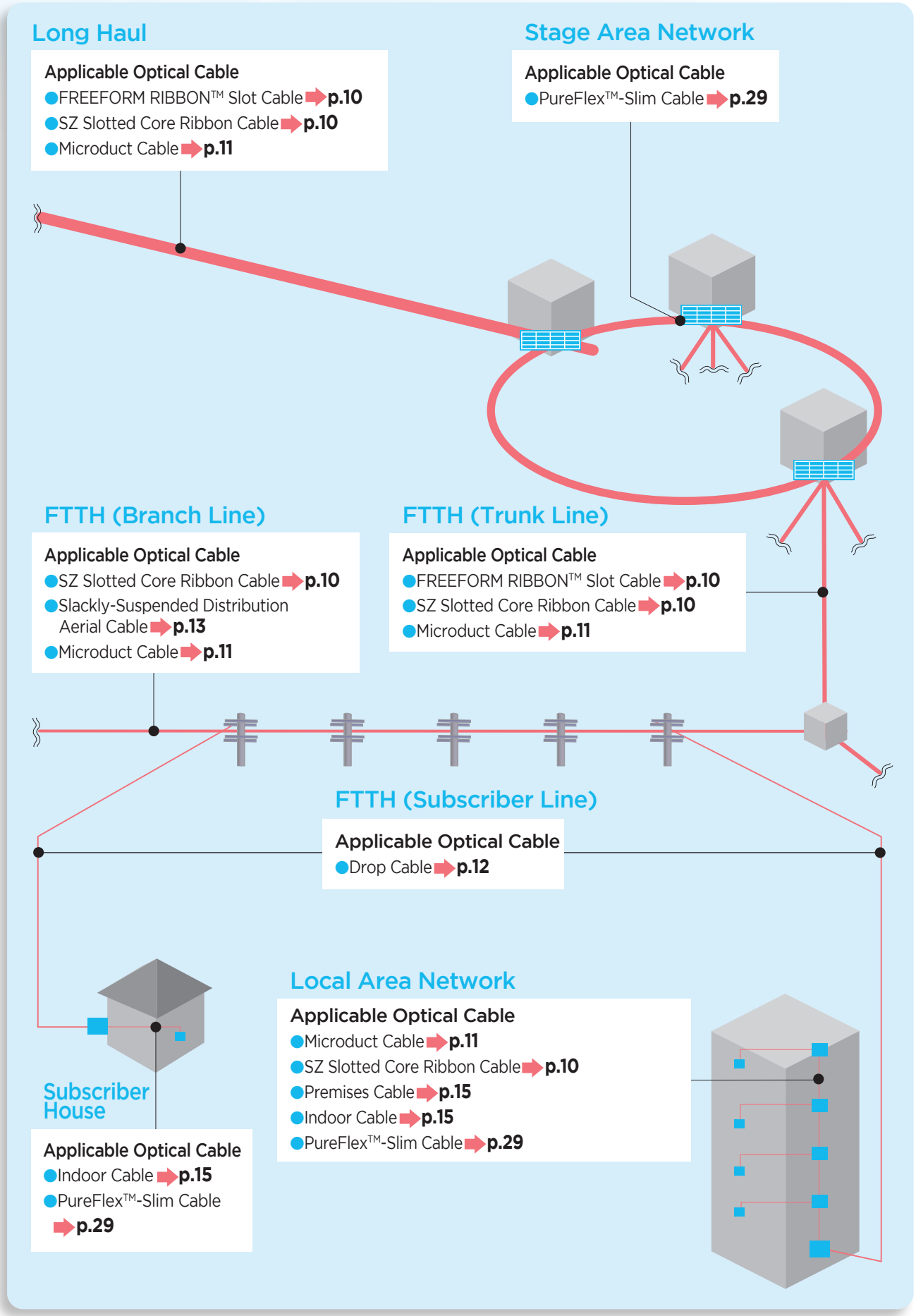
Optical Fibers & Cables

Optical Cable Selection Guide

Optical Cable Applications



Optical Cable Selection Guide

Cable Lineup

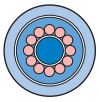
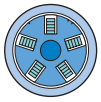
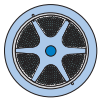
Wide range of cable lineup from back born, metropolitan network and FTTH application

FTTH Cables

Tight buffered drop and indoor cables enable you quick and smooth installing in MDU and houses. They also suitable for additional installation into a duct already occupied with other cables, owing to small cable size, ultra low friction jacket and preferable rigidness. All our FTTx cable is RoHS compliant and most of them are halogen free.

Distribution and Trunk Cables

Sumitomo Electric offers two types of cable to match to your network, one is loose tube cables which widely used in the world and the other is ribbon slotted cables which achieve high fiber density and excellent mechanical performance.

Cable Type	Application	Product	Construction	Features	Fiber Count	Page
FTTx cable	Access	Indoor cable (Tight jacked)		Very compact tightly-jacketed cable for indoor application	1 - 12	→ p.15
		Drop cable (Tight jacked)		Very compact aerial drop cable with easy handling	1 - 8	→ p.12
		Slackly-suspended distribution aerial cable		Very compact and easy mid-span access. Ribbon can be separated easily with pliable structre.	24	→ p.13
	Interconnection	PureFlex™-slim/ PureFlex™		Practically robust preconnectorized cord Easy and safe	1 or 2	→ p.29
Premises cable	Break-out	Premises		Conventional layer structure with Laminated Aluminum Polyethylene sheath	2 - 16	→ p.15
Ribbon slotted core cable	Distribution	SZ slotted core ribbon cable		Ribbon cable with easy mid-span access	24 - 800	→ p.10
	Long haul/ Distribution	FREEFORM RIBBON™ slotted core cable		High fiber count & compact size with pliable EZbranch™	864 - 6912	→ p.10
Microduct cable	Long haul / Distribution	Microduct Cable with FREEFORM RIBBON™		High-packing density cable for air blown installation	144 - 864	→ p.11

Optical Fibers & Cables

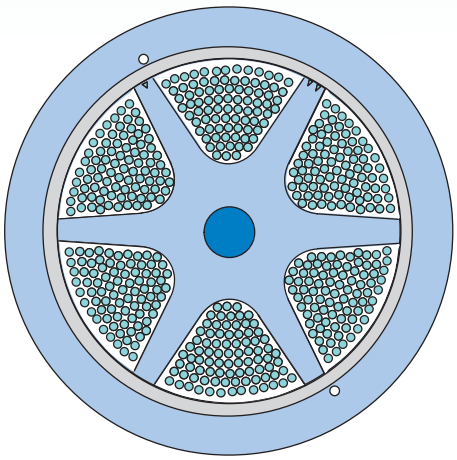
General Purpose Optical Cables

FREEFORM RIBBON™ Slot Cable for High Fiber Count & Compact Size NEW

12-fiber FREEFORM RIBBON™ can realize so compact cable by packing many fibers at high density.

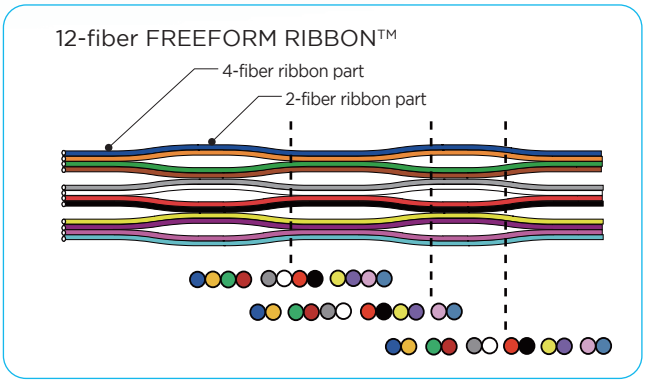
Optional Optional
PE sheath | Water blocking | Flame retardant | Metal free

RoHS compliant | FTTH (trunk line) | FTTH (branch line) | LAN (vertical)



1152 fiber type

12-fiber FREEFORM RIBBON™



12-fiber FREEFORM RIBBON™

Fiber count		432	576	864	1152	1728	3456	6912
Cable Diameter (mm)	200 um	15.5	15.5	19	-	25	28	30
	250 um	18.5	18.5	21	25	26	32	-
Reccomended Duct size	200 um	1.25 inch					1.5 inch	2.0 inch
	250 um	1.25 inch				1.5 inch	2.0 inch	-
Tensile strength	200 um	2670 N						
	250 um							
Min. Bending radius After installation (mm)	200 um	300			-	350		420
	250 um	300					350	-
Min. Bending radius during installation (mm)	200 um	310		380	-	500	560	740
	250 um	370		420	500	520	640	-

Available optical fibers for this cable: PA

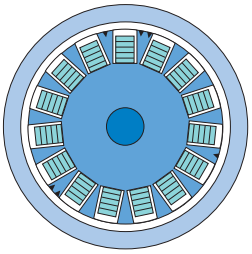
SZ Slotted Core Ribbon Cable

- Water blocking by dry water swellable tape
- EZbranch™ available as well as usual 4 and 8-fiber ribbon
- Easy accessibility to fibers in the midst of the cable because of SZ stranding groove configuration.
- Easy to remove outer sheath and water-swelable tape over the slot rod manually without special tool.
- Suitable for mass-fusion splice

Optional Optional
PE sheath | Water blocking | Flame retardant | Metal free

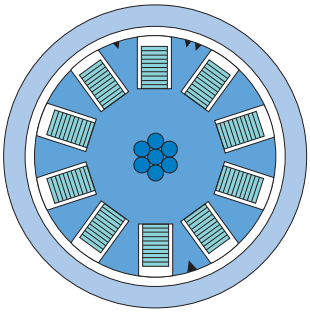
RoHS compliant | FTTH (trunk line) | FTTH (branch line) | LAN (vertical)

Fiber ribbon available for this cable: EZbranch



300 fiber type

4-fiber ribbon type



800 fiber type

8-fiber ribbon type

Available optical fibers for this cable: PA

*1: 400-, 640-, and 800-fiber cables are excluded.

4-fiber ribbon type/4-fiber EZbranch™ type

Fiber count		24	60	100	144	200	300
Fiber diameter [mm]		0.25					
Cable diameter [mm]		8.5	9.5	11.5	14	15.5	20.5
Cable weight [kg/km]		65	75	110	140	180	320
Strength member [mm]		1.4	1.6	2.0		2.3	2.6
Maximum load [N]		900	1180	1850		2440	3120
Bending radius [mm]	After installation	85	95	115	140	155	205
	During installation	170	190	230	280	310	410

8-fiber ribbon type/8-fiber EZbranch™ type

Fiber count		288	400	576	640	800
Fiber diameter [mm]		0.25				
Cable diameter [mm]		16.5	20	22		28.5
Cable weight [kg/km]		210	290	410	420	600
Strength member [mm]		2.3	2.6	7/1.4		
Maximum load [N]		2440	3120	5700		
Bending radius [mm]	After installation	165	200	220		285
	During installation	330	400	440		570

*: Values for cables with polyethylene sheath

Note: Please note that the values for some types of ribbon cables may differ from those given in the table above. For your specific inquiry, contact Sumitomo Electric.

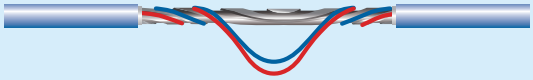
General Purpose Optical Cables

Fiber Ribbon in SZ-grooved spacer-the solution for mid-span access

- Conventional helical grooved spacer has a merit of high fiber density in a cable, but it takes time and labor to take out fiber ribbon out of the groove in the mid-span. Probability is that you are forced to place the branching point at the jointing box.
- With SZ-shape grooved spacer all you have to do to take the fiber of the groove is removing the jacket. You can access to the fiber anywhere you want and it gives you a flexible design for the network, especially in aerial distribution cable.

Helical shaped grooved spacer

SZ shape grooved spacer



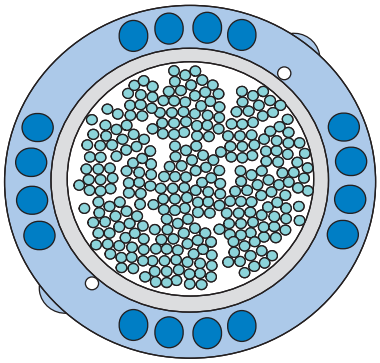
Microduct Cable with FREEFORM RIBBON™ for Air Blown Installation NEW

- High fiber density
- Water blocking by dry water swellable tape
- 12-fiber FREEFORM RIBBON™
- Suitable for mass fusion splice

Optional

PE sheath | Water blocking | Metal free | Flame retardant

RoHS compliant | FTTH (trunk line) | FTTH (branch line) | LAN (vertical)



12-fiber FREEFORM RIBBON™

Fiber count		144	192	288	432	864
Cable Diameter (mm)	200 um	7.2	7.6	9.5	10.5	13.5
	250 um	8.0	8.7	10.5	12.5	14.9
Min. Duct size (mm)	200 um	10	12	13	14	18
	250 um	12	13	14	18	20
Tensile strength (N)	200 um	500				1000
	250 um					
Min. Bending radius After installation (mm)	200 um	150				200
	250 um					300
Min. Bending radius during installation (mm)	200 um	150	155	190	210	270
	250 um	160	180	210	250	300

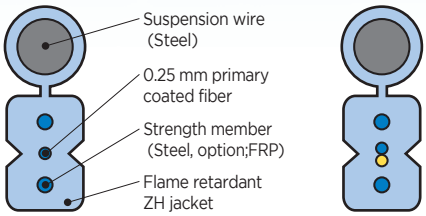
Available optical fibers for this cable	PA

Optical Fibers & Cables

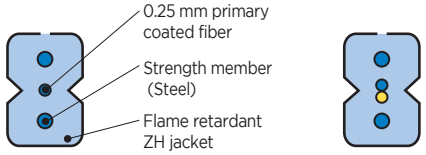
General Purpose Optical Cables

Drop Cable (0.25 mm primary coated fiber)

- Easy access to the fiber in the midst of the cable with proper tool
- Suitable for introducing the fiber into the premises
- Suitable for additional installation into the duct occupied with other cables



1-fiber　　2-fiber



1-fiber　　2-fiber

Flame retardant

RoHS compliant　FTTH (subscriber line)

Fiber count	1	2	8
Fiber diameter [mm]	0.25		
Cable diameter [mm]	2×4.5 (Including messenger wire)		2.5×6.5
Cable weight [kg/km]	20		25
Suspension wire	1.2		
Maximum load [N]	660		
Bending radius [mm]	30 (After installation)		50
	60 (During installation with tension)		100

These figures are nominal value.

Available optical fibers for this cable	PA　PAA2

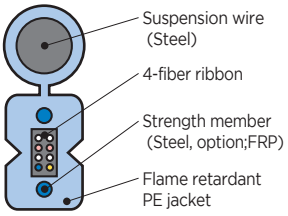
Fiber count	1	2
Fiber diameter [mm]	0.25	
Cable diameter [mm]	2×1.6	2.1×1.6
Cable weight [kg/km]	6	
Strength Member	0.4×2	
Maximum load [N]	150	
Bending radius [mm]	15 (After installation)	
	30 (During installation with tension)	

These figures are nominal value.

Available optical fibers for this cable	PA　PAA2

Drop Cable (4-fiber ribbon)

- Easy access to the fiber in the midst of the cable with proper tool
- Suitable for introducing fiber into the building
- Suitable for additional installation into the duct occupied with other cables
- Single fibers accessible in the mid-span



8-fiber

Flame retardant

RoHS compliant　FTTH (branch line)　FTTH (subscriber line)

Fiber count	4	8
Fiber diameter [mm]	0.25	
Cable diameter [mm]	2×6 (Including messenger wire)	
Cable weight [kg/km]	2.5	
Suspension wire	1.2	
Maximum load [N]	660	
Bending radius [mm]	30 (After installation)	
	60 (During installation with tension)	

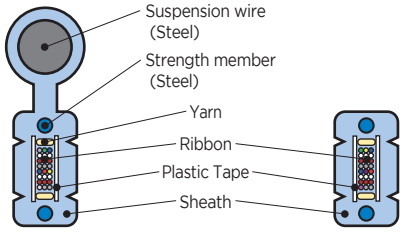
These figures are nominal value.

Available optical fibers for this cable	PA　PAA2

General Purpose Optical Cables

Slackly-Suspended Distribution Aerial Cable

- Easy access to the fiber in the midst of the cable with proper tool
- Suitable for introducing the fiber into the premises
- FREEFORM RIBBON™ contains 4 fibers and easy to branch to single fiber



24-fiber

RoHS compliant

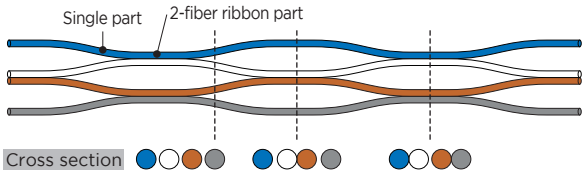
FTTH (subscriber line)

Type	With Messenger wire		Without Messenger wire	
Fiber Count	24	40 NEW	24	40 NEW
Fiber Diameter [mm]	0.25			
Cable Weight [kg/km]	70		20	
Suspension wire [mm]	2.6		—	
Maximum load [N]	3,120		392	
Bending radius [mm]	100			

These figures are nominal value.

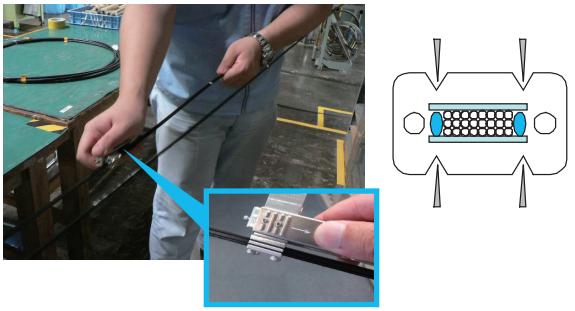
Available optical fibers for this cable	PA PAA2

FREEFORM RIBBON™

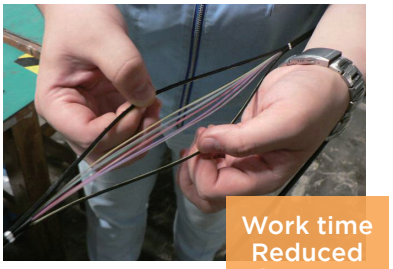


Uniquely designed jacket structure for easy access to fibers in the midst of the cable with a specialized tool.

1. Divide jackets



2. Take out fibers



Work time Reduced by 90%

Optical Fibers & Cables

General Purpose Optical Cables

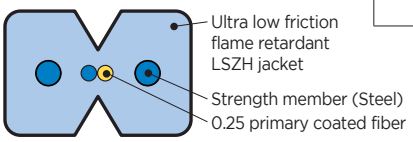
Low Friction Indoor Cable

PureAccess™ allows you quick and easy installation and higher cable density in conduit

50% Size down
80% Dynamic friction down
*(Compared with Sumitomo Electric's conventional type)
Low Smoke characteristic

- Suitable for additional installation into a duct already occupied other cables, owing to small cable size and ultra low friction jacket.
- Easy access to the fiber in the middle of the cable with proper tool
- Suitable for in-building wiring
- Field assembly connector available directly (1-fiber)

RoHS, LSZH, FR



Cable type	Flexible		Rigid	
Fiber count	1	2	1	2
Fiber diameter [mm]	0.25			
Cable diameter [mm]	1.6×2.0			1.6×2.1
Cable weight [kg/km]	6		7	
Strength member [mm]	0.4		0.5	
Maximum load [N]	150			
Bending radius [mm]	30 (After installation)			
	60 (During installation with tension)			

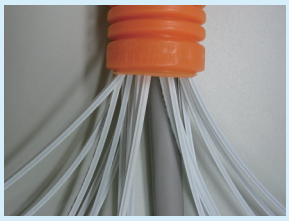
These figures are nominal value.

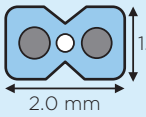
Available optical fibers for this cable	PA PAA2

How many indoor cables can we install into a common pile?

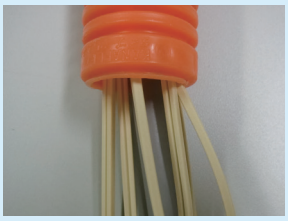
Pipe : Dia.22 mm x 20 m,
w/Dia.8 mm Copper cable

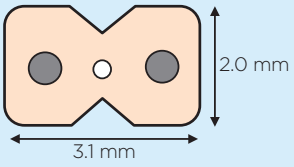
Low Friction type w/ PureAccess™





Conventional type w/ Standard SMF



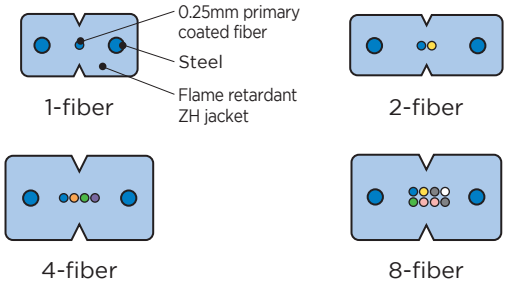


30 cables inserted **6 cables inserted**

5 times as much cables can be installed into a same pipe!

Indoor Cable (0.25 mm primary coated fiber)

- Easy access to the fiber in the midst of the cable with proper tool
- Suitable for in-building wiring
- Suitable for additional installation into the duct occupied with other cables
- Field assembly connector available directly (1 or 2-Fiber)



Flame retardant

RoHS compliant | Subscriber House | LAN (vertical)

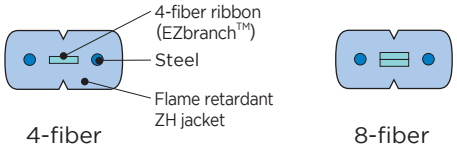
Fiber count	1	2	4	8
Fiber diameter [mm]	0.25			
Cable diameter [mm]	2.0×3.0		2.0×4.0	2.5×4.0
Cable weight [kg/km]	10		15	
Strength member [mm]	0.4×2			
Maximum load [N]	150			
Bending radius [mm]	30 (After installation)			
	60 (During installation with tension)			

These figures are nominal value.

Available optical fibers for this cable	PA PAA2

Indoor Cable (4-fiber ribbon)

- Easy access to the fiber in the midst of the cable with proper tool
- Suitable for in-building wiring
- Suitable for additional installation into the duct occupied with other cables



RoHS compliant | LAN (vertical) | Flame retardant

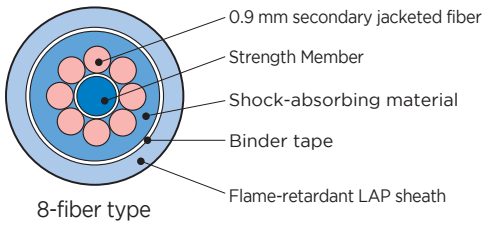
Fiber count	4	8
Fiber diameter [mm]	0.25	
Cable diameter [mm]	2.0×4.0	
Cable weight [kg/km]	15	
Strength member [mm]	0.4×2	
Maximum load [N]	150	
Bending radius [mm]	30 (After installation)	
	60 (During installation with tension)	

These figures are nominal value.

Available optical fibers for this cable	PA PAA2

Premises Cable (0.9 mm tight buffered fiber)

- LAP sheath blocks the penetration of moisture
- Suitable for introducing fibers into the building as well as outside installation



Available optical fibers for this cable	SM PB PA DSF 1G 10G 10G+ EG6

RoHS compliant | LAN (vertical) | LAP sheath | Water blocking | Flame retardant

Fiber count		2	4	6	8	10	12	16
Fiber diameter [mm]		0.9						
Cable diameter [mm]		9				12		13
Cable weight [kg/km]		85				140		170
Strength member [mm]		1.6				2.3		2.6
Maximum load [N]		1180				1570		2060
Bending radius [mm]	After installation	90				120		135
	During installation	180				240		270

*: Values for cables with a flame-retardant LAP sheath

Cable type designation	(Number of fibers)NH(optical fiber code) - L - LAP - FR Example: 8NHGI (PE-A1G) - L - LAP - FR