Application

- Horizontal Distribution and Backbone Cabling (100MHz)
- IEEE 802.3, 802.5
- 155Mbps ATM
- 100 Base T / 1000 Base T

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Resistance Unbalance (%) : Max. 5.0
- Mutual Capacitance (nF/100m) : Max. 5.6
- Capacitance Unbalance (pF/100m) : Max. 330



Type	Insulation Dia. (mm)	Outer Cable Dia. (mm)	Weight (kg/1000ft)	Packaging
CM/CMR	0.9	5.5	11	Box
LSZH	0.9	5.5	11	Box

Frequency (MHz)	Characteristic Impedance (Ω)	RL (Min. dB)	Attenuation (Max. dB/100m)	NEXT (Min. dB/100m)	PSNEXT (Min. dB/100m)	FEXT (Min. dB/100m)	PSELFEXT (Min. dB/100m)
1	100±5	20.0	2.0	65.3	62.3	63.8	60.8
4	100±5	23.0	4.1	56.3	53.3	51.7	48.7
8	100±5	23.0	5.8	51.8	48.8	45.7	42.7
10	100±5	25.0	6.5	50.3	47.3	43.8	40.8
16	100±5	25.0	8.2	47.3	44.4	39.7	36.7
20	100±5	25.0	9.3	45.8	42.8	37.7	34.7
25	100±5	24.3	10.4	44.3	41.3	35.8	32.8
31.25	100±5	23.6	11.7	42.9	39.9	33.9	30.9
62.5	100±5	21.5	17.0	36.4	35.4	27.8	24.6
100	100±5	20.1	22.0	35.3	32.3	23.8	20.8

Jumper Wire

Item

- Enhanced Category 5
- Category 5
- Category 3

Range

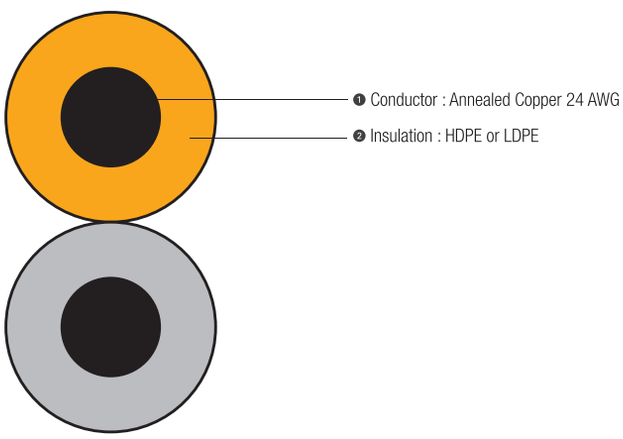
- 1P, 2P, 3P, 4P

Construction

- Conductor : Annealed Copper 24 AWG
- Insulation : HDPE or LDPE

Electrical Characteristics

- DC Resistance (/100m @ 20) : Max. 9.38
- Mutual Capacitance (nF/100m)
  - Enhanced Category 5 : Max. 5.6
  - Category 5 : Max. 5.6
  - Category 3 : Max. 6.6



SMF ITU-T G.652.B

Single Mode Optical Fiber (VAD Process)

TAIHAN's single mode optical fiber is manufactured by the vapour - phase axial deposition (VAD) proecss to produce the highest quality glass with excellent geometry, high strength characteristics and attenuation level that approaches the theoretical minimum, and designed to operate at 1310 nm and 1550 nm. Its optical properties are achieved through a germaniumdoped silica core with a pure silica cladding. A dual acrylate protective coating is applied over glass to provide the maximum fiber lifetime.

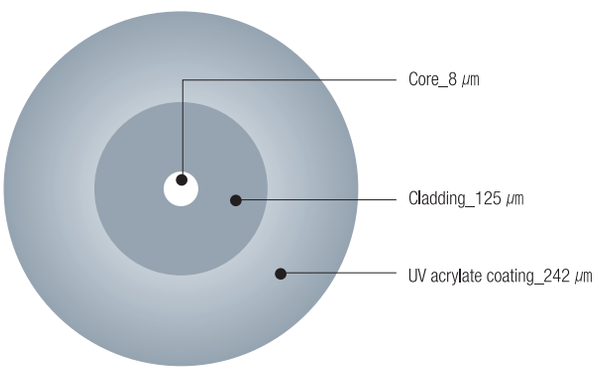
Feature

- Conspicuous lower attenuation
- Superior bending performance
- Mechanically strippable coating
- Excellent geometric properties for low splicing loss
- Transmission capacity at 1310 nm and 1550 nm

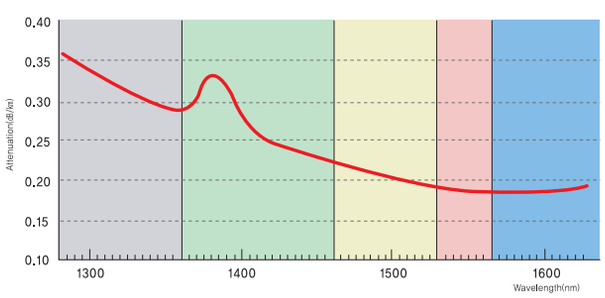
Use/Application

- Data communication cable
- FTTH network cable
- Long haul telecommunication cable
- CATV cable

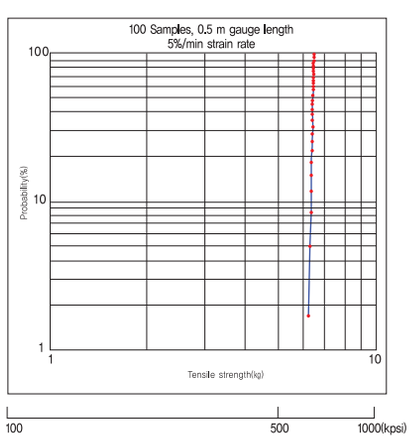
Structure



Spectral Attenuation



Weibull Parameter



Refractive Index Profile

Environmental Characteristic

Test		Attenuation change @1550 nm (dB/km)
Temperature cycling performance	- 60 °C to + 85 °C	≤ 0.05
Temperature humidity test	+85 °C, 98 %, 30 days	≤ 0.05
Water immersion	+23 °C, 30 days	≤ 0.05
Heat aging	+85 °C, 30 days	≤ 0.05

Performance Specification

	Performance	Characteristic
Geometrical Characteristic	Mode field diameter	9.2 ± 0.4 μm at 1310 nm
		10.4 ± 0.5 μm at 1550 nm
	Cladding diameter	125.0 ± 0.7 μm
	Core/cladding concentricity error	≤ 0.5 μm
	Cladding non-circularity	≤ 0.7 %
	Fiber curl radius	≥ 4 m
	Primary coating diameter (For uncolored fiber)	242 ± 5 μm
	Primary coating diameter (For colored fiber)	250 ± 10 μm
	Coating/cladding concentricity error	≤ 12 μm
	Fiber proof test level	≥ 120 kpsi (1.2 % strain)
Optical Characteristic	Attenuation at 1310 nm	≤ 0.35 dB/km (≤ 0.334 dB/km for fiber)
	at 1550 nm	≤ 0.21 dB/km (≤ 0.194 dB/km for fiber)
	at 1383 ± 3 nm	≤ 0.5 dB/km
	Attenuation change at 1285 ~ 1330 nm	≤ 0.05 dB/km (1310 nm)
	at 1525 ~ 1575 nm	≤ 0.05 dB/km (1550 nm)
	at 1575 ~ 1610 nm	≤ 0.03 dB/km (Max-Min)
	Point discontinuity at 1310 nm and 1550 nm	≤ 0.05 dB
	Zero dispersion wavelength	≤ 1300 ~ 1322 nm
	Zero dispersion slope	≤ 0.092 ps/(nm^2. km)
	Chromatic dispersion at 1285 ~ 1330 nm	≤ 3.5 ps/(nm . km)
	at 1550 nm	≤ 18 ps/(nm . km)
	Cable cut-off wavelength	≤ 1260 nm
	PMD for individual value (uncabled fiber)	≤ 0.15 ps/km
	PMD for link value	≤ 0.1 ps/km
Packaging	Fiber length	25.2/50.4 km
	Spool dimension Flange diameter Nom.	234.5/265 mm
	Barrel diameter Nom.	152.0/170 mm
	Inner width Nom.	96.0/150 mm
	Outer width Nom.	116.0/175 mm
	Bore diameter Nom.	25.4/25.4 mm

ZWPF ITU-T G.652.D

Zero Water Peak Single Mode Fiber (VAD Process)

TAIHAN's Anywave single mode fiber (Zero water peak fiber) is manufactured by the vapour - phase axial deposition (VAD) process to produce the highest quality glass with excellent geometry and high strength characteristics. Anywave can be used in all wavelength from 1280 nm to 1620 nm because OH ion is perfectly eliminated in specially designed manufacturing process. Anywave is reliable for any wavelength division. Anywave enables customers to construct high performance network for data transmission in WDM system.

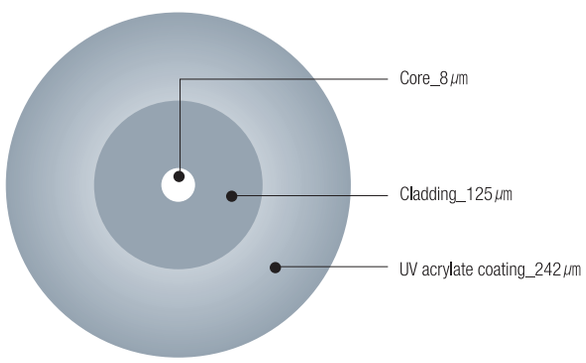
Feature

- Conspicuous lower attenuation
- Superior bending performance
- Mechanically strippable coating
- Excellent geometric properties for low splicing loss
- Transmission capacity at 1285 nm to 1625 nm

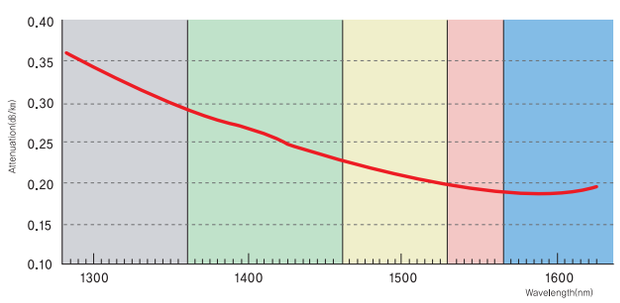
Use/Application

- Data communication cable
- FTTH network cable
- Long haul telecommunication
- CATV cable
- Long term reliability for attenuation

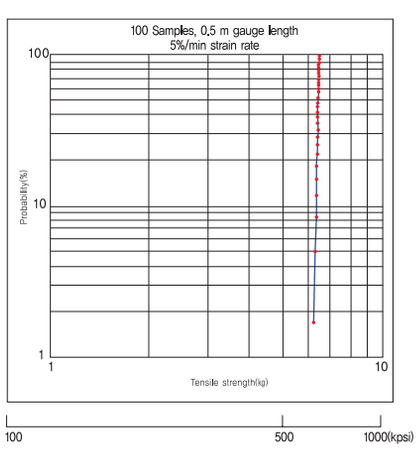
Structure



Spectral Attenuation



Weibull Parameter



Refractive Index Profile

Environmental Characteristic

Test		Attenuation change @1550 nm (dB/km)
Temperature cycling performance	- 60 °C to + 85 °C	≤ 0.05
Temperature humidity test	+85 °C, 98 %, 30 days	≤ 0.05
Water immersion	+23 °C, 30 days	≤ 0.05
Heat aging	+85 °C, 30 days	≤ 0.05

Performance Specification

	Performance	Characteristic
Geometrical Characteristic	Mode field diameter	9.2 ± 0.4 μm at 1310 nm
		10.4 ± 0.5 μm at 1550 nm
	Cladding diameter	125.0 ± 0.7 μm
	Core/cladding concentricity error	≤ 0.5 μm
	Cladding non-circularity	≤ 0.7 %
	Fiber curl radius	≥ 4 m
	Primary coating diameter (For uncolored fiber)	242 ± 5 μm
	Primary coating diameter (For colored fiber)	250 ± 10 μm
	Coating/cladding concentricity error	≤ 12 μm
	Fiber proof test level	≥ 120 kpsi (1.2 % strain)
Optical Characteristic	Attenuation at 1310 nm	≤ 0.35 dB/km (≤ 0.334 dB/km for fiber)
	at 1550 nm	≤ 0.21 dB/km (≤ 0.194 dB/km for fiber)
	at 1383 ± 3 nm	≤ 0.31 dB/km (after H2 aging)
	Attenuation change at 1285 ~ 1330 nm	≤ 0.05 dB/km (1310 nm)
	at 1525 ~ 1575 nm	≤ 0.05 dB/km (1550 nm)
	at 1575 ~ 1610 nm	≤ 0.03 dB/km (Max-Min)
	Point discontinuity at 1310 nm and 1550 nm	≤ 0.05 dB
	Zero dispersion wavelength	≤ 1300 ~ 1322 nm
	Zero dispersion slope	≤ 0.092 ps/(nm^2. km)
	Chromatic dispersion at 1285 ~ 1330 nm	≤ 3.5 ps/(nm . km)
	at 1550 nm	≤ 18 ps/(nm . km)
	at 1625 nm	≤ 22 ps/(nm . km)
	Cable cut-off wavelength	≤ 1260 nm
	PMD for individual value (uncabled fiber)	≤ 0.15 ps/km
	link value	≤ 0.1 ps/km
Packaging	Fiber length	25.2/50.4 km
	Spool dimension Flange diameter Nom.	234.5/265 mm
	Barrel diameter Nom.	152.0/170 mm
	Inner width Nom.	96.0/150 mm
	Outer width Nom.	116.0/175 mm
	Bore diameter Nom.	25.4/25.4 mm

Bending Loss Insensitive Fiber ITU-T G.657. A&B

Bending Loss Insensitive Fiber ITU-T G.657 (VAD Process)

TAIHAN's bending loss insensitive fiber (Strong Bend) manufactured by the vapour - phase axial deposition(VAD) process enables the use of the entire optical fiber spectrum (1280nm~1625nm) including 1360nm~1460nm due to a manufacturing process that virtually eliminates hydroxy (OH-) absorption in the fiber.
It's low sensitivity to macrobending results in lower attenuation levels in the 1550nm and 1625nm wavelength region.

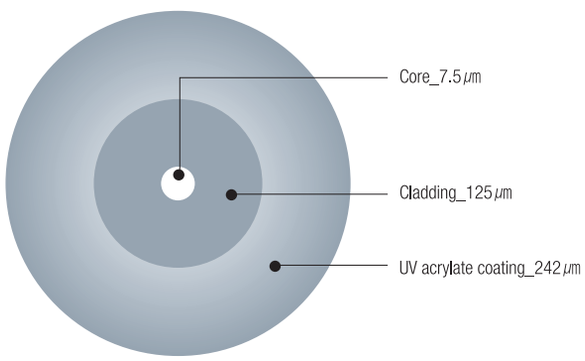
Feature

- Fully compliant with ITU-T G.652.D & G.657. A & B
- Allowable bending diameter : 20㎜
- 1/3 Bending diameter compared to conventional SMF(60㎜)
- Good splicing with conventional SMF and ZWPF

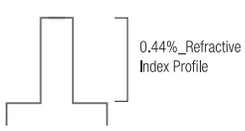
Use/Application

- Fully compatibility with conventional SMF
- Minimized construction space
- FTTH / Premise/LAN cables
- Air blown fiber
- Optical cord

Structure



Refractive Index Profile



Environmental Characteristic

Test		Attenuation change @1550nm (dB/km)
Temperature cycling performance	- 60°C to + 85°C	≤0.05
Temperature humidity test	+85°C, 98%, 30days	≤0.05
Water immersion	+23°C, 30days	≤0.05
Heat aging	+85°C, 30days	≤0.05

Performance Specification

	Performance	Characteristic
Geometrical Characteristic	Mode field diameter	8.6 ± 0.4 μm at 1310 nm
	Cladding diameter	125.0 ± 0.7 μm
	Core/cladding concentricity error	≤ 0.5 μm
	Cladding non-circularity	≤ 0.7 %
	Fiber curl radius	≥ 4 m
	Primary coating diameter (For uncolored fiber)	242 ± 5 μm
	Primary coating diameter (For colored fiber)	250 ± 10 μm
	Fiber proof test level	≥ 120 kpsi (1.2 % strain)
Optical Characteristic	Attenuation at 1310 nm	≤ 0.35 dB/km (≤ 0.34 dB/km for fiber)
	at 1550 nm	≤ 0.22 dB/km (≤ 0.20 dB/km for fiber)
	at 1625 nm	≤ 0.24 dB/km (≤ 0.23 dB/km for fiber)
	at 1383 ± 3 nm	≤ 0.31 dB/km (after H2 aging)
	Attenuation change at 1285 ~ 1330 nm	≤ 0.05 dB/km (1310 nm)
	at 1525 ~ 1575 nm	≤ 0.05 dB/km (1550 nm)
	at 1575 ~ 1610 nm	≤ 0.03 dB/km (Max-Min)
	Point discontinuity at 1310 nm and 1550 nm	≤ 0.05 dB
	Zero dispersion wavelength	1300 ~ 1322 nm
	Zero dispersion slope	≤ 0.092 ps/(nm². km)
	Chromatic dispersion at 1285 ~ 1330 nm	≤ 3.0 ps/(nm . km)
	at 1550 nm	≤ 18 ps/(nm . km)
	Cable cut-off wavelength	≤ 1260 nm
	PMD for individual value (uncabled fiber)	≤ 0.15 ps/km
	for link value	≤ 0.1 ps/km
Packaging	Fiber length	6.3 ~ 25.2 km in multiples of 2.1
	Spool dimension Flange diameter Nom.	234. 5 mm
	Spool dimension Barrel diameter Nom.	152.0 mm
	Spool dimension Inner width Nom.	96.0 mm
	Spool dimension Outer width Nom.	116.0 mm
	Spool dimension Bore diameter Nom.	25.4 mm
Mechanical Characteristic	Macrobending loss	
	for 100 turns at a 50 mm mandrel diameter	≤ 0.05 dB@1625 nm
	for single bend (20 mm diameter one turm)	≤ 0.15 dB@1625 nm
	Coating strip force	1.3 ~ 8.9 N

NZ-DSF ITU-T G.655, G.656

Non-Zero Dispersion Shifted Optical Fiber (VAD Process)

TAIHAN's non-zero dispersion shifted single mode fiber (NZF) is operated for WDM system, which enables customers to construct high performance networks for voice, video and/or data transmission. its high performances are achieved through a germanium doped double silica cladding made by the vapour - phase axial deposition (VAD) method. A dual layer acrylate is coated over the cladding to provide high product reliability and allows easy splicing throughout the cable life. The fiber operates in C-band, L-band and S-band.

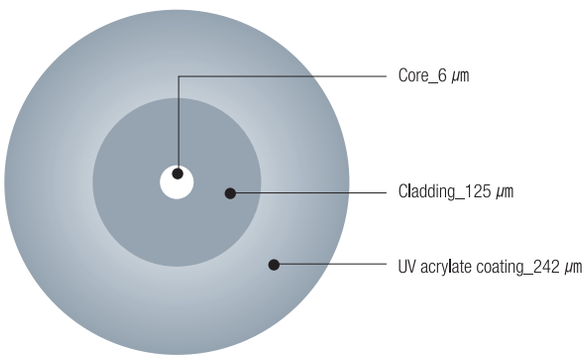
Feature

- Optimatized for effective operating of WDM system
- 10Gbps, 40Gbps, and higher data rates
- Superior performance for long haul networks
- Lower sensitivity of transmission properties
- Broad - range low attenuation properties

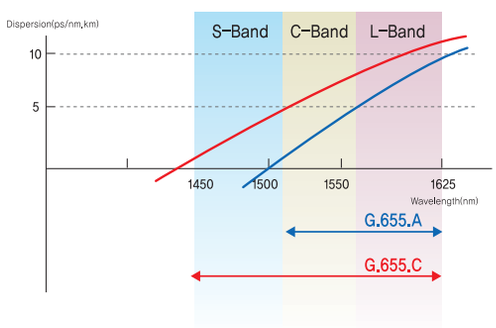
Use/Application

- Submarine cables
- Voice, video and data transmission
- Long haul WDM system
- Long distance applications

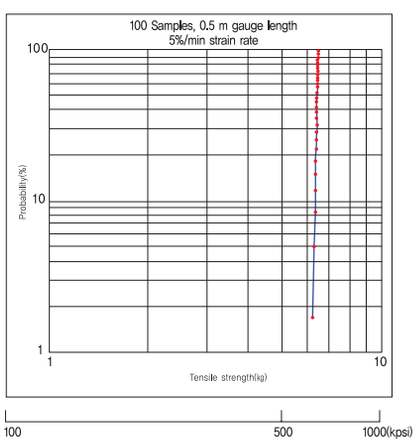
Structure



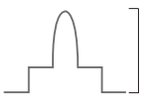
Spectral Attenuation



Weibull Parameter



Refractive Index Profile



0.36%_Refractive Index Profile

Environmental Characteristic

Test		Attenuation change @1550 nm (dB/km)
Temperature cycling performance	- 60 °C to + 85 °C	≤ 0.05
Temperature humidity test	+85 °C, 98 %, 30 days	≤ 0.05
Water immersion	+23 °C, 30 days	≤ 0.05
Heat aging	+85 °C, 30 days	≤ 0.05

Performance Specification

	Performance	Characteristic	
		ITU-T G.655.A	ITU-T G.655.C, 656
Geometrical Characteristic	Mode field diameter	8.2 ± 0.5 μm at 1550 nm	9.2 ± 0.5 μm at 1550 nm
	Cladding diameter	125.0 ± 0.7 μm	125.0 ± 0.7 μm
	Core/cladding concentricity error	≤ 0.5 μm	≤ 0.5 μm
	Cladding non-circularity	≤ 0.7 %	≤ 0.7 %
	Fiber curl radius	≥ 4 m	≥ 4 m
	Primary coating diameter (For uncolored fiber)	242 ± 5 μm	242 ± 5 μm
	Primary coating diameter (For colored fiber)	250 ± 10 μm	250 ± 10 μm
	Coating/cladding concentricity error	≤ 12 μm	≤ 12 μm
	Fiber proof test level	≥ 120 kpsi	≥ 120 kpsi
Optical Characteristic	Attenuation at 1550 nm	≤ 0.22 dB/km	≤ 0.22 dB/km
	at 1625 nm	≤ 0.25 dB/km	≤ 0.25 dB/km
	Point discontinuity at 1550 nm	≤ 0.10 dB	≤ 0.10 dB
	Chromatic dispersion at 1530 ~ 1565 nm	2.0 ~ 6.0 ps/(nm . km)	5.5 ~ 10 ps/(nm . km)
	at 1560 ~ 1625 nm	4.0 ~ 1.0 ps/(nm . km)	7.5 ~ 13.5 ps/(nm . km)
	Cable cut-off wavelength (λcc)	≤ 1300 nm	≤ 1450 nm
	PMD for individual value (uncabled fiber)	≤ 0.15 ps/km	≤ 0.15 ps/km
	for link value	≤ 0.1 ps/km	≤ 0.1 ps/km

Packaging	Fiber length	25.2 km
	Spool dimension Flange diameter Nom.	234.5 mm
	Spool dimension Barrel diameter Nom.	152.0 mm
	Spool dimension Inner width Nom.	96.0 mm
	Spool dimension Outer width Nom.	116.0 mm
	Spool dimension Bore diameter Nom.	25.4 mm

Tight Buffered Fiber

Tight Buffered Fiber

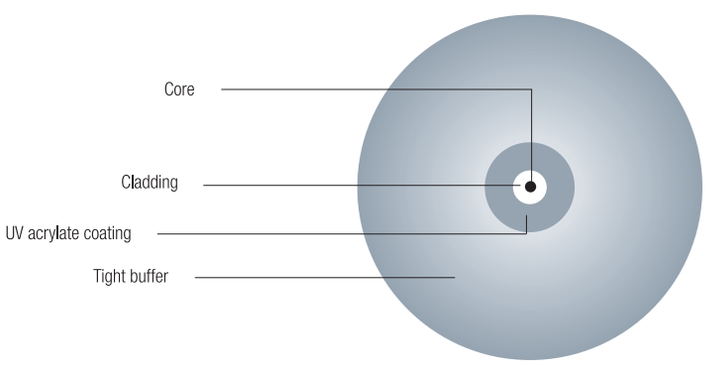
TAIHAN's tight buffered optical fiber is used in inter-equipment, fiber optic transmission system requiring fiber optic cable. Tight buffered fiber is color coded for easy identification allowing improved cable management in routing and termination in indoor cable applications. It is suitable for use in computer data links, terminal links, inter-frame, and internal connections.

Feature

- 12 Color coding
- Available in single mode and multi-mode fibers
- Highly flexible and light weight for easy handling
- Easy strippig for quick splicing
- Various coating material available
- Diameter up to 900 μm

Use/Application

- Easy identification for improved cable management in routing and termination
- Non-conductive design
- Flame-retardant design
- Inter-equipment connections that are indoors or in controlled environments
- Computer data links, terminal links, inter-frame, internal connections

Buffered Dimension & Materials	Buffered Construction	Standard Diameter	Tight Buffer Material
		• 500 μm (⌀0.50 mm) or • 900 μm (⌀0.90 mm)	• UV-Acrylate or • UV-Silicon

Performance Specification

	Fiber types	Maximum attenuation (dB/km)	Typical attenuation (dB/km)
Cabled Attenuation	SMF (9/125) (single mode fiber) 1310 nm / 1550 nm	0.4 / 0.25	0.35 / 0.20
	MMF (50/125) (multi- mode fiber) 850 nm / 1300 nm	3.0 / 1.0	2.5 / 0.5
	MMF (62.5/125) (multi- mode fiber) 850 nm / 1300 nm	3.0 / 1.0	2.7 / 0.6

Ordering information

1. Select Fiber Type	9 / 125 SMF (single mode fiber) 50 / 125 MMF (multi-mode fiber) 62.5 / 125 MMF (multi-mode fiber)
2. Select Buffer Materials	UV-acrylate UV-silicon
3. Select Inner Jacket Materials	500 μm Buffer diameter 900 μm Buffer diameter

Ribbon Optical Fiber

Ribbon Optical Fiber

TAIHAN's ribbon optical fiber is available in standard counts of 4,8,12 fibers to meet a wide variety of applications. Ribbon fiber is used in applications requiring high communication rate and high fiber density in small area. Also ribbon fiber offers precise fiber geometries for mass precision splicing and multi-fiber array. Its high performance is achieved through a germanium doped double silica cladding produced by the vapour - phase axial deposition (VAD) method.

Feature

- Small diameter cable by high density fiber
- Precise fiber geometry
- Easily accessible individual fibers
- Reduce the installation cost by easy handling and low weight

Use/Application

- Easy handling, installation and shipping
- Installation costs and cable weight
- Available for distribution of dense metropolitan area

Structure

4 Fiber

① ② ③ ④

8 Fiber

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

12 Fiber

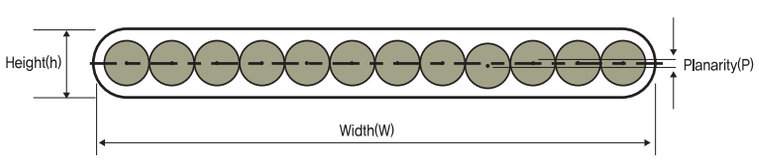
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

* Fig 1 : Cross-Section of 4-12 optical fiber ribbon

Refractive Index Profile

	Test	Attenuation change @1550nm
Environmental Characteristice	Temperature cycling test (TIA / EIA 455-3)	≤0.05dB/km (-40°C to +70°C)
	Temperature humidity test (+ 85°C, 98%, 30days)	≤0.1dB/km
	Water immersion(+23°C, 14days)	≤0.1dB/km (+23°C)

Dimension



Fiber count	Height(h)	Width(W) Typical	Width(W) Max.	Planarity(p) Typical	Planarity(p) Max.
4	310 ± 20	1100	1150	25	25
8	310 ± 20	2150	2200	30	30
12	310 ± 20	3150	3200	35	35

Performance Specification

Geometrical Characteristic	Mode field diameter	9.2 ± 0.4 μm at 1310 nm
		10.4 ± 0.5 μm at 1550 nm
	Cladding diameter	125.0 ± 0.7 μm
	Core/cladding concentricity error	≤ 0.5 μm
	Cladding non-circularity	≤ 0.7%
	Primary coating diameter (For uncolored fiber)	242 ± 5 μm
	Primary coating diameter (For colored fiber)	250 ± 10 μm
	Coating/cladding concentricity error	≤ 12 μm
	Fiber proof test level	120 kpsi (1.2% strain)
Optical Characteristic	Attenuation at 1310 nm	≤ 0.35 dB/km
	at 1550 nm	≤ 0.22 dB/km
	at 1383 nm	≤ 0.30 dB/km
	Attenuation change at 1285 ~ 1330 nm	≤ 0.05 dB/km (1310 nm)
	at 1525 ~ 1575 nm	≤ 0.05 dB/km (1550 nm)
	at 1575 ~ 1610 nm	≤ 0.03 dB/km (Max - Min)
	Point discontinuity at 1310 nm and 1550 nm	≤ 0.05 dB
	zero dispersion wavelength	≤ 1300 ~ 1322 nm
	zero dispersion slope	≤ 0.092 ps/(nm^2. km)
	Chromatic dispersion at 1285 ~ 1330 nm	≤ 3.5 ps/(nm . km)
	at 1550 nm	≤ 18 ps/(nm . km)
	at 1625 nm	≤ 22 ps/(nm . km)
	Cable cut-off wavelength	≤ 1260 nm
	PMD for individual value (uncabled fiber)	≤ 0.15 ps √km
	for link value	≤ 0.1 ps √ km
Mechanical Characteristic	Residual twist (TIA / EIA-455-131)	≤ 8 cm
	Strippability (Bellcore GR-20)	> 25 mm
	Peelability (Bellcore GR-20)	Fully peelable

Packaging

5.1 Delivery length of each ribbon bobbin shall be in multiples of 2 km. Maximum lenght shall be changed upon special agreement to within the maximum take-up length specified in Table. 1

5.2 Dimensions of ribbon bobbin are specified in Table. 1.

5.3 Ribbon bobbin shall be packaged with anti-moisyure, anti-vibration and anti-shock to maintain the ribbon's performance.

Table.1

Type	Flange Diameter	Barrel Diameter	Outside Width	Inside Width	Axial hole Diameter	Maximum Take-up Length ★
A	410	310	170	102	ø25.5 or 50.9	12 km
B	410	310	390	322	ø25.5 or 50.9	35 km

★ Maximum Take-up Length is based on 4 optical fiber ribbon

Loose Tube Cable for Duct

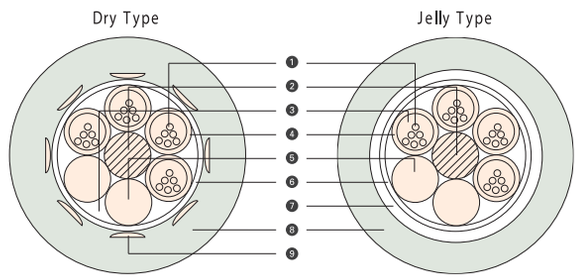
Feature

- Standard fiber count : 2~312 fibers
- Excellent mechanical and environmental performance
- Anti-termite treatment (optional)
- Excellent optical performance
- High tensile strength design
- Dry or jelly filled type

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction



❶	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷	Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP)
❸	Moisture barrier 1	Water blocking jelly filling compound or water blocking yarn
❹	Loose tube	Thermoplastic material (polybutylene terephthalate)
❺	Filler	Polyethylene string
❻	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape (optional)
❼	Moisture barrier 2	Laminated aluminum tape (optional)
❽	Sheath	Black polyethylene
❾	Non-metal strength member	Glass yarn or aramid yarn

Cable Specification

No. of fibers per tube	No. of fibers	Dry type Outer dia.(㎜)	Dry type Cable wt.(kg/km)	Jelly filled type Outer dia.(㎜)	Jelly filled type Cable wt.(kg/km)
6	2~36	10.5	90	10.9	122
12	48~72	11.1	102	11.5	136
	74~96	12.5	130	12.8	142
	98~120	13.9	158	14.2	174
	122~144	15.5	195	15.8	214
	288	18.2	253	18.5	341
	312	19.0	276	19.3	374

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification Dry type	Specification Jelly filled type
Allowable tensile strength		kgf	135~450	180~550
Crush resistance		kgf/cm	20	
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter	
	Static		10 times of cable diameter	
Operating temperature range		℃	-40 ~ +70℃	
Delivery length		km	1~6	

Optical Fibers & Cables

Loose Tube Cable for Direct Buried

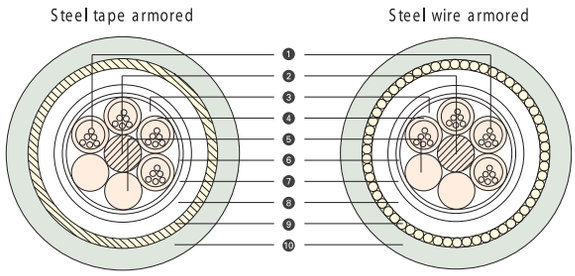
Feature

- Standard fiber count : 2~312 fibers
- Excellent mechanical and environmental performance
- Anti-termite and anti-rodent treatment (optional)
- Excellent optical performancet
- High tensile strength design
- Dry or jelly filled type

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction



❶	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷	Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP)
❸	Moisture barrier 1	Water blocking jelly filling compound or water blocking yarn
❹	Loose tube	Thermoplastic material (polybutylene terephthalate)
❺	Filler	Polyethylene string
❻	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼	Moisture barrier 2	Laminated aluminum tape (optional)
❽	Inner sheath	Black polyethylene
❾	Armored layer	Copolymer coated steel tape (steel tape armored) or steel wire armored
❿	Outer sheath	Black polyethylene

Cable Specification

No. of fibers per tube	No. of fibers	Dry type		Jelly filled type	
		Outer dia.(㎜)	Cable wt.(kg/km)	Outer dia.(㎜)	Cable wt.(kg/km)
6	2~36	14.6	200	15.9	419
12	48~72	15.2	217	16.5	451
	74~96	16.6	250	17.9	508
	98~120	18.2	295	19.5	584
	122~144	19.8	344	21.1	666
	288	21.6	406	23.0	770
	312	22.4	436	23.8	816

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification	
			Dry type	Jelly filled type
Allowable tensile strength		kgf	200~500	500~2000
Crush resistance		kgf/cm	40	
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter	
	Static		10 times of cable diameter	
Operating temperature range		℃	-40 ~ +70℃	
Delivery length		km	1~6	

Optical Fibers & Cables

Loose Tube Cable for Aerial (ADSS Type)

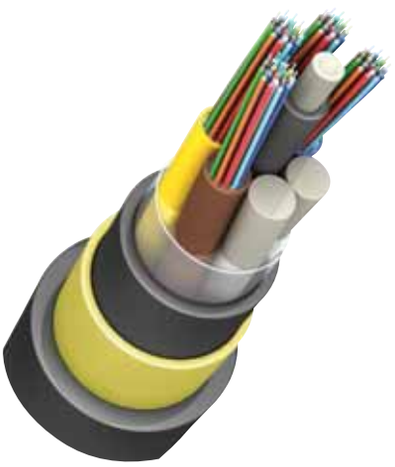
Feature

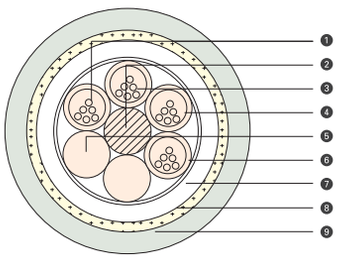
- Standard fiber count : 2~144 fibers
- Excellent mechanical and environmental performance
- Protection from lighting and electrical interference
- Dry or jelly filled type

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system
- Power line operating system

Construction





❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP) ※ADSS type : FRP
❸ Moisture barrier	Water blocking jelly filling compound or water blocking yarn
❹ Loose tube	Thermoplastic material (polybutylene terephthalate)
❺ Filler	Polyethylene string
❻ Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼ Inner sheath	Black polyethylene
❽ Armored layer	Aramid yarn (Lashing aerial type: steel tape)
❾ Outer sheath	Black polyethylene

Cable Specification

No. of fibers per tube	No. of fibers	Outer dia.(㎜)	Cable wt.(kg/㎞)
6	2~30	15.0	160
12	36~72	16.0	180
	74~96	17.5	230
	98~120	19.2	275
	122~144	21.0	330

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification
Allowable tensile strength		kgf	200~800
Crush resistance		kgf/cm	20
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter
	Static		10 times of cable diameter
Operating temperature range		℃	-40 ~ +70℃
Delivery length		㎞	1~6

Optical Fibers & Cables

Loose Tube Cable for Aerial (ADSS Type)

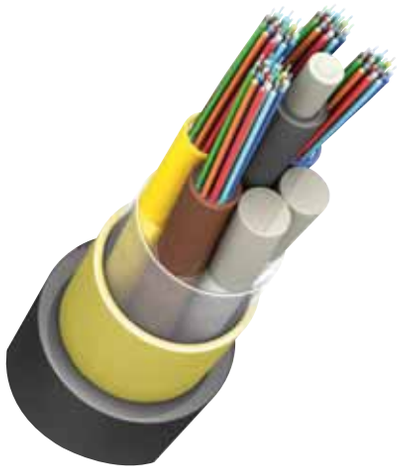
Feature

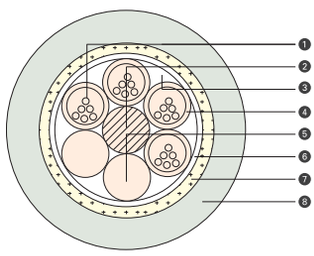
- Standard fiber count : 2~144 fibers
- Excellent mechanical and environmental performance
- Protection from lighting and electrical interference
- Dry or jelly filled type

Application

- Small diameter and light weight
- Subscriber network system
- Long haul communication system
- Long haul communication system

Construction





1	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
2	Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP) ※ADSS type : FRP
3	Moisture barrier	Water blocking jelly filling compound or water blocking yarn
4	Loose tube	Thermoplastic material (polybutylene terephthalate)
5	Filler	Polyethylene string
6	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
7	Armored layer	Aramid yarn (Lashing aerial type: steel tape)
8	Outer sheath	Black polyethylene

Cable Specification

No. of fibers per tube	No. of fibers	Outer dia.(㎜)	Cable wt.(㎏/㎞)
6	2~30	11.7	100
12	36~60	12.3	110
	62~72	12.5	115
	74~96	14.0	145
	98~120	15.6	180
	122~144	17.2	215

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification
Allowable tensile strength		㎏f	150~600
Crush resistance		㎏f/㎝	20
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter
	Static		10 times of cable diameter
Operating temperature range		℃	-40 ~ +70℃
Delivery length		㎞	1~6

Optical Fibers & Cables

Loose Tube Cable for Aerial (Fig 8 Type)

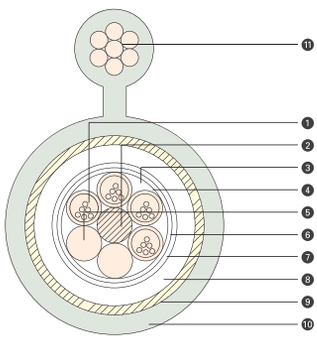
Feature

- Standard fiber count : 2~144 fibers
- Excellent mechanical and environmental performance
- Dry or jelly filled type

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction



❶	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷	Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP) *ADSS type - FRP
❸	Moisture barrier 1	A water blocking jelly filling compound or water blocking yarn
❹	Loose tube	Thermoplastic material (polybutylene terephthalate)
❺	Filler	Polyethylene string
❻	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼	Moisture barrier 2	Laminated aluminum tape
❽	Inner sheath	Black polyethylene
❾	Armored layer	Copolymer coated steel tape
❿	Outer sheath	Black polyethylene
⓫	Suspension wire	Galvanized steel wire (7/2.0 mm, 7/1.6 mm, 7/1.2 mm, 7/1.0 mm steel wire)

Cable Specification

No. of fibers per tube	No. of fibers	Outer dia.(㎜)	Cable wt.(㎏/㎞)
6	2~36	14.6 / 25.6	418
12	48~72	15.2 / 26.2	433
	74~96	16.6 / 27.6	467
	98~120	18.2 / 29.2	511
	122~144	19.8 / 30.8	560

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification
Allowable tensile strength		㎏f	500~1500
Crush resistance		㎏f/㎝	30
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter
	Static		10 times of cable diameter
Operating temperature range		℃	-40 ~ +70℃
Delivery length		㎞	1~4

Optical Fiber Ribbon Slot Cable

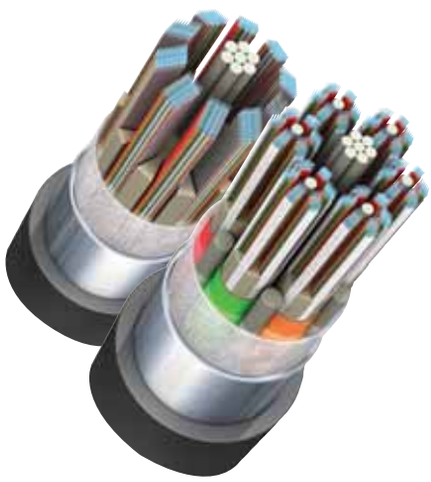
Feature

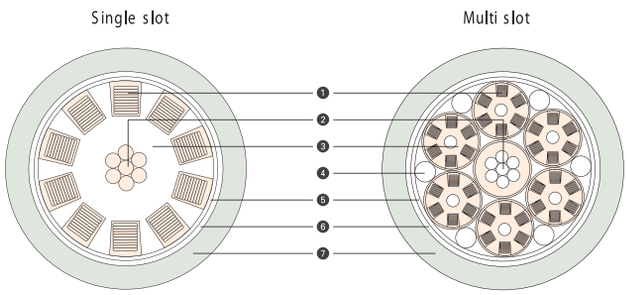
- Standard fiber count : 2~over 1152 fibers
- Excellent mechanical and environmental performance
- Large fiber count with small cable outer diameter
- Excellent optical performance
- Excellent branch and joint performance

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction





❶ Ribbon	2, 4, 8-fiber ribbon
❷ Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP)
❸ Slot	Polyethylene slot
❹ Filler	Polyethylene resin
❺ Wrapping tape	Water blocking tape
❻ Moisture barrier	Laminated aluminum tape
❼ Outer sheath	Black color polyethylene

Cable Specification

Item	Unit	Duct	
		Single slot	Multi slot
No. of fiber	fiber	600	1152
Slot dia.	mm	20	11.8
No. of slot	ea	1	6
Cable dia.	mm	25	43
Cable weight	kg/km	580	1350

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification	
			Dry type	Jelly filled type
Allowable tensile strength		kgf	800	1300
Crush resistance		kgf/cm	40	
Minimum bending diameter	Dynamic	mm	20 times of cable diameter	
	Static		40 times of cable diameter	
Operating temperature range		℃	-40 ~ +70℃	

Optical Fiber Ribbon Tube Cable

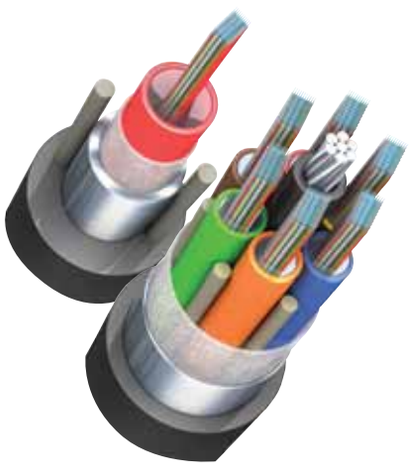
Feature

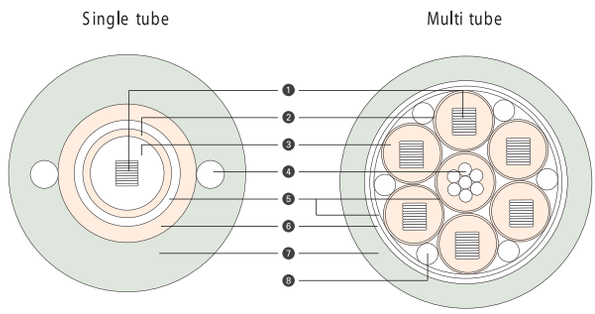
- Standard fiber count : 144~over 864 fibers
- Excellent optical performance
- Excellent mechanical and environmental performance
- Excellent branch and joint performance
- Large fiber count with small cable outer diameter

Application

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction





❶	Ribbon	4, 8, 12-fiber ribbon
❷	Loose tube	Thermoplastic material (Polybutylene terephthalate)
❸	Filling compound	Water blocking jelly compound
❹	Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP)
❺	Wrapping tape	Water blocking tape
❻	Moisture barrier	Laminated aluminum tape or steel tape (optional)
❼	Outer sheath	Black color polyethylene
❽	Filler	Polyethylene string

Cable Specification

Item	Unit	Duct	
		Single slot	Multi slot
No. of fiber	fiber	216	864
No. of tube	ea	1	6
Cable dia.	㎜	17.0	29.0
Cable weight	kg/km	260	800

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification	
			Dry type	Jelly filled type
Allowable tensile strength		kgf	270	600
Crush resistance		kgf/cm	40	
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter	
	Static		40 times of cable diameter	
Operating temperature range		℃	-40 ~ +70℃	

Optical Fibers & Cables

Optical Micro Cable

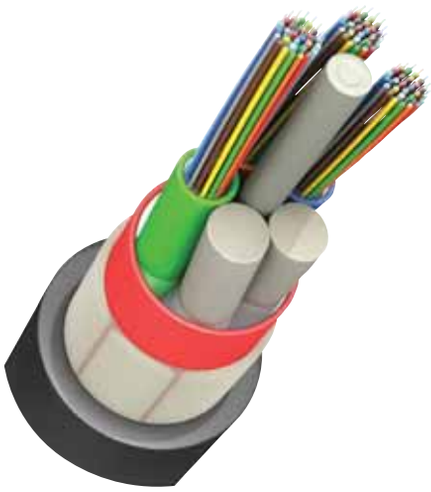
Feature

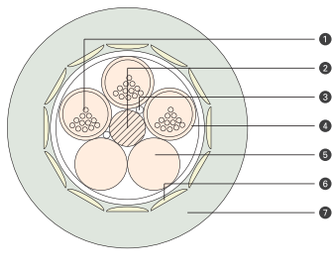
- StanStandard fiber count : 2~60 fibers
- Excellent optical performance
- Excellent mechanical and environmental performance
- Dry or jelly filled type
- Small diameter and light weight

Application

- Local area network (LAN)
- Subscriber network system
- Fiber to the home (FTTH)

Construction





1	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
2	Central strength member	Fiber reinforced plastic (FRP)
3	Moisture barrier	Water blocking yarn
4	Loose tube	Thermoplastic material (polybutylene terephthalate)
5	Filler	Polyethylene string
6	Non-metal strength member	Glass yarn or aramid yarn
7	Sheath	Black polyethylene

Cable Specification

No. of fibers per tube	No. of fibers	Outer dia.(㎜)	Cable wt.(㎏/㎞)
6	6~30	8.0	43
12	32~60	8.0	45

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification
Allowable tensile strength		kgf	100
Crush resistance		kgf/cm	5
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter
	Static		10 times of cable diameter
Operating temperature range		℃	-40 ~ +70℃
Delivery length		㎞	1~6

Loose Tube Cable for CATV Network

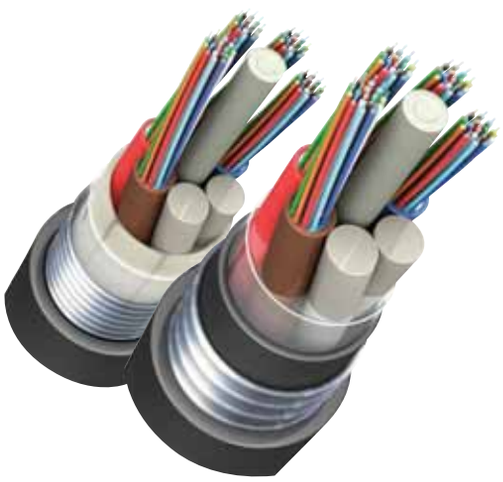
Feature

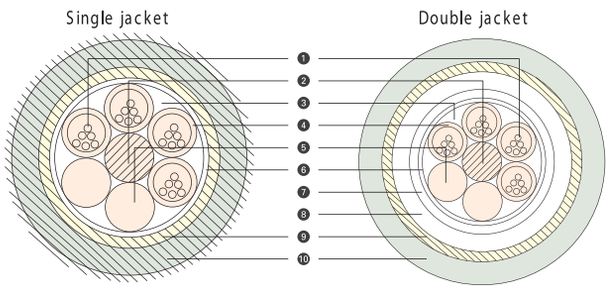
- Standard fiber count : 2~288 fibers
- Excellent optical performance
- Excellent mechanical and environmental performance
- High tensile strength design
- Anti-rodent treatment
- Dry or jelly filled type

Application

- CATV system networkt
- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction





❶	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷	Central strength member	Fiber reinforced plastic (FRP)
❸	Moisture barrier 1	Water blocking jelly filling compound or water blocking yarn
❹	Loose tube	Thermoplastic material (polybutylene terephthalate)
❺	Filler	Polyethylene string
❻	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼	Moisture barrier 2	Laminated aluminum tape (optional)
❽	Inner sheath	Black polyethylene
❾	Armored layer	Copolymer coated steel tape or tin coated steel tape
❿	Outer sheath	Black polyethylene

Cable Specification

No. of fibers per tube	No. of fibers	Single jacket		Double jacket	
		Outer dia.(mm)	Cable wt.(kg/km)	Outer dia.(mm)	Cable wt.(kg/km)
6	2~36	11.9	150	13.9	205
12	48~72	13.1	185	15.1	240
	74~96	14.6	230	16.6	295
	98~120	16.4	280	18.3	365
	122~144	18.0	360	20.0	420
	288	20.5	450	22.5	530

Mechanical & Environmental Characteristic

Characteristic		Unit	Specification	
			Single jacket	Double jacket
Allowable tensile strength		kgf	200~350	200~500
Crush resistance		kgf/cm	20	40
Minimum bending diameter	Dynamic	mm	20 times of cable diameter	
	Static		10 times of cable diameter	
Operating temperature range		℃	-40 ~ +70℃	
Delivery length		km	1~6	

High-count Loose Tube Cable (600-fiber)

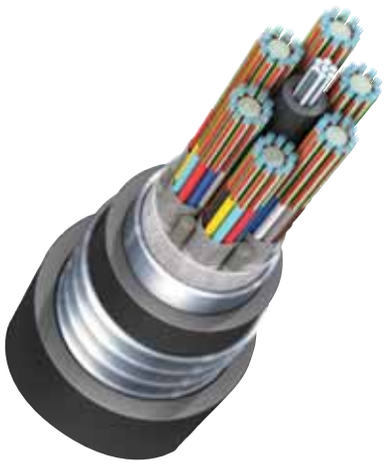
Feature

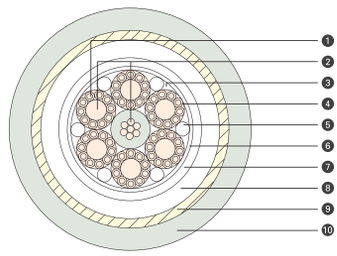
- High density fiber counts for loose tube core up to 600 fibers
- Excellent optical performance
- Excellent mechanical and environmental performance

Feature

- Local area network (LAN)
- Subscriber network system
- Long haul communication system

Construction





❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Central strength member	Galvanized steel wire or fiber reinforced plastic (FRP)
❸ Filling compound	Water blocking jelly filling compound
❹ Loose tube	Thermoplastic material (polybutylene terephthalate)
❺ Filler	Polyethylene string
❻ Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼ Moisture barrier	Laminated aluminum tape
❽ Inner sheath	Black polyethylene
❾ Armored layer	A corrugated steel tape
❿ Outer sheath	Black polyethylene

Cable Specification

No. of fibers per tube	**No. of fibers**	**Outer dia.**(㎜)
No. of tubes	ea	60
No. of fibers per tube	ea	10
Cable diametert	㎜	47
Cable weight	ton/㎞	2.9 (including drum)

Mechanical & Environmental Characteristic

Characteristic		**Unit**	**Specification**
Allowable tensile strength		kgf	800
Crush resistance		kgf/cm	30
Minimum bending diameter	Dynamic	㎜	20 times of cable diameter
	Static		10 times of cable diameter
Operating temperature range		℃	-40 ~ +70℃
Delivery length		㎞	1~2

Optical Fibers & Cables

Submarine Optical Cable

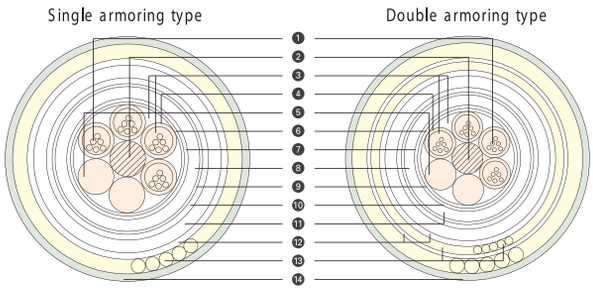
Feature

- Standard fiber count : 2 ~ 72 fibers
- Optimized design for underwater application
- High tensile strength design
- Excellent mechanical and environmental performance

Application

- High speed long haul communication system in lakes and rivers

Construction



❶	Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷	Central strength member	Galvanized steel wire or Fiber reinforced plastic (FRP)
❸	Filling compound	Water blocking jelly filling compound
❹	Loose tube	Thermoplastic material (polybutylene terephthalate)
❺	Filler	Polyethylene string
❻	Wrapping tape	Non-hygroscopic plastic tape or water blocking tape
❼	Moisture barrier	Laminated aluminum tape
❽	Inner sheath	Black polyethylene
❾	Wrapped paper	Non-woven tape
❿	Lead sheath	Lead
⓫	Outer sheath	Black polyethylene
⓬	Bedding layer	Jute+Asphalt
⓭	Wire armoring	Galvanized steel wire
⓮	Serving layer	Jute+Asphalt+CaCo3 layer

Cable Specification

Item	Unit	Single	Double
Steel structure	-	ø2.6×34 EA	First : ø2.6×33 EA
			Second : ø4.5×26 EA
Outer diameter	mm	36.5	49.7
Cable weight	ton/km	3.49	7.22

Mechanical & Environmental Characteristic

Characteristic		Unit	Single jacket	Double jacket
Allowable tensile strength		kgf	3500	5000
Crush resistance		kgf/cm	500	1000
Minimum bending diameter	Dynamic	mm	20 times of cable diameter	
	Static		10 times of cable diameter	
Operating temperature range		℃	-30 ~ +70℃	
Delivery length		km	1~10	

Optical Fiber Patch Cord (OPC)

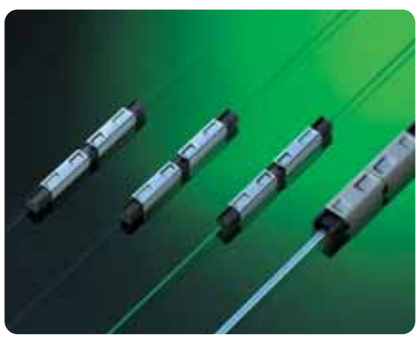
Feature
- Convenient handling
- Excellent cohesion efficiency
- Able to attach various connectors

Application
- Long-range optical transmission network
- Optical subscriber network
- Optical CATV network
- Optical LAN system

Optical Fiber Fixed Attenuator (OFFA)

Feature
- Convenient handling
- Excellent cohesion efficiency
- Able to attach various connectors
- Excellent geometric properties

Application
- Optical CATV network
- Optical subscriber network
- Long-range optical transmission network



Mechanical Splices for Optical Fiber (MS)

Feature
- Reusable
- Implemented low insertion loss and high reflection loss
- Easy installation for first time users
- Quick installation time (Access within 30 seconds)
- Bonding material and electricity is not needed

Application
- Optical subscriber network
- Optical CATV network
- Optical LAN system
- Emergence restoration

Optical Fiber Protection Sleeve (OFPS)

Feature
- Excellent function of reinforcing the optical fiber's fusion connector
- Multi environmental specification
- High reliability

Application
- Optical subscriber network
- Optical CATV network
- Optical LAN system

Optical Termination Cable

Feature

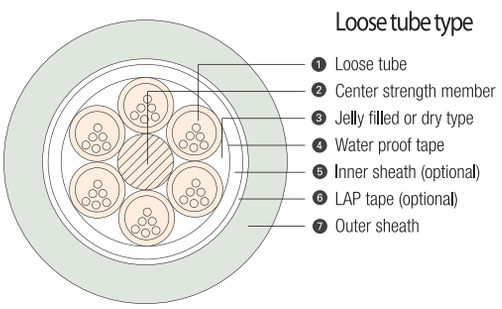
- Low connection loss
- Additional access is not needed
- Diverse acceptability

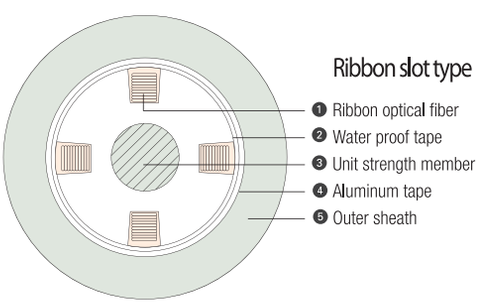
Application

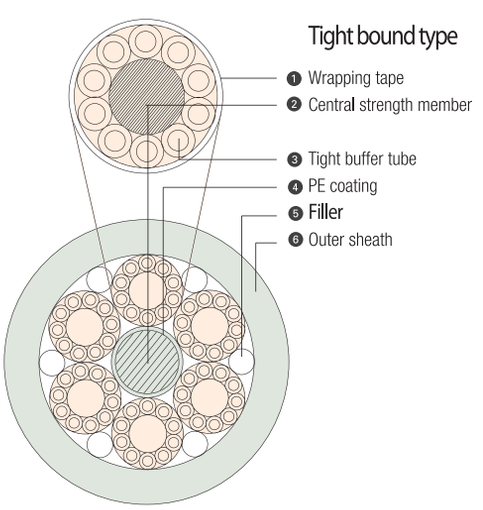
- Long-range optical transmission network
- Optical CATV network
- Optical subscriber network

Applied Specification

- Cable form : Loose tube, Ribbon slot or tube, Tight bound
- No. of Cores : Loose tube type - maximum 312
  Ribbon type - maximum 320
  Tight bound type - maximum 72
- Applied connector (Abrasive form) : SC (PC or APC), FC (PC or APC), ST (PC), SMA(PC)
- Delivery length : maximum 1,500 m







Optical Apparatus

Optical Multi Jumper Cable

Feature

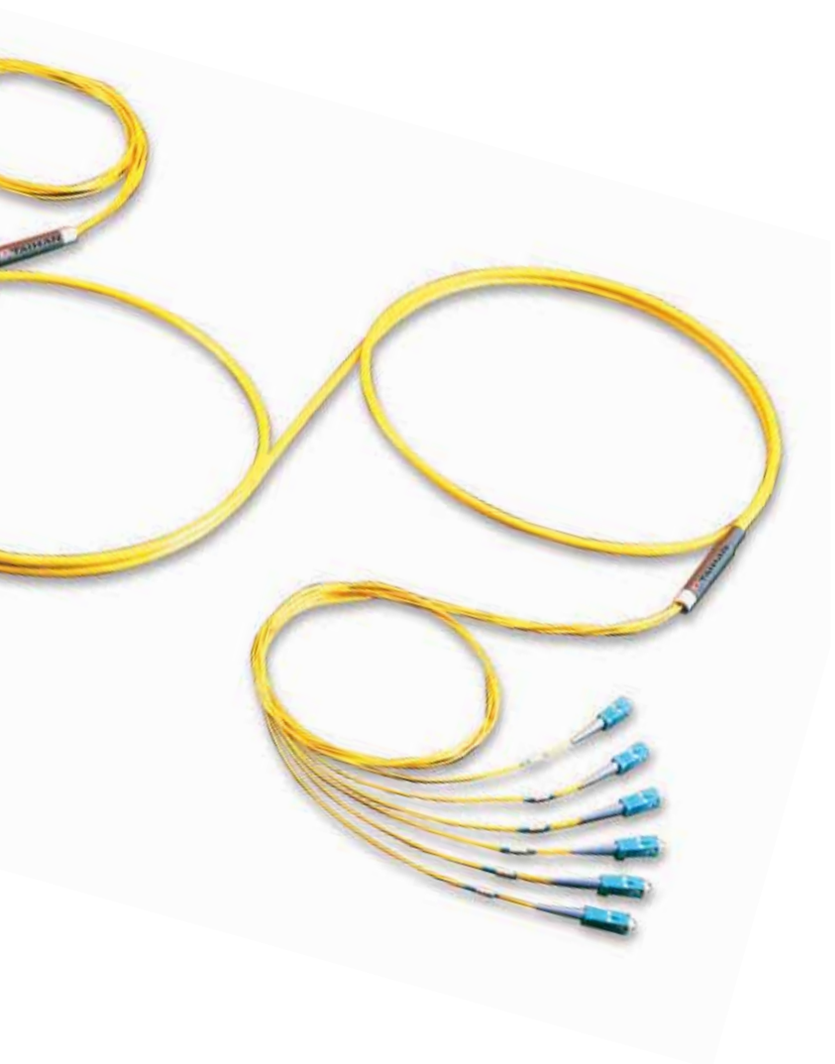
- Low cost
- Low connection loss
- Additional access is not needed
- Diverse acceptability

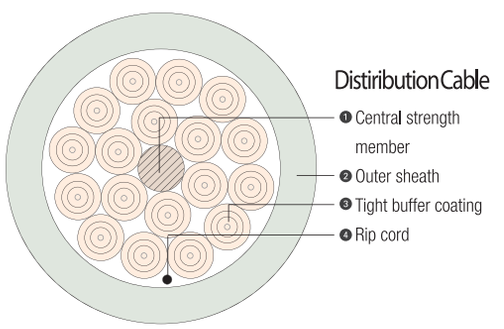
Application

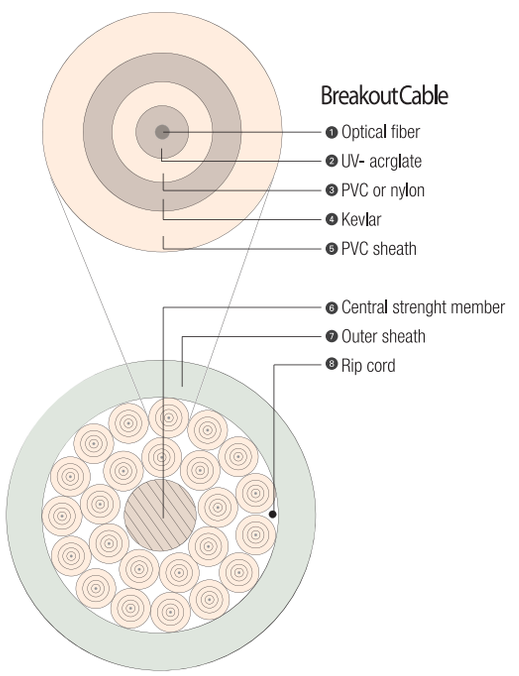
- Long-range optical transmission network
- Optical subscriber network
- Optical CATV network
- Optical LAN system

Applied Specification

- Cable Form : Breakout cable, Distribution cable
- No. of Cores : maximum 72
- Applied Connector (abrasive form) : SC (PC or APC), FC (PC or APC), ST (PC), SMA (PC)
- Delivery Length : maximum 500 m







Optical Apparatus

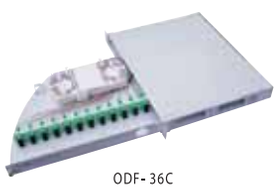
Optical Distribution Frame

Feature

- Convenient handling
- 19″Rack applied
- Various sorts of cable can be applied

Application

- Long-range optical transmission network
- Optical subscriber network
- Optical CATV network
- Optical LAN system



ODF-36C

ODF-48C

ODF-144C

Cable Specification

Item	ODF-36C	ODF-48C	ODF-144C
Size (㎜)	483×380×44	483×310×222	200~500
Number of Access Mounting	12/24/36 F (SC type) 12/24 F (SC type)	48 F	14 F
Adapter type	SC, FC, ST, LC		
Access form	Fusion, Mechanical		
Outer diameter (㎜)	8ø~32ø		
Color	Beige, Silver Gray		
Material quality	AL, SPCC		

Optical Apparatus

Fiber Optic Terminating Boxes

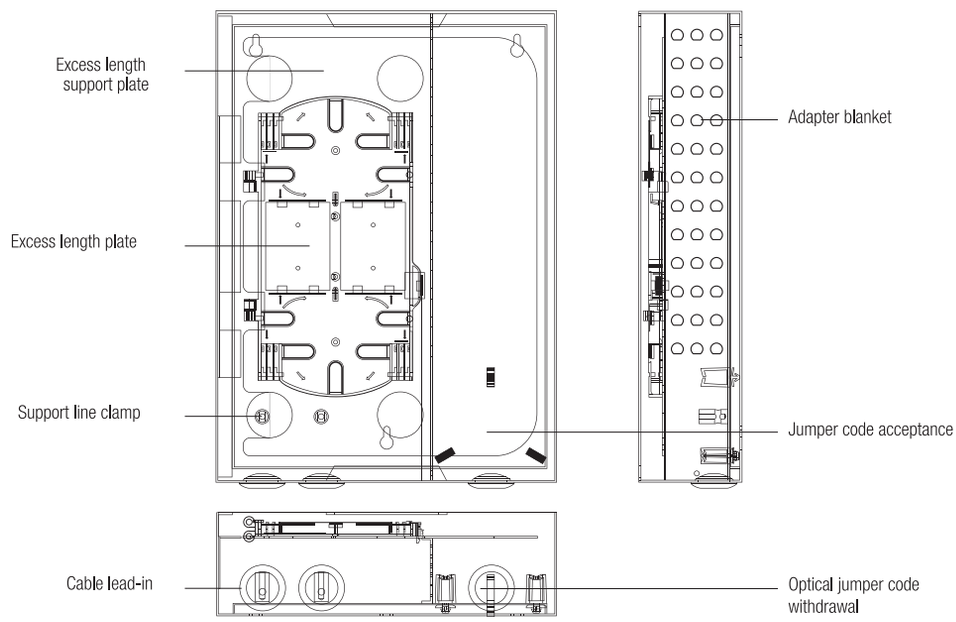
Feature

- Low cost
- Safe connector protection and storage
- Excellent durability
- Convenient usability

Applied Specification

- Optical subscriber network
- Optical LAN system
- Long-range optical transmission network

Construction



Specification

Item	ODF-36C	ODF-48C
Size (㎜)	330×220×80	380×260×110
Weight (㎏)	5.8	6.4
Number of lead-in entrance	3 (Cable lead-in : 2, optical jumper code lead-in : 1)	
Maximum outer diameter (㎜)	ø22	
Number of excess length plate	1	
Number of access mounting	24 cores	48 cores
Adapter type	SC, FC, ST, LC	
Material quality of enclosure	Steel with laminated coating, stainless steel (optional)	
Application	Indoor wall adhesion	

Optical Apparatus

Fiber Optic Emergency Repairing Systems

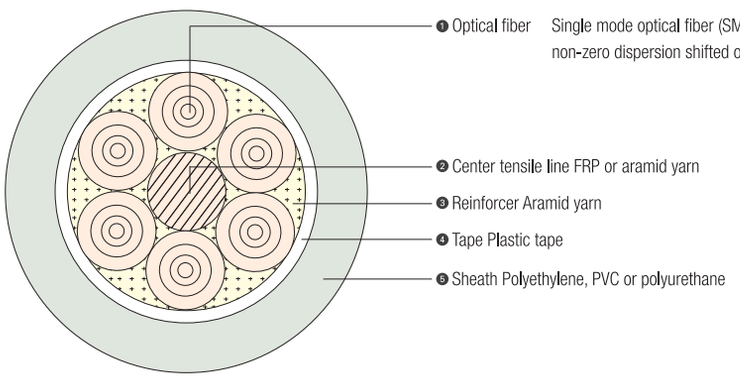
Feature

- Excellent durability
- Standard fiber count : 1~12
- Excellent high-strength and bending performance
- Convenient mobility
- Convenient application
- Actualization of lightweight with optimum structure
- Space saving design
- Compatible with various connectors

Application

- Emergency restoratiaon
- Temporary installation of communication system
- Military operational communication system

Construction



Cable Specification

Item		ODF-36C	ODF-48C
Types of optical fiber		-	ø0.9㎜ PVC or acrylate coating core wire
Connector		-	FC, SC, ST Type
Transportation equipment	Material quality	-	Aluminum or special alloy
	Weight	kgf	5~25
Outer diameter		㎜	5~8
Cable weight		kg/km	10~30

Mechanical & Environment Characteristic

Item		ODF-36C	ODF-48C
Allowable tensile strength		kgf	Over 100
Crush resistance		kg/km	3
Minimum Curvature dia.	Dynamic	㎜	20 Times of Cable External Diameter
	Static		10 Times of Cable External Diameter
Operating temperature range		℃	-40 ~ +70
Delivery length		m	100~1000

Mechanical & Environment Characteristic

Item	Quantity	Weight	Application and function	Weight
Optical cable	Recommended 500m	≤Below 15㎏/Set	In case of 6 cores	-
Reel	1 Set	≤Below 10㎏/Set	Winding device of optical cable	-
Reel carrier	1 Set	≤Below 5㎏/Set	Optical cable transportation and storage device	-

Optical Fiber Ground Wire

Stainless Steel Loose Tube Type OPGW

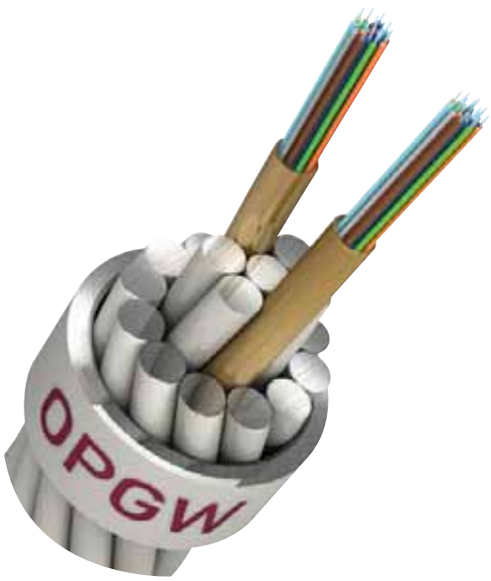
Feature

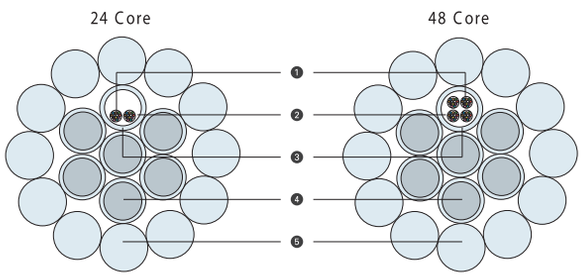
- Standard 6 to 144 fiber count
- Excellent crush resistance performance
- Maintenance data information system
- Power line protection
- Good resistance to strong winds, lightning and short circuit current

Application

- ITU-T G. 650, 651, 652, 655, IEEE 1138, IEC 60793, IEC 60794

Construction





❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Filling compound	Jelly compound
❸ Steel tube	Stainless steel tube
❹ AS wire or Al alloy	Aluminum clad steel wire or Aluminum alloy wire
❺ AS wire or Al alloy	Aluminum clad steel wire or Aluminum alloy wire

Cable Specification

Item		Unit	Specifications				
Sectional area	AS wire	mm^2	24	44	54	63	52
	Al alloy		48	88	109	125	125
No. of fibers		Core	12	24	36	48	96
Construction							
• Central AS wire		No./mm	1/2.25	1/3.05	1/3.40	1/3.65	1/3.65
• Steel tube			1/2.20	1/3.00	1/3.35	1/3.60	1/3.60
• 1st Layer AS wire			5/2.25	5/3.05	5/3.40	5/3.65	4/3.65
• 2nd Layer Al alloy			12/2.25	12/3.05	12/3.40	12/3.65	12/3.65
Outer diameter		mm	11.3	15.3	17.0	18.3	18.3
Unit weight		kg/km	300	550	680	780	740
Min. tensile load		kgf	4200	7800	9700	11200	10000
Short circuit current capacity		kA^2s	39	130	200	270	245
Modulus of elasticity		kgf/mm^2	9400	9400	9400	9400	9100
Linear expansion coefficient		/℃	17.2×10^{-6}	17.2×10^{-6}	17.2×10^{-6}	17.2×10^{-6}	17.7×10^{-6}
Max. allowable temperature		℃	200	200	200	200	200

Identification of Optical Fiber

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

Optical Fiber Ground Wire

Non-metallic Loose Tube Type OPGW

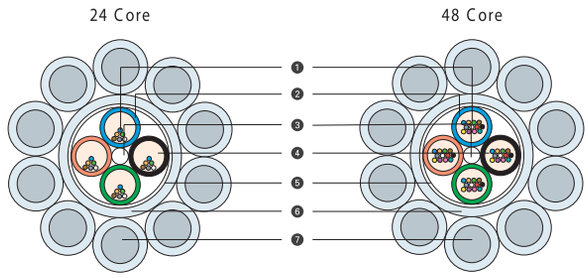
Feature

- Standard 6 to 48 fiber count
- Power line protection
- Good resistance to strong winds, lightning and short circuit current
- Excellent water resistance performance
- Maintenance data information system

Application

- ITU-T G. 650, 651, 652, 655, IEEE 1138, IEC 60793, IEC 60794

Construction



❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Loose tube	Thermoplastic material (polybutylene terephthalate)
❸ Central member	Fiber reinforced plastic (FRP)
❹ Filling compound	Jelly compound
❺ Wrapping tape	Heat resistance tape
❻ Al tube	Aluminum tube
❼ AS wire or Al alloy	Aluminum clad steel wire or Al alloy wire

Cable Specification

Item	Unit	Specifications				
Sectional area	mm^2	70	100		200	
No. of fibers	Core	24	24	48	24	48
Construction	No./mm	1/8.7 OP+ 14/2.43 AS	1/8.7 OP+ 11/3.34 AS	1/9.7 OP+ 12/3.31 AS	1/8.7 OP+ 10/3.8 AS	1/9.7 OP+ 11/3.74 AS
Outer diameter	mm	13.6	15.4	16.4	16.3	17.2
Unit weight	kg/km	550	760	820	875	940
Min. tensile load	kgf	7880	11700	12500	13500	14500
Short circuit current capacity	kA^2s	66	105	125	130	155
Modulus of elasticity	kgf/mm^2	12600	13400	13300	13700	13600
Linear expansion coefficient	/℃	14.7×10^{-6}	14.2×10^{-6}	14.3×10^{-6}	14.0×10^{-6}	14.1×10^{-6}
Linear expansion coefficient	℃	200	200	200	200	200

Identification of Optical Fiber

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

Optical Fiber Ground Wire

Central Stainless Steel Loose Tube Type OPGW

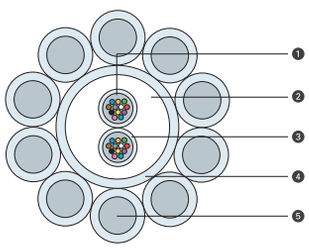
Feature

- Standard 6 to 48 fiber count
- Excellent crush resistance performance
- Maintenance data information system
- Light weight and small diameter
- Power line protection
- Good resistance to strong winds, lightning and short circuit current

Application

- ITU-T G. 650, 651, 652, 655, IEEE 1138, IEC 60793, IEC 60794

Construction



❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Jelly compound	Jelly compound
❸ Color binder	Polyester yarns
❹ Stainless steel tube	Stainless steel loose tube
❺ AS wire or Al alloy	Aluminum clad steel wire or Al alloy wire

Cable Specification

Item	Unit	Specifications		
Sectional area	㎟	58	68	75
No. of fibers	Core	24	36	48
Construction	No./㎜	1/3.5 SSLT + 6/3.5 AS	1/3.8 SSLT + 6/3.8 AS	1/4.0 sslt + 6/4.0 AS
Outer diameter	㎜	10.5	11.4	12
Unit weight	kg/km	410	480	530
Min. tensile load	kgf	7000	8000	9000
Short circuit current capacity	kA^2s	15	21	26
Modulus of elasticity	kgf/㎟	16500	16500	16500
Linear expansion coefficient	/℃	13×10^{-6}	13×10^{-6}	13×10^{-6}
Max. allowable temperature	℃	200	200	200

Optical Fiber Ground Wire

Al Covered Stainless Steel Loose Tube Type OPGW

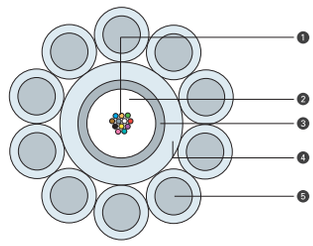
Feature

- Standard 6 to 48 fiber count
- Power line protection
- Good resistance to strong winds, lightning and short circuit current
- Excellent water resistance performance
- Maintenance data information system
- Light weight and small diameter

Application

- ITU-T G. 650, 651, 652, 655, IEEE 1138, IEC 60793, IEC 60794

Construction



❶ Optical fiber	Single mode optical fiber (SMF), multi mode optical fiber (MMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Jelly compound	Jelly compound
❸ Stainless steel tube	Stainless steel loose tube
❹ Al tube	Aluminum tube
❺ AS wire or Al alloy	Aluminum clad steel wire or Al alloy wire

Cable Specification

Item	Unit	Specifications					
Sectional area	mm^2	83	68	60	105	85	74
No. of fibers	Core	6 ~ 24			48		
Construction	No./mm	1/5.5 Al tube + 8/3.3 AS	1/5.5 Al tube + 9/2.75 AS	1/5.5 Al tube + 10/2.4 AS	1/6.2 Al tube + 8/3.75 AS	1/6.2 Al tube + 9/3.1 AS	1/6.2 Al tube + 10/2.7 AS
Outer diameter	mm	12.1	11.0	10.3	13.7	12.4	11.6
Unit weight	kg/km	520	420	365	665	530	450
Min. tensile load	kgf	8300	6500	5500	10700	8250	6950
Short circuit current capacity	kA^2s	40	28	23	64	44	35
Modulus of elasticity	kgf/mm^2	14800	14500	14200	15000	14600	14400
Linear expansion coefficient	/℃	13.4×10^{-6}	13.6×10^{-6}	13.8×10^{-6}	13.3×10^{-6}	13.5×10^{-6}	13.7×10^{-6}
Max. allowable temperature	℃	200	200	200	200	200	200

FTTH

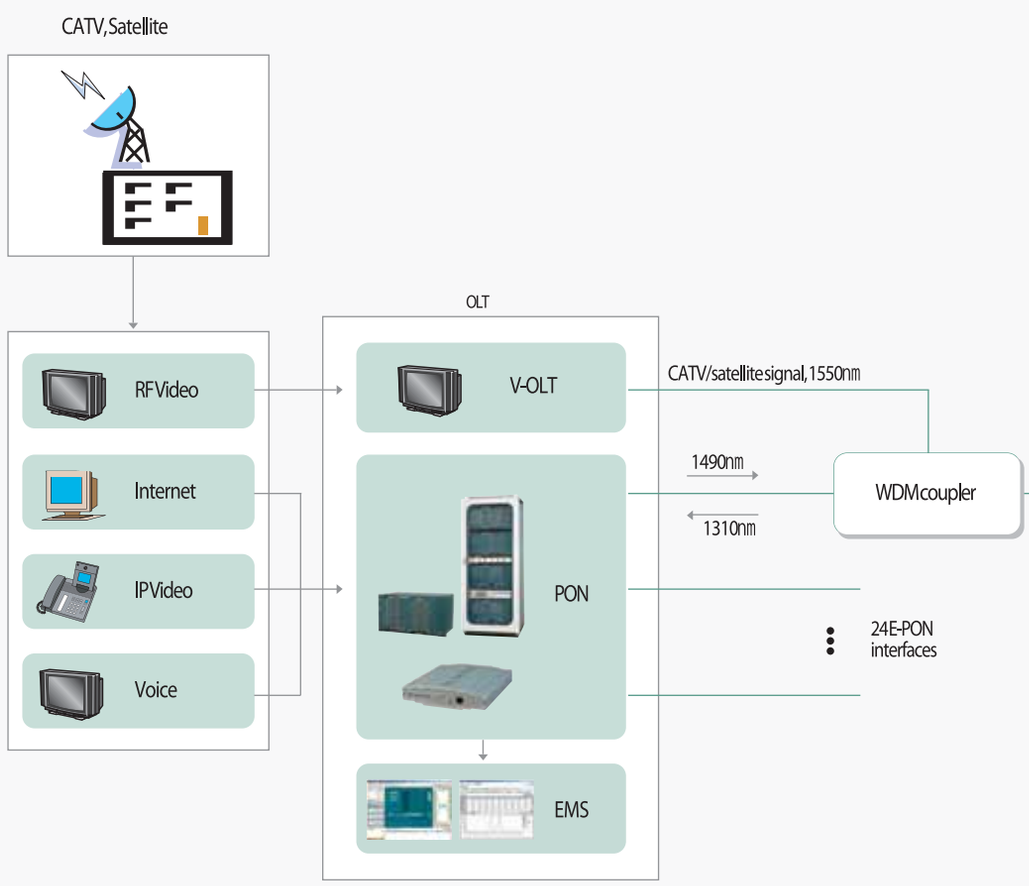
GE - PON based FTTH System

TAIHAN's FTTH system adopts GE-PON technology on Ethernet base. GE-PON system provides maximum ten times faster speed than VDSL system and delivers easy installation and maintenance. It also provides the most competitive price among various PON systems and is most popular in Korean and Asian markets as well.

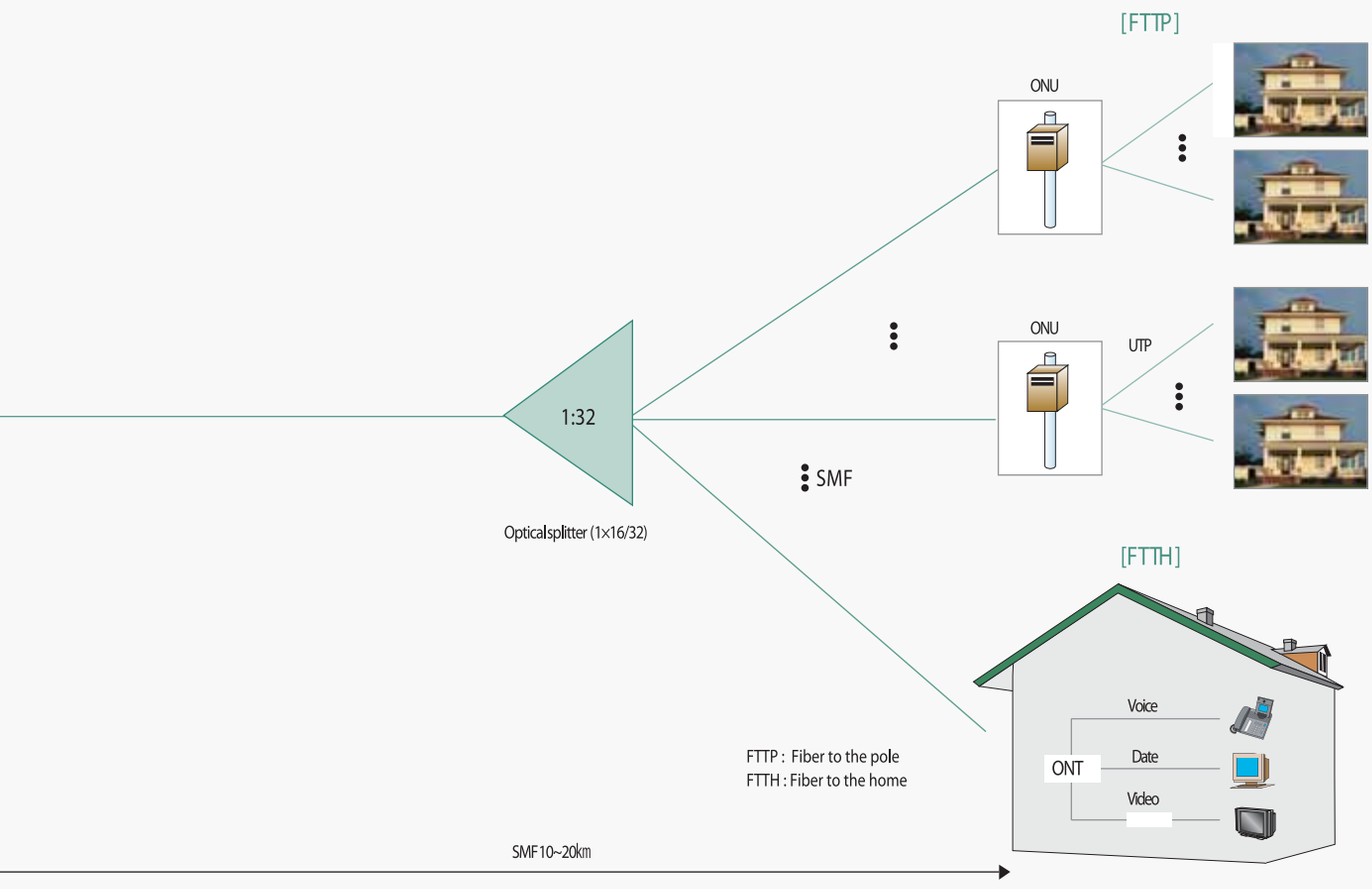
Application

Coverged services providing broadcasting, high quality internet and VoIP.

- PON : Passive optical network
- OLT : Optical line terminal
- ONT : Optical network terminal
- ONU : Optical network unit



Triple Play Service



FTTH

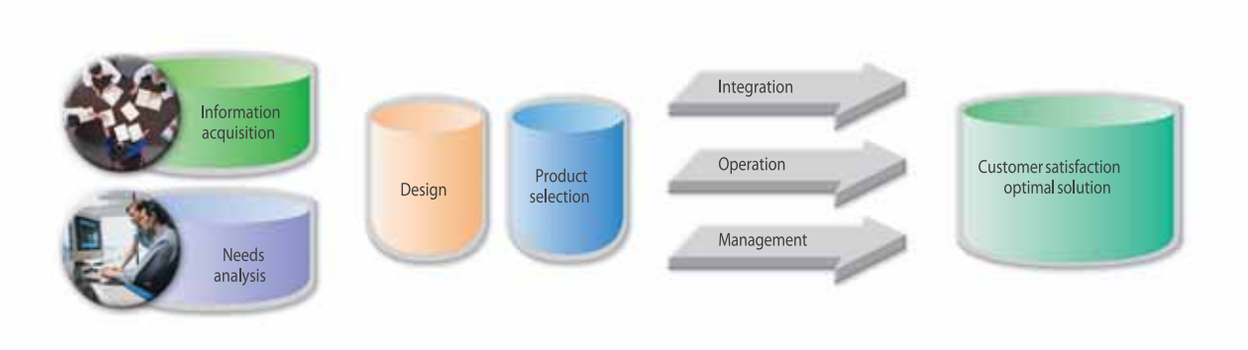
FTTH Total Solution T-WAY

TAIHAN provides the most proper solution for installing FTTH network in economical way, and also provides the network consulting and engineering services for TPS (Broadcasting, Telephony and Internet).

Engineering services by TAIHAN are :

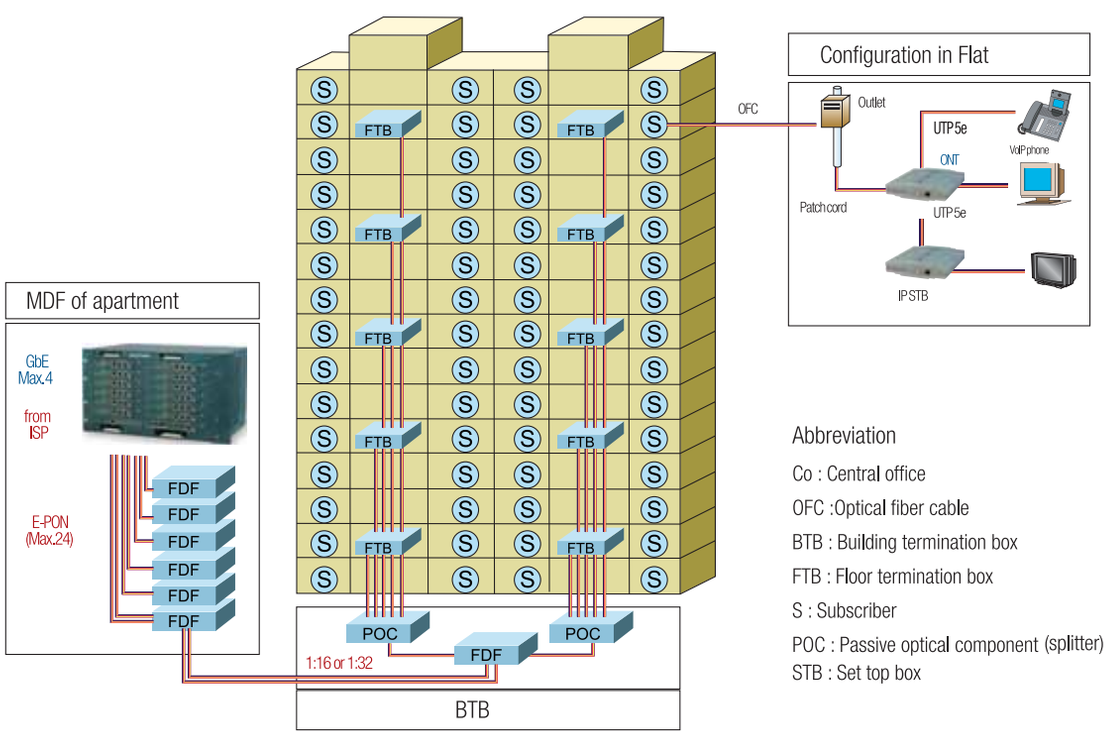
Coverged services providing broadcasting, high quality internet and VoIP.

1. Network planning and cost estimation
2. Site survey and detailed design
3. Installation and test
4. Technical consultation
5. Consultation for BOT (built, operation and transfer) business



FTTH

Network Application (in Apartment)



Abbreviation

Co : Central office
OFC :Optical fiber cable
BTB : Building termination box
FTB : Floor termination box
S : Subscriber
POC : Passive optical component (splitter)
STB : Set top box

FTTH

E - PON OLT System

E-PON OLT system consists of Gigabit ethernet switch and GE-PON master, and is installed in either telecom office or control room of residential apartment. 4 ports of GbE interface are connected to ISP (internet service Provider) and 24 ports of E-PON interface are connected to total 768 ONT systems by point to multi-point architecture. If V-OLT module is added, satellite and CATV broadcasting services can be provided.

TPS (Triple Play Service)

- Minimize the cable installation and maintenance cost by supporting max. 32 branching off per port.
- Provide 1Gbps full-duplex speed per port with just 1 fiber
- Provide broadcasting, IP telephony and internet services
- Compliant to IEEE 802.3ah standard
- Support SLA and DBA functionction that control flexible up/down bandwidth per ONT

Feature

- Provide 12 slots for E-PON interface board
- Provide maximum 24 ports of E-PON interface (2 ports per board)
- Provide 4 ports of Gigabit ethernet interface for WAN and server connection
- Support 100 Mbps interface for IP-TV exclusive
- Ethernet based packet forwarding
- L2/L3 switching function
- Support service priority by setting SLA and bandwidth per LLID
- Efficient system monitoring and configuration through EMS

Application

- High quality internet service
- IP-TV service through internet
- CATV or Satellite service by using Video-overlay module

Item	Specification
Capacity	Max. 28 Gbps switching capacity
Network Management	1000 base-Tx interface : 2 ports
	1000 base-Tx/Fx interface (SFP GBIC) : 2 ports
Slot	Gigabit interface module : 1
	E-PON line interface module : 12
	Fan module : 1
E-PON Interface	24 ports of E-PON interface (2 ports/module)
E-PON Features	EEE802.3 ah - MPCP master / Slave function - IEEE802.3 ah full-duplex MAC for each LLID - IEEE 802.3 ah Link OAM protocol
	SLA per LLID
	Max. 64 LLIDs per E-PON interface
Layer 2	IEEE 802.1p (priority)
	IEEE 802.1q (VLAN)
	IEEE 802.3 ad (link aggregation)
	IEEE 802.1d (STP)

Item	Specification
Layer 3	Static routing
	Dynamic routing (OSPFv2, RIPv1/2)
	DHCP server/relay
Multicasting	IGMPv1/2, PIM-SM
	IGMP snooping
QoS	Packet classification/marking/remarking
	Congestion management
	SPQ, WRR
	Packet classification and queue allocation for L2/L3/L4 header
Filtering	DSCP/TOS and 802.1p support
	DHCP filtering
	NetBeui, NetBIOS, NBT filtering
Management	Limi tation of MAC number per ONT
	ONT operation and maintenance through OLT
	Remote software upgrade
	GUI based operation and maintenance through EMS
Size(㎜)	440(W) x 260(H) x 320(D)

FTTH

E - PON ONT System

E-PON ONT system consists of GE-PON slave and 4ports of 100Base-Tx Interface, and is installed at subscriber premises. Since 1 port of 100Base-Tx interface is designed to process the high priority packets, IP-TV service may be much stably provided, and remaining 15 ports of 100 Baxe-TX interface provide high quality internet and data services.

Item	Specification
E-PON Interface	1 Gbps E-PON Interface : 1port
Ethernet Interface	IP-TV exclusive 100 Base-Tx Interface : 1 port
	100 Base-Tx Interface : 15 ports
	Satellite or CATV RF Interface (Optional)
Layer 2	IEEE 802.1q (Mapping VLAN to LLID)
	Multiple LLID support and SLA function per LLID
	MAC management

Item	Specification
Filtering	DHCP filtering
	NetBeui, NetBIOS, NBT fitering
	Limiting the number of MAC
Qos	4 queues support per LLID
Management	SNMP/EMS O & M support through OLT system
	Remote software upgrade
Size(㎜)	178(W) x 42(H) x 185.5(D)

FTTH

E -PON ONU System

TAIHAN's E-PON system can be deployed to FTTP(Pole), FTTB(Building) and FTTZ(Zone) applications as per request of customer. This system supports 1 port of E-PON interface and 24 ports of 100Base-Tx interface, and provides the high quality multi-media services of Broadcasting, IP telephony and Internet.

Item	Specification
E-PON	1 Gbps E-PON interface 1 port
E-PON Interface	100 base-Tx interface 24 ports
Layer 2	EEE 802.1q (VLAN)
	IEEE 802.1p (Packet Priority)
	IEEE 802.1d (STP)
Multicasting	IGMP Snooping

Item	Specification
Filtering	DHCP filtering
	NetBeui, NetBIOS, NBT fitering
	Limitation of MAC number
Qos	Packet classification
	SPQ, WRR
	Marking / remarking
	Rate limiting per port (1M unit)
Management	ONT operation and maintenance through OLT
	Remote software upgrade

FTTH

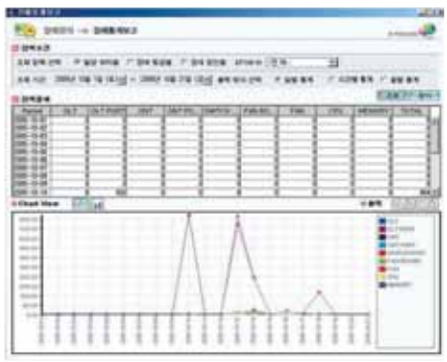
EMS (Element Management System)

By adopting element management system, network operator can easily manage the E-PON OLT and ONT system at remote site. EMS consists of EMS Manager as a server and EMS agent for communication with E-PON system. With this EMS system, unified network management is available.

Feature

- Provide SNMP interface
- Web-based system management function
- Easy and convenient GUI interface
- Configuration management : addition, deletion and change for OLT and ONT interface
- Fault management : real-time monitoring and history & statistics management for malfunction
- Auto discovery function for system addition/deletion
- Performance management : performance and critical value management for OLT/ONT/CPU
- Protocol management : protocol management for TCP/IP
- Operator management : record of addition, deletion, change and connection history

Network management



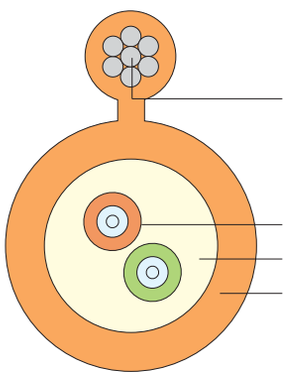
NE Control / administration

Requirements for EMS Hardware

Description	Requirements
Processor	Pentium 4, 3GHz
RAM	1 GB
HDD	60 GB
Monitor	Minimum SVGA 1024 x 768
O/S	Windows 2003 server
Database	MS-SQL server

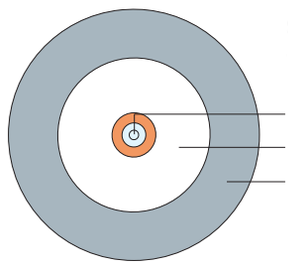
Types of Optical Fiber Cable

FTTH Drop Cable



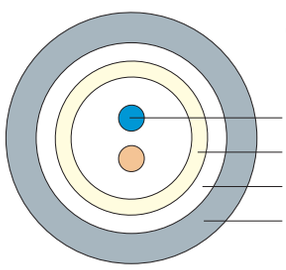
Round Type Aerial Drop Cable

- Suspension wire
- Tight buffered optical fiber
- Aramid yarn
- Outer sheath



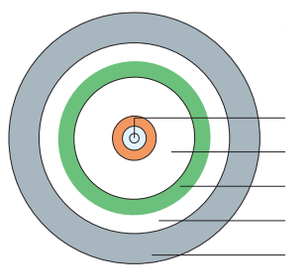
Single Sheath Type Drop Cable

- Tight buffered optical fiber
- Aramid yarn
- Outer sheath



Central Loose Type Drop Cable

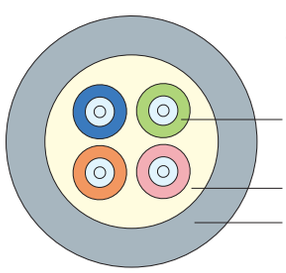
- Optical fiber
- Loose tube
- Aramid yarn
- Outer sheath



Double Sheath Type Drop Cable

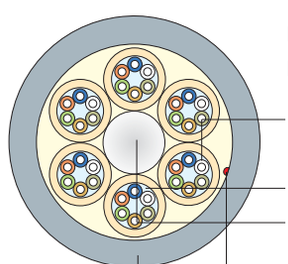
- Tight buffered optical fiber
- Aramid yarn
- Inner sheath
- Aramid yarn
- Outer sheath

FTTH Indoor Cable



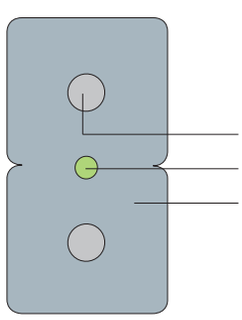
Single Unit Hybrid Cable(SMF+MMF)

- Tight buffered optical fiber
- Aramid yarn
- Outer sheath



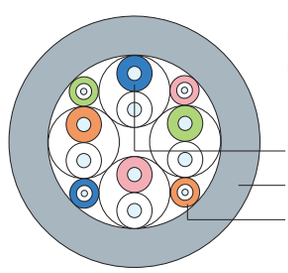
Multi Unit Hybrid Cable

- Tight buffered optical fiber
- Aramid yarn
- Central strength member
- Rip cord
- Outer sheath



Flat type Indoor cable

- FRP
- Optical fiber
- Outer sheath



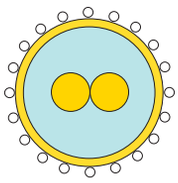
Optical/UTP Composite Cable (for FTTH)

- UTP cable pair
- Outer sheath
- Tight buffered optical fiber

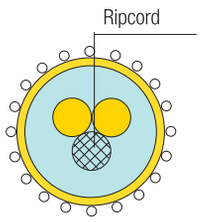
FTTH
TBF System

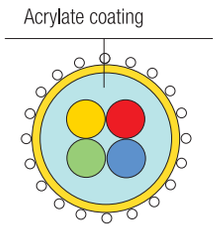
Air Blown Fiber Unit

- The TAIHAN units are contained in a soft inner acrylate layer for cushions.
- An outer harder layer protects the fibre from damage and a low friction layer.
- It assists in improving blowing distance which is typically in excess of 1000m in a single direction.
- It is available in lengths up to 6000 metres.

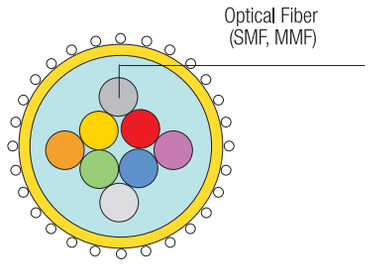


2C 2C (Ripcord)





4C



8C

	2 Fibre	4 Fibre	8 Fibre	12 Fibre
Diameter	1.0㎜	1.0㎜	1.4㎜	1.3㎜
Weight	0.8g/m	0.8g/m	1.5g/m	1.55g/m
Fibre colors	blue, orange	blue, orange, green, red	blue, orange, green, red, violet, grey, yellow, brown	blue, orange, green, red, violet, grey, yellow, brown, black, White, Pink, turquoise

Cable Specification

Mechanical	International standard	Test conditions	Performance
Condensation test	IEC 60794-1-2-E11	40㎜ (2 & 4f), 60㎜ (8f) at 60℃ for 1000 hrs	Pass. maximum fibrs strain = 0.4% Residual fibre strain = 0.05%. note 1, note 2
Crush	IEC 60794-1-2-E3	100N for 60 seconds	Pass. note 1, note 2
Bend	IEC 60794-1-2-E11	40㎜ (2 & 4f), 60㎜ (8f)	Pass. note 1, note 2
Aged bend	BT CW 1500 pt 4	40㎜ (2 & 4f), 60㎜ (8f) at 60℃ for 1000 hrst	Pass. note 1
Environmental			
Temperature	IEC 60794-1-2-F1	-10℃ to + 60℃ for 3 cycles	Pass. note 3, note 4
Cold test	BS EN 60068-2-1	-20℃ for 96 hours	Pass. note 3, note 4
Condensation test	IEC 60068-2-38	-10℃ to + 65℃ at 93%RH for 24 hrs ×10	Pass. note 3, note 4
Water immersion	BT CW 1500 pt 4	20℃ ± 5℃ for 2000 hours	Pass. note 3, note 4
Fibre breakout form unit	BT CW 1500 pt 4	0℃, 20℃, 40℃, length 2m	Under 3 minutes(2 & 4f) Under 5 minutes(8f)

Note1. no significant dam age
Note2. no change in attenuation after test
Note3. pass for singlemode = ±0.07 dB/km at 1310 nm and 1550 nm
Note4. pass for multimode = ±0.25dB/km at 850 nm and 1300 nm

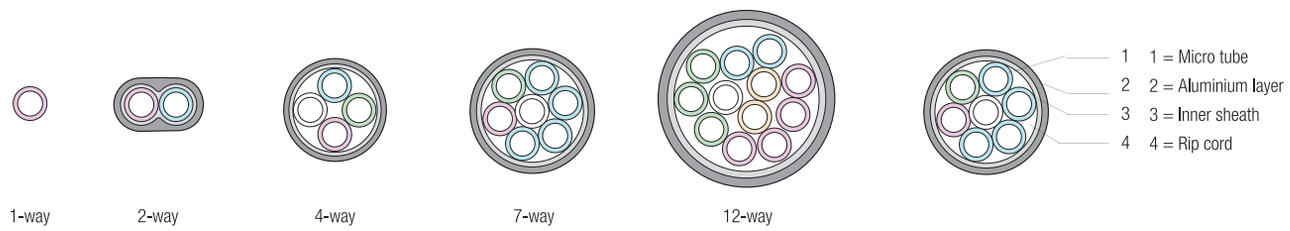
Transmission Performane

	Wavelength	Singlemode (G.652b)	Low water peak (magnilight G.652b)	MM 62.5/125	MM 50/125	OM3	OM3E
Maximum attenuation (dB/km)	850nm	-	-	3.5	2.6(2f-3.2)	2.6(2f-3.2)	2.6(2f-3.2)
	1300/1310nm	0.38	0.38	1.0	0.8(2f-1.2)48.8	0.8(2f-1.2)45.7	0.8(2f-1.2)42.7
	1383nm	-	0.35	-	-	-	-
	1550nm	0.26	0.26	-	-	-	-
Bandwidth (MHz.km)	850nm minimum modal	-	-	200	500	1500	3500
	850nm effective modal	-	-	-	-	2000	4700
	1300/1310nm	-	-	600	800	500	500

FTTH
TBF System

Air Blown Tube Cable

- Aluminium tape layer acts as a moisture barrier
- Rapid dedicated customer connections using proven mechanical protection of HDPE
- Low friction internal coating for maximum fibre blowing distance
- Each tube accommodates one fibre unit(up to 12 fibres in unit)
- Can be composed flexible tube routing



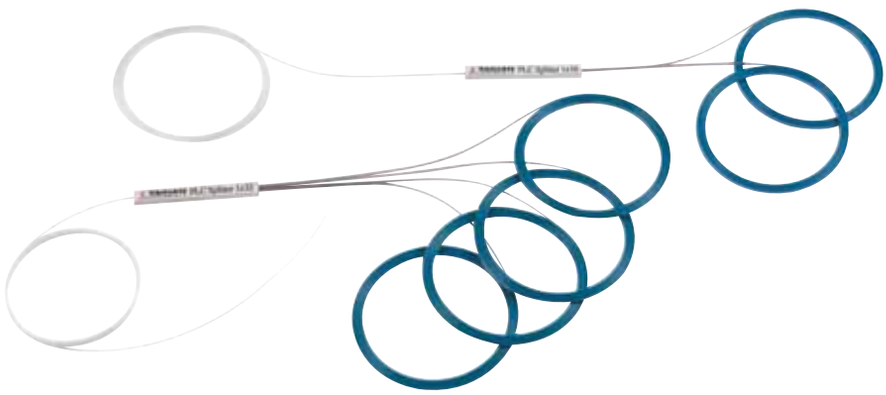
Way	Type	Outer Dia.(㎜)	Band	Tensile	Crush	Packing
1-way	Aluminium swellable tape metal free 5m/3.5m	12.8	192	1.1	2	2,000
2-way		12.8×17.8	192×266	1.6	2	
4-way		19.9	298	2.3	2	
7-way		22.8	342	2.9	2	
12-way		28.1	422	4.0	2	
19-way		32.8	492	5.2	2	
24-way		37.9	568	6.5	2	

Tube Connectors

- Straght connector : Used for simple fit connection of 5 ㎜ to 5 ㎜ TBF tubing
- Gas seal connector : used for gas sealing TBF tubing entering a customers premises and providing a gas tight seal for tubes
- Sealing cap : Used for gas sealing unused TBF tubing entering internal plant
- Water blocking connector : Used for Water blocking TBF tubing entering underground external plant
- End cap : Used for terminating unused TBF Tubing Within external plant

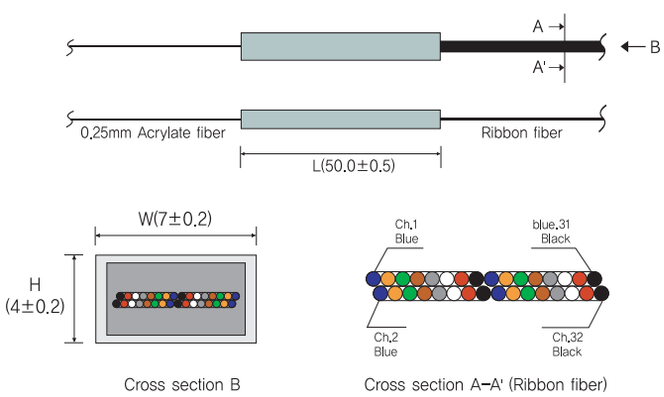
Gas seal connector | Tube connector | Tube sealing cap | Water blocking connector | End cap

FTTH
Optical Splitter



Fiber Color

Channel number				Color
1	2	17	18	Blue
3	4	19	20	Orange
5	6	21	22	Green
7	8	23	24	Brown
9	10	25	26	State
11	12	27	28	White
13	14	29	30	Red
15	16	31	32	Black



Cross section B

Cross section A–A' (Ribbon fiber)

Item	Specification			
	1x4	1x8	1x16	1x32
Size (LxWxT) [㎜]	40x4x4	40x4x4	50x5x4	50x7x4
Common port fiber	250㎜	250㎜	250㎜	250㎜
Distribution port fiber	4F ribbont	4F ribbonx2	8F ribbonx2	8F ribbonx4
Housing material	Aluminum alloy or stainless steel			
Sealing material	Silicon rubber			
Common port fiber length (m)	1.5			
Distribution port fiber length (m)	1.5			
Fiber specification	ITU-T G652			
Insertion loss (dB)	≤7.6	≤11.0	≤14.0	≤17.8
Loss uniformity (dB)	≤0.8	≤1.2	≤1.4	≤2.0
PDL (dB)	≤0.3	≤0.3	≤0.4	≤0.4
Return loss (dB)	≥55	≥55	≥55	≥55
Wavelength (nm)	1260~1625			

FTTH

Field Assembling Connector

Field assembling connector can be assembled directly on 250um or 900um size of optical fiber by improving the conventional mechanical jointing method.

It's work efficiency is largely improved as the assembling is carried out simply and rapidly at site without grinding optical fiber in the field. Additional tool is not required and wedge inside connector packing is used for assembling.

Characteristic	Types of fiber	Wavelength (μm)	Avg. loss	Max. loss
Insertion loss	Single mode	1310	0.19 dB	0.37 dB
	Single mode	1550	1.18 dB	0.34 dB
	Multi mode (50/125)	1310	0.07 dB	0.38 dB
	Multi mode (62.5/125)	1310	0.03 dB	0.21 dB
Return loss	Single mode	1310	56.1 dB	43.9 dB
	Single mode	1550	56.4 dB	44.5 dB
	Multi mode (50/125)	1310	37.6 dB	32.0 dB

FTTH

Optical Termination Box

The optical termination box is used for inter-connecting of optical fiber purpose at subscriber premises indoor or outside of the home. Featuring mechnical and environmental protection for both fiber and its components, it provides a transition point between outside plant cable and patch cords in fiber optic network. It is designed with controls that maintain the fiber bend radius throughout the unit on the segregated customer and provider sides. For convenient cable management, they provide termination, splicing and storage functions for fiber optic cable systems.

Characteristic	Specification			
	OTB-4	OTB-8	OTB-16	OTB-32
Size (mm)	400x250x80			400x300x80
Weight (kg)	5.2	5.2	5.2	5.8
Inlet ports (mm)	1/4 (drop)	1/8 (drop)	1/16 (drop)	1/32 (drop)
Cable diameter (mm)	20/5 (drop) mm			
No. of splice trays	1 up to 2			
Splice capacity	4F	8F	16F	32F
Optical adapter	SC, LC			
Material	SPCC, SUS, AL			

FTTH
Optical Splicing Box

Optical splicing box is used to protect fiber optic splicing point from outside environment in various installation conditions such as aerial, manholes, ducts and direct buried.
It is specially designed for FTTH network and applicable to multi branching installation by using mid-plate which is for increasing core capacity and complying with the requirements in each point of network. The flat type gasket ensures reliable sealing performance by preventing air and water leak and the corn type sheath gasket is available to accommodate varying size of cable diameter. The closure has high mechanical strength against any environmental conditions.
With this closure, you can improve your network system to the higher level.

Feature

- Increasing entry ports by using mid-plate
- Proven water tightness by silicon rubber gasket
- RN tray use for splitter, ribbon and loose tube fiber splicing
- High mechanical strength against impact and compression
- Ease of use for closure assembly

BS403A-SS Mid-plate

BS403A-SS

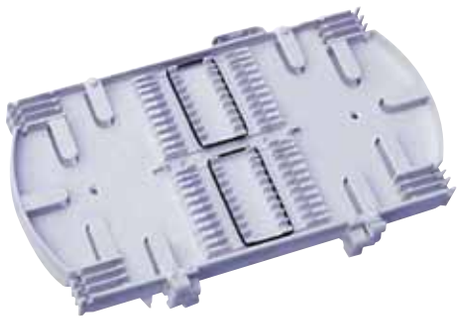
Mid-plate

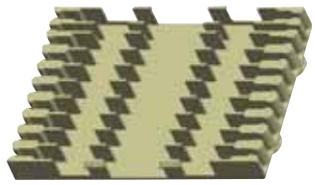
BS403A-SD

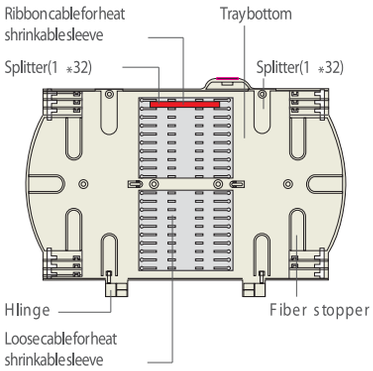
Characteristic	Types of fiber	Wavelength (㎛)	Avg. loss
Size (㎜)	435x205x113	435x205x167	435x205x221
Weight (㎏)	2.8	3.8	4.8
Inlet ports (Max)	4(32)	8(64)	12(96)
Cable diameter	6ø ~ 20ø	6ø ~ 20ø	6ø ~ 20ø
No.of splice trays	4	6	8
Tray capacity	24F ~ 48F	24F ~ 48F	24F ~ 48F
Splice capacity	96F ~ 192F	144F ~ 288F	192F ~ 384F
Splice method	Fusion, mechanical,connector		
Splice protector	Heat shrinkable sleeve, ribbon protection sleeve, mechanical splice		
Tension member	Galvanized steel wire, FRP		

FTTH

RN Tray (Remote Node)



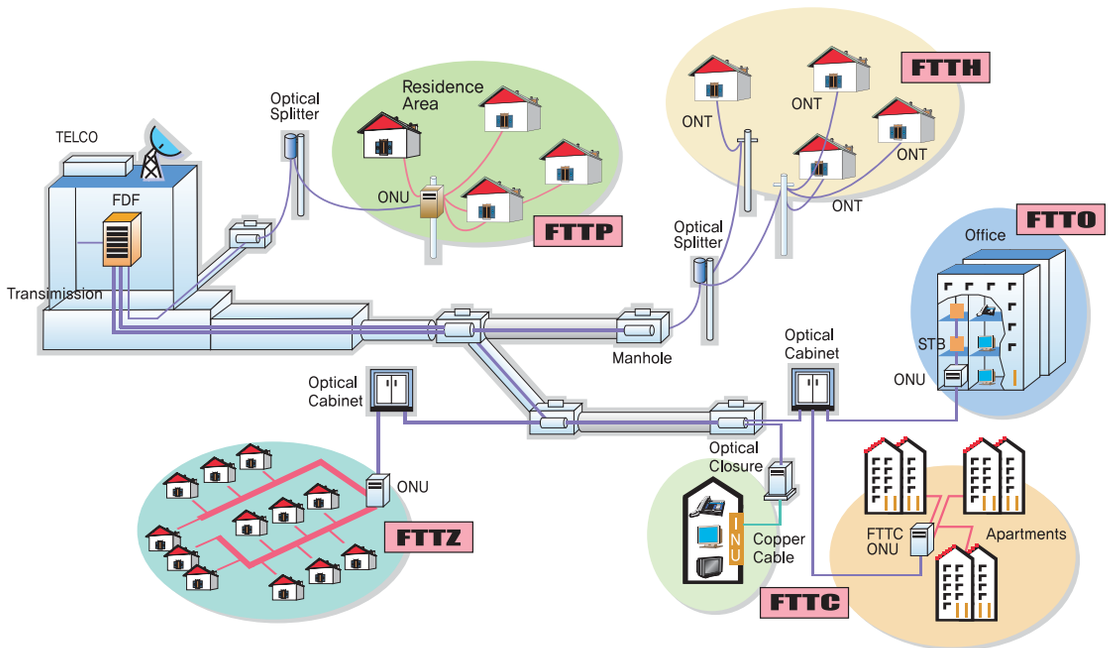




Item	Specification
Splice capacity	20F (single stack fusion mechanical) 72, 64, 40F (Ribbon)
Splice method	single/multi fusion, mechanical, splitter
Storage method	sigle, dual
Bend radius	≥30㎜
Use	Fiber to fiber, fiber to pigtail

FTTH

FTTx Wiring System



APPENDIX
Product Certificates

Product Certificates

The outstanding quality of TAIHAN communication cables is verified by internationally accredited certification institutes.

Institute	Certificate number	Item	Type	Standard	Issue date
Underwriters Laboratories Inc. (USA)	210100-E111385	Communications cable	CM, 24 AWG, 4/PR-Category 5	TIA/EIA 568A	2000.01.21
	240100-E111358	Communications cable	CM, 24 AWG, 4/PR Cable	UL 444	2000.01.24
	210600-E111358	Data cable	CMR, Cm, and CMX, 24 AWG 25/PR UTP Cable-Category 3, 4, and 5	TIA/EIA 568A	2000.06.21
	220600-E111358	Data cable	CMR, CM, and CMX, 24 AWG 25/PR UTP Cable	UL 444	2000.06.22
	000111-E111358	Data cable	CMR 24 AWG UTP Category 5e Cable	UL 444, ANSI/TIA/EIA-568A-5	2000.11.01
	000211-E111358	Data cable	CM and CMX 24 AWG UTP Category 5e Cable	UL 444, ANSI/TIA/EIA-568A-5	2000.11.02
	000311-E111358	Communications cable	CM & CMX Cables Employing Foamed PE Insulation & PVC Jacket	UL 444	2000.11.03
	000411-E111358	Communications cable	CMR Cables Employing Foamed PE Insulation & PVC Jacket	UL 444	2000.11.04
	113000-E111358	Data cable	CM or CMX Cables Also Verified in accordance with Category 6, NEMA WC-66-1999 UL 444. NEMA WC-66-1999	UL 444. NEMA WC-66-1999	2000.11.30
Telcordia Technologies (USA)	-	Optical fiber	Dispersion-Unshifted, Low Water Peak Single-mode Optical fiber	-	2007.10.30
SELLIHCA (NOR)	105210	FOC, OPGW	Fiber Optic Cables and Optical Ground Wire	-	2010.01.15

Underwriters Laboratories Inc.®

Northbrook, Illinois • (847) 272-8800
Melville, New York • (516) 271-6200
Santa Clara, California • (408) 985-2400
Research Triangle Park, North Carolina • (919) 549-1400
Camas, Washington • (360) 817-5500

CERTIFICATE OF COMPLIANCE

CERTIFICATE NUMBER: 210100-E111358
ISSUE DATE: JANUARY 21, 2000

Issued to: Taihan Electric Wire Co., Ltd.
194-15 1-KA Hanhgun-Dong
CPO Box 2624
Seoul, Korea

Report Reference: E111358, November 12, 1999

This is to Certify that representative samples of:

Communications Cable
Type CM, 24 AWG, 4/PR - Category 5

Have been investigated by Underwriters Laboratories Inc. in accordance with Standards indicated on this Certificate:

Standard: Commercial/Building Telecommunications Cabling Standard; TIA/EIA 568A

Additional Information:

The name of Underwriters Laboratories Inc. (UL), any abbreviation thereof, or any symbol shall not be used on or in connection with the product unless and until specifically authorized by UL as a result of establishment of appropriate service.
UL, in performing its functions in accordance with its objects and purposes, does not assume or undertake to discharge any responsibility of the above named company (Applicant) to any other party or parties. The opinions and findings of UL represent its judgment given with due consideration to the necessary limitations of practical operation and in accordance with its objects and purposes, and does not warrant or guarantee the correctness of its opinions or that its findings will be recognized or accepted.

Only those products bearing the UL Verification Marking should be considered as being covered by UL's Verification and Follow-Up Service.

The UL Verification Marking Label includes: the name "Underwriters Laboratories Inc.", the word "Listed" , the product category name (product identity) as indicted in the appropriate UL Directory; a control number (may be alpha-numeric) assigned by UL; and the statement "also Verified to UL Performance Category Program".

LOOK FOR THE UL VERIFICATION MARKING ON THE PRODUCT

Engineer: Underwriters Laboratories Inc. Review Engineer: Underwriters Laboratories Inc.

Certificate of Excellence

Telcordia.

Optomagic Co., Ltd. - Optical Fiber Testing
– Awarding of Telcordia Certification of Excellence for Optical Cable

October 30, 2007

Mr. Terry Kim
Overseas Sales Team
Optomagic Co., Ltd.
603 Seongkok-dong
Anyan-si Kyunghi-do, Seoul, Korea

Certified by

Dear Mr. Terry Kim:

This letter is to confirm the completion of the Telcordia testing of Optomagic Co., Ltd dispersion-unshifted, low-water-peak single-mode optical fiber to the existing fiber criteria in Telcordia GR-20-CORE, Issue 2, *Generic Requirements for Optical Fiber and Optical Fiber Cable*, and to the material compatibility and water ingress requirements of the GR-20-CORE, Issue 2 Requirements. The cable testing program was started in October 2006 and successfully completed in March 2007. The testing focused on the features, functions, and performance of the Optomagic optical fiber and its suitability for use in single-mode optical cables for telecommunications applications.

DA-1733, *Analysis of Optomagic Co., Ltd. Dispersion-Unshifted, Low Water Peak Single-Mode Optical Fiber*, the report summarizing the testing results of this program has been prepared by Telcordia and provided to Optomagic Co., Ltd. The test results are considered against GR-20-CORE, *Generic Requirements for Optical Fiber and Optical Fiber Cable*, Issue 2, which includes mandatory criteria for which compliance is normally considered necessary for optical fiber and cable to function satisfactorily in a North American communications system. Optomagic Co., Ltd. dispersion-unshifted, low-water-peak single-mode optical fiber successfully completed all tests and was rated as "meets the requirements" for all tests conducted. As a result, the Optomagic Co. dispersion-unshifted, low-water-peak single-mode optical fiber is rated by Telcordia as having met Telcordia's Certification of Excellence for the period April 2007 through March 2010.

Sincerely,
John W. Peters
John W. Peters
Senior Engineer and Project Leader Optomagic Fiber Testing
Optical Analysis Service Line
Telcordia Technologies

APPENDIX
System Certificates

System Certificates

TAIHAN has been assessed and certified as meeting the requirements of OHSAS 18001, ISO 14001, ISO 9001 and TL 9000 which sets global standards for manufacturing process.


SGS

Taihan Electric Wire Co., Ltd.

OHSAS 18001:2007

Design and Manufacture of Communication Cable, Optical Fiber Cable, Copper Rod, Electrical Cable & Wire, Cable Joint Accessories and High Voltage Insulators.


SGS

Taihan Electric Wire Co., Ltd.

ISO 14001:2004


Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

Taihan electronic wire Co., Ltd.
Anyang Plant
795,Gwanyang-dong
Dongan-gu
Anyang city
Gyeonggi-do
431-804
Republic of Korea

The design and manufacture of communication cable, optical fiber cable, copper rod and electric cable including instrument cable.


Certificate of Registration

QUALITY MANAGEMENT SYSTEM – TL 9000-H

Taihan electronic wire Co., Ltd.
Anyang Plant
795,Gwanyang-dong
Dongan-gu
Anyang city
Gyeonggi-do
431-804
South Korea

APPENDIX
Definition of Terms

- Acrylate : A salt or ester of acrylic acid
- Aerial Cable : A cable suspended in the air on poles or other overhead structures
- Aramid Fiber : A class of heat-resistant and strong synthetic fiber
- AS Wire : Aluminum clad steel wire
- Attenuation : Power loss in an electrical system
- BcN : Broadband Convergence Network
- CaCO3 : Calcium Carbonate
- CATV : Community Antenna Televisiont
- Cladding : something that covers or overlays. Specifically, metal coating bonded to a metal core
- Coaxial Cable : A cable consisting of two conductors with a common axis, separated by a dielectric
- Copolymer : A polymer derived from two (or more) monomeric species, as opposed to a homopolymer where only one monomer is used
- Core : A component or assembly of components over which additional components (shield, sheath, etc.) are applied
- CPU : Central Processing Unit
- CSA : Canadian Standards Association
- DBA : DataBase Administor
- Decibel (dB) : A unit to express differences of power level.
- DHCP : Dynamic Host Configuration Protocol, one of the protocols in the TCP/IP networking suite
- Direct Buried Cable : A cable installed directly in the earth.
- Dry Type Cable : Dry Block material or hydroscopic tape used as a water blacking agent in cables.
- DSCP : Differentiated Services Code Point, a field in the header of IP packets for packet classification purposes.
- Duct : An underground or overhead tube through which electrical conductors are pulled.
- DWDM : Dense Wavelength Division Multiplexing
- EMS : Electro Magnetic Susceptibility
- E-PON : Ethernet Passive Optical Network
- Ethernet : A computer network architecture consisting of various specified local-area network protocols, devices, and connection methods
- Fiber Optics : A lightwave or optical communications systems in which electrical information is converted to light energy, transmitted to another location through optical fibers, and is there converted back into electrical information.
- FRP : Fiber Reinforced Plastic
- FTTH : Fiber To The Home
- GBIC : Gigabit Interface Converter (1gigabit = one billion bits)
- GE-PON : Gigabit Ethernet Passive Optical Network
- GPS : Global Positioning System
- GUI : Graphical User Interface
- HDTV : High-Definition Television
- Hygroscopic : Taken up and retained under some conditions of humidity and temperature.
- IEC : Independent Electrical Contractors Association
- IEEE : Institute of Electrical and Electronics Engineers
- IGMPv1/2 : Internet Group Management Protocol
- IPTV : Internet Protocol Television
- ISO : International Standards Organization
- ITU - T : International Telecommunication Union - Telecommunication Standardization Sector
- KS : Korean (Industrial) Standards
- KT : Korea Telecom
- LAN : Local Area Network. Integration of computer and communication systems that wire computers, peripheral equipment and telephones together.
- LAP : Laminated Aluminum Polyethylene
- LLID : Logical Link Identifier

- LSZH : Low Smoke Zero Halogen
- LWPF : Low Water Peak Fiber
- MAC : Media Access Control
- Mbps : Megabits per second (1megabit = one million bits)
- MFD : Mode-Field Diameter
- MMF : Multi Mode Fiber
- MPCP : Multi-Point Control Protocol
- Mylar : DuPont trademark for a polyester material used in the form of a tape.
- NBT : A networking protocol that allows legacy computer applications relying on the NetBIOS API to be used on modern TCP/IP networks.
- NE : Network Element
- NetBeui : NetBIOS Extended User Interface
- NetBIOS : Network Basic Input/Output System
- NZDSF : Non Zero Dispersion Shifted Fiber
- OAM : Operations, Administration and Maintenance
- OLT : Optical Line Termination
- OSPFv2 : Open Shortest Path First Version 2
- OTB : Optical Termination Box
- PDL : Polarisation Dependent Loss
- PE : Polyethylene
- PIM-SM : Protocol Independent Multicast, Sparse-Mode
- Polyethylene : A thermoplastic material having the chemical identity of polymerized ethylene.
- Polymer : A chemical compound with large molecules made of many smaller molecules of the same kind.
- Polyurethane : A plastic material used especially to make paint or substances which prevent water or heat from passing through.
- PON : Passive Optical Network
- PVC : Poly-Vinyl Chloride
- QoS : Quality of Service
- RIPv1/2 : Routing Information Protocol
- RN : Remote Node
- SFP : Small Form-factor Pluggable
- SLA : Service Level Agreement
- SMF : Single Mode Fiber
- SNMP : Simple Network Management Protocol
- SPCC : Steel Plate Cold Commercial
- SPQ : Strict Priority Queuing
- Stalpeth : A cable sheath consisting of a corrugated steel (ST) shield applied over a corrugated aluminum (AL) shield and an outer polyethylene (PETH) jacket.
- SUS : Steel Use Stainless
- TCP/IP : Transmission Control Protocol-Internet Protocol
- Terephthalate : A dimethyl-ester that is a major starting material for polyester fibers and coatings.
- Thermoplastic : Capable of softening or fusing when heated and of hardening again when cooled.
- ToS : Type of Service
- UL : Underwriters Laboratories, a non-profit independent organization, which operates a testing and listing service for electrical and electronic materials and equipment.
- UM : Micrometer (1um = 1,000nm)
- UV : Ultraviolet
- VAD : Vapour phase Axial Deposition
- VDSL : Very high-Data rate digital Subscriber Line
- VoIP : Voice over Internet Protocol
- WDM : Wavelength Division Multiplexing
- WRR : Weighted Round Robin
- ZWPF : Zero Water Peak Fiber

APPENDIX
Global Networks

Subsidiary Company / Branch office

Overseas Branch Office

Dubai Representative Office

Flat No.1204, Al Safa Tower, Sheikh Zayed Road, P.O.Box 117561, Dubai, UAE
TEL : +971-4-331-7233 FAX : +971-4-331-7322
E-mail : hkjoo@taihan.com, taitian@emirates.net.ae

Riyadh Branch Office

Office No.613, Al Rossais Commercial Center
Olaya Road, P.O.Box 300201, Riyadh 11372, Kingdom of Saudi Arabia
TEL : +966-1-419-0227 FAX : +966-1-419-0262
E-mail : sgkim@taihan.com

Qatar Branch Office

Duhail Road Near College of North Atlantic P.O.Box : 18740 - Doha Qatar
TEL : +974-421-3851
E-mail: jsnam@taihan.com

Kuwait Branch Office

Sabah al Salem, block No.4, Street No.31 House No.7, State of Kuwait
TEL : +965-2552-8642 FAX : +965-2552-1498
E-mail : janghee5@taihan.com

Kuala Lumpur Branch Office

No. 9, 2nd Floor, Jalan Pandan Prima 1 Dataran Pandan Prima 55100 Kuala Lumpur, Malaysia
TEL : +60-3-9018-9113/9115 FAX : +60-3-9200-1136
E-mail : iamsj@taihan.com

Singapore Branch Office

150 Kampong Ampat #07-04 KA Centre Singapore 368324,
Republic of Singapore
TEL : +65-6842-5069 FAX : +65-6842-5076
E-mail : iamsj@singnet.com.sg

Newzealand Branch Office

Suite 2, Level 11, 48 Emily Place, Auckland PO Box 105895,
Auckland City, Auckland 1143
TEL : +64-9-368-7703 FAX : +64-9 368-7704
E-mail: jshuh@taihan.com

Australia Branch Office

Suite 2, Level 13, 80 Mount Street, North Sydney, NSW 2060, Australia
TEL : 61-2-9460-3600 FAX : 61-2-9954-4354
E MAIL: okkwon@taihan.com

Argentina Branch Office

Suipacha Suites, Room 909 Suipacha 1235
TEL : +54-911-6413-7430 FAX : 54-911-6413-4694
E MAIL : sikim@taihan.com

Venezuela Branch Office

Avenida Principal Los Chorros de mila Centro Epresarial Villa Los Chorros
Piso4 Oficina 404 Merida, Venezuela
TEL : +58-274-414-1627
E-mail : jintail@taihan.com, luis.juarez@taihanla.com

Overseas Subsidiaries

South Africa Malesela Taihan Electric Cable Pty., Ltd. (M-TEC)

Steel Road Peacehaven Vereeniging 1930 Gauteng, South Africa
TEL : +27-16-450-8200 FAX : +27-16-450-8202
E-mail : junehah@m-tec.co.zaWebsite : www.m-tec.co.za

D.R. Congo STANDARD TELECOM

158, Avenue de la Democratie(Ex- Huilerie) Commune de la Gombe, Kinshasa, D.R.Congo
TEL : +243-1511-0007FAX : +243-1511-1100
E-mail : colee@stelecom.cdWebsite : www.st.cd

Vietnam Taihan Sacom Cable Co., Ltd (TSC)

7th Floor, 71-73 Dien Bien Phu, phuong 15, Binh Thanh District, Vietnam
TEL : +84-8-518-0786FAX : +84-8-518-0785
E-mail : kimjh@tscable.com.vnWebsite : www.tsc.vn

USA Taihan USA (Taihan Electric USA., Ltd.)

LandMark Building, 99 Tulip Avenue, Suite#106, Floral Park, NY 11001, USA
TEL : +1-516-355-5600FAX : +1-516-355-5601
E-mail : sw1012@taihan.com

Hong Kong TGH (Taihan Global Holdings, Ltd.)

No.1808, 18F, Tower 2, Admiralty Center,18 Harcourt Road, Admiralty, Hong Kong

Office & Plants

Head Office

Insong Building, 52, Toegyero,
Jung-gu, Seoul, Korea
tel. 82-2-316-9114
fax. 82-2-754-5257

Anyang Plant, R&D Laboratory

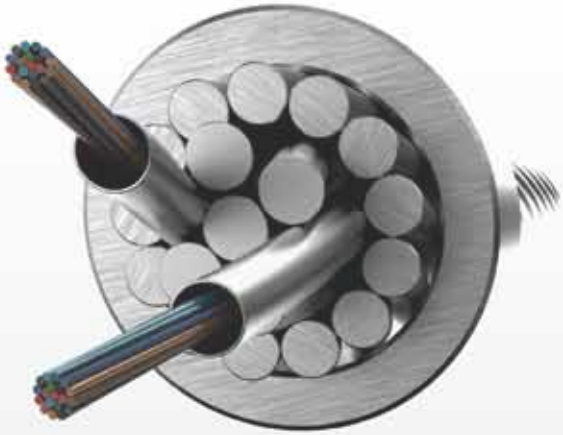
785, Gwanyang-dong, Dongan-gu, Anyang-si,
Gyeonggi-do, Korea
tel. 82-31-420-9114
fax. 82-31-423-2685

Dangjin Plant

1110, Janghang-ri, Godae-myeon, Dangjin-gun,
Chuncheongnam-do, Korea
tel. 82-41-360-9114
fax. 82-41-360-9199

Dangjin Cable Accessory Plant

2-1 Seulhang-ri, Godae-myeon, Dangjin-gun,
Chuncheongnam-do, Korea
tel. 82-41-359-9114
fax. 82-41-359-9116



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