

Flame Retardant, High-Strength Optical Fiber Cable **HS-FR**

High-Strength Optical Fiber Cable **MIL**

Tough enough to withstand harsh environments for worry-free networks. HS-FR features outstanding flame retardance, strength and flexibility.



■ Features

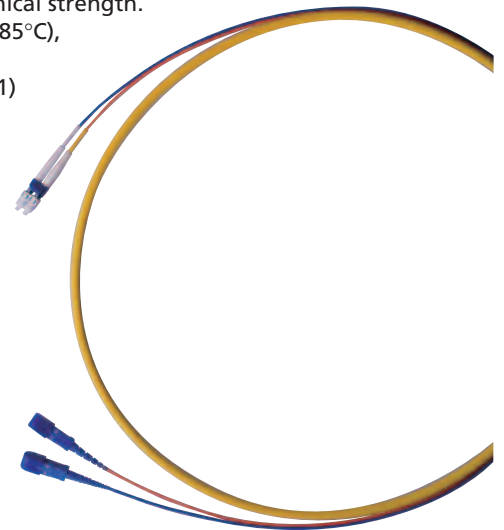
Use of polyurethane for the jacket gives Nihon Electric Wire & Cable's high-strength optical fiber cable the following features.

- Resistant to crushing and impact along with superior wear-resistance without applying special armor, such as steel strips.
- Smaller diameter, lighter weight and flexibility while maintaining mechanical strength.
- May be used under a wide range of temperature conditions (from -55 to 85°C), depending on material properties.
- HS-FR exhibits flame retardance that conforms to IEC 60332-1 (JIS C 3665-1) vertical specimen flame test.

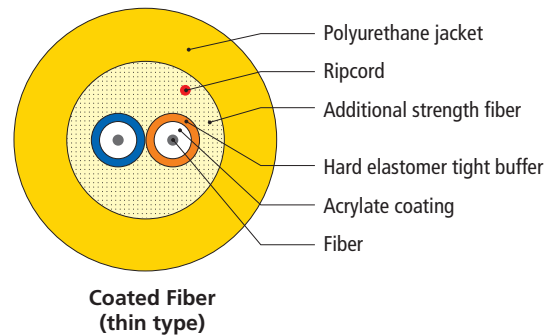
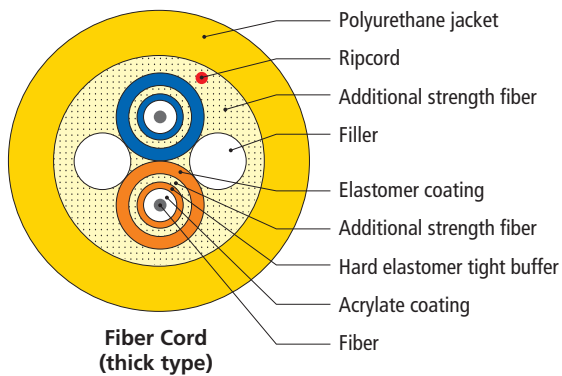
■ Applications

HS-FR and MIL cables are suitable for the following in-line networks.

- Interior IDC inter-storage wiring
- Between optical terminal equipment
- Wiring to connect CPUs with peripheral equipment as well as optical LAN wiring
- Drop cable for entrances inside buildings.
- Wiring between equipment (OA, FA, BA, etc.)



■ Cross Section (two cores)



■ Mechanical Properties

	Fiber cord / Coated fiber
Crush resistance (N/cm)	440
Impact resistance (impacts)	200
Bending resistance (cycles)	2,000

These are reference values and not guaranteed under all conditions.

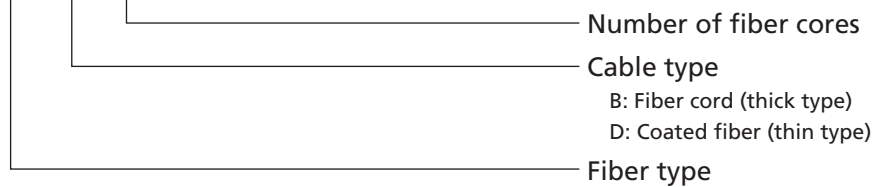
■ Transmission Properties

		SM	GI
Attenuation (dB/km)	Wavelength 850 nm Maximum value	—	3.0
	Wavelength 1,300 nm Maximum value	0.5	1.0
	Wavelength 1,550 nm Maximum value	0.5	—
Bandwidth (MHz-km)	Wavelength 850 nm Minimum value	—	600
	Wavelength 1,300 nm Minimum value	—	600

Flame Retardant, High-Strength Optical Fiber Cable **HS-FR**

■ Coding for Model Number

SM B 02-HS-FR



■ Specifications

1) Fiber cord (thick type)

Specification		Number of fiber cores				
		2	4	6	8	12
Fiber size (core/cladding) (μm)	SM	9 / 125				
	GI	50 / 125				
Outer diameter of fiber core with coating (mm)		0.9				
Outer diameter of cord with coating (mm)		2.0				
Standard outer jacket color		Yellow or black				
Overall outer diameter (mm)		6.5	7.5	8.5	10.0	11.0
Approximate volume (kg/km)		31	42	53	74	88
Maximum bending radius (mm)	During installation	104	112	136	160	176
	After installation	52	56	68	80	88
	Cord part	30				
Maximum tensile load (kg)	During installation	224	224	244	326	489
	After installation	56	56	61	81	122

2) Coated fiber (thin type)

Specification		Number of fiber cores	
		2	4
Fiber size (core/cladding) (μm)	SM	9 / 125	
	GI	50 / 125	
Outer diameter of fiber core with coating (mm)		0.9	
Standard outer jacket color		Yellow or black	
Overall outer diameter (mm)		5.0	5.5
Approximate volume (kg/km)		23	28
Maximum bending radius (mm)	During installation	80	88
	After installation	40	44
Maximum tensile load (kg)	During installation	183	
	After installation	61	

■ Flame Retardance of HS-FR

HS-FR conforms to IEC 60332-1 (JIS C 3665-1) flame test.



Photograph of flame test

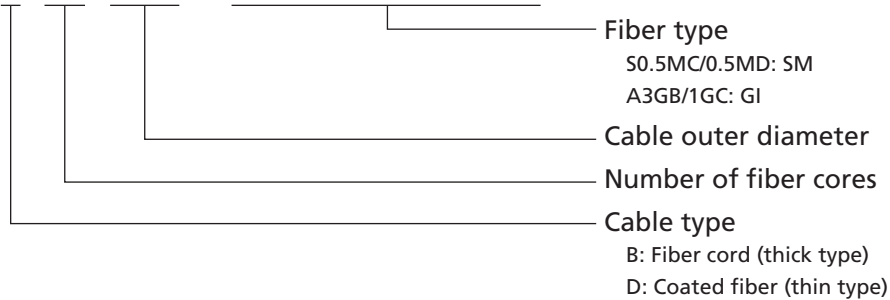
3) Fiber core identification (by fiber core or cord color)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Purple	Pink	Light blue

High-Strength Optical Fiber Cable MIL

■ Coding for Model Number

B 02-065C-S0.5MC / 0.5MD / 900-MIL



■ Specifications

1) Fiber cord (thick type)

Specification		Number of fiber cores				
		2	4	6	8	12
Fiber size (core/cladding) (μm)	SM	9 / 125				
	GI	50 / 125				
Outer diameter of fiber core with coating (mm)		0.9				
Outer diameter of cord with coating (mm)		2.0				
Standard outer jacket color		Yellow or black				
Overall outer diameter (mm)		6.5	7.5	8.5	10.0	12.5
Approximate volume (kg/km)		31	42	53	74	91
Maximum bending radius (mm)	During installation	104	112	136	160	200
	After installation	52	56	68	80	100
	Cord part	30				
Maximum tensile load (kg)	During installation	224	224	244	326	489
	After installation	56	56	61	81	122

2) Coated fiber (thin type)

Specification		Number of fiber cores	
		2	4
Fiber size (core/cladding) (μm)	SM	9 / 125	
	GI	50 / 125	
Outer diameter of fiber core with coating (mm)		0.9	
Standard outer jacket color		Yellow or black	
Overall outer diameter (mm)		5.0	5.5
Approximate volume (kg/km)		23	28
Maximum bending radius (mm)	During installation	80	88
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Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Purple	Pink	Light blue

Optical Connectors

We will install various connectors in accordance with customer requests.

■ Connector Properties and Type of Polishing

	SM	GI	Type of polishing
Insertion loss	0.5 dB or less	0.3 dB or less	SPC
Return loss	40 dB or more	25 dB or more	SPC

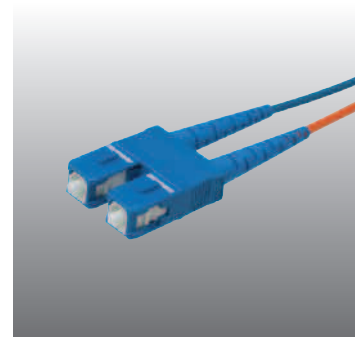
■ Connector Types and Related Standards



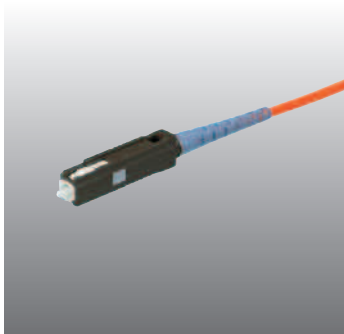
SC Connector
JIS C 5973 (F04)



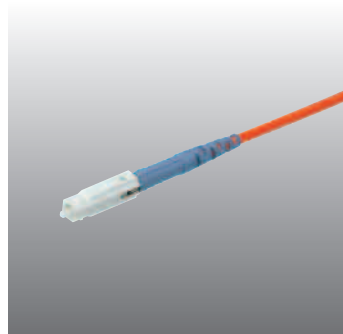
SC 2 Connector
JIS C 5973 (F04)
* Special tool required to attach and remove connector.



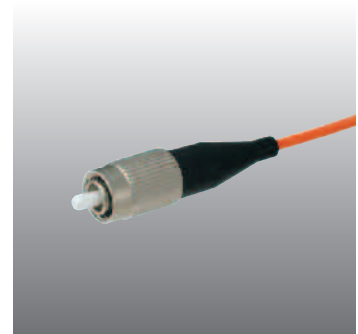
DSC Connector (horizontal type)
JIS C 5973 (F04)



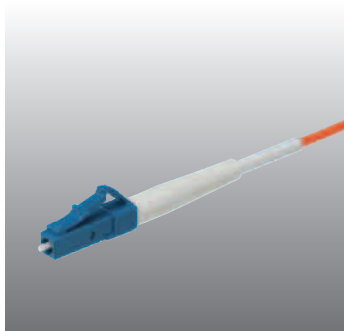
MU Connector
JIS C 5983 (F14)



MUJ Connector
JIS C 5983 (F14)
* Special tool required to attach and remove connector.



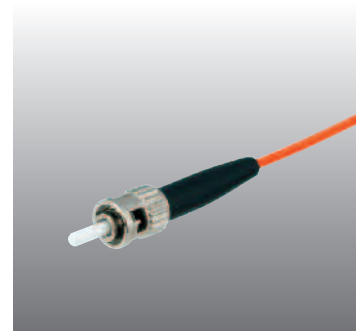
FC Connector
JIS C 5970 (F01)



LC Connector
IEC 61754-20



DLC Connector
IEC 61754-20



ST Connector
IEC 60874-10

Shape and color of connectors may differ from examples shown in the photographs.