Specification
for
Optical Fiber Cable
Assemblies
for CC-Link IE Controller network

Type QG-G50-2C-□M-C

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Note

Revision				Drawn	Check	Design	Approved
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B	6 Feb., 2023						

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1. SCOPE

This specification covers the requirements for the optical cable assemblies type QG-C for CC-Link IE.

※ The Products covered in this specification don't include the toxic substances in RoHS2.

2. USE ENVIRONMENT

The cable shall be used in following conditions.

Indoor

① Indoor pipe ※1
② Rack
③ Duct
④ Free access
⑤ Control box ※2

※1 Available for optical fiber dedicated route.
※2 Allowed if bending radius and storage space allow.

Outdoor

① Pipe (underground) ※1,3
② Rack ※4
③ Trough ※3,5

※3 Possible even if not submerged
※4 Code part is impossible
※5 Possible when external force is not applied by protecting the bent part and the contact part

3. LENGTH OF CABLE

The maximum length of the cable is two kilometer.
(The maximum length of the cable with connector is 550 meters.)

4. CABLE TYPE

■For with connector

QG - G50 - 2C - □M - C - ○
(1) (2) (3) (4) (5) (6)

■For cable only

QG - G50 - 2C - C □m
(1) (2) (3) (5) (4)

(1) Cable series name	Optical cable for CC-Link IE
(2) Type of optical fiber cord	G50:Core diameter 50 μm GI optical fiber
(3) Number of Optical Fiber	2C: Duplex cord
(4) Length of cable	□ : 1～2000 (Cable only) 1～550 (With connector)
(5) Cable type	Outdoor type
(6) Applicable connector	LL: LC duplex connectors on both sides LS: LC duplex connector on one side - SC connector on one side LF: LC duplex connector on one side - FC connector on one side LN: LC duplex connector on one side - no connector on one side ※6 SS: SC connectors on both sides FF: FC connectors on both sides SF: SC connector on one side - FC connector on one side

*6 : After processing the connectors on both ends, the loss is measured and the connector on one end is cut.

5. CORD CONSTRUCTION

The construction of the optical fiber cord shall be in accordance with Table 1.

Table 1. Cord construction

No.	Item		Construction			
①	Type		GI optical fiber (multi mode)			
	Conforming Standard		IEC60793-2-10 A1a.1			
	Core	Materials	Silica Glass			
		Diameter	50±3 μm			
	Cladding	Materials	Silica Glass			
		Diameter	125±2 μm			
	Protective Coating	Materials	Zero Halogen			
		Diameter	0.9±0.1mm			
	Identification		See Fig.1			
	Sheath	Materials	PVC (Orange)			
		Diameter	2.0±0.2mm × 2			
			Min	Max	Unit	Conditions
	Maximum Tensile Load		—	60	N	By careless handling (short term)
	Minimum Radius Bend		15	—	mm	After careless handling

6. OPTICAL CHARACTERISTICS

The optical characteristics is listed in Table 2 .

Table 2. Optical characteristics

Items	Construction
Attenuation	3.0dB／km or under [λ=850nm] 1.0dB／km or under [λ=1300nm]
Bandwidth	500MHz・km or over [λ=850nm] 500MHz・km or over [λ=1300nm]

7. OPTICAL CONNECTOR CONSTRUCTION

Table 3. Optical connector construction

Item	Specification		
Product name	LC duplex connector	SC connector	FC connector
Type of optical connector	DLCF-G50-D2	DSC-G50-D2	DFC-G50-D2
Standard	IEC61754-20	IEC61754-4	IEC61754-13
Connection loss (in respect to master fiber)	0.3dB or less		
Polishing method of connector	PC polish		
Operating Temperature	-40～+85℃		
Connection method	Cross connection (Connect the A side connector on one end to the B side connector on the other side) ※7		

※7 For LC duplex connectors on both sides.

8. CABLE CONSTRUCTION

The construction of the optical fiber cable shall be in accordance with Table4.

Table 4. Cable construction

No.	Item	Construction			
①	Type of optical fiber cord	See Table 1.			
②	Strength Member	Water permeability aramid fiber			
③	Tape	Plastic			
④	Sheath	Heat Proof PVC (Black)			
	Cable Diameter	6.0mm			
	Approximate Net Weight	35 kg/km			
		Min	Max	Unit	Conditions
	Operating Temperature	-20	60	℃	—
	Maximum Tensile Load	—	420	N	By careless handling (short term)
	Minimum Radius Bend	60	—	mm	After careless handling
	Crush Resistance	—	735	N/50mm	By careless handling (short term)

9. FLAME RETARDANCE (Sheath part)

Table 5. Flame retardance

Item	Standard	Conditions
Flame retardance	Natural fire extinguishing	Conduct JIS C3005 tilt test on finished product cable

10. MARKING

The optical cable shall be printed following marking format on the one side of sheath by regular interval.

- Marking content : CC-Link IE OPTICAL FIBER CABLE QG-G50-2C-C
- Marking pitch : 1000mm
- Marking color : White

Fig.1 Marking of Optical Fiber Cord

※ Please acknowledge it though the print display might rub when transporting, and careless handling it and it disappear.

11. CONSTRUCTION FIGURE

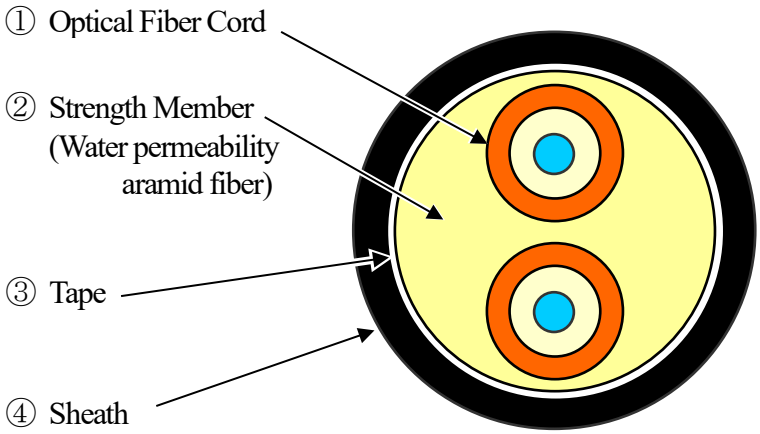
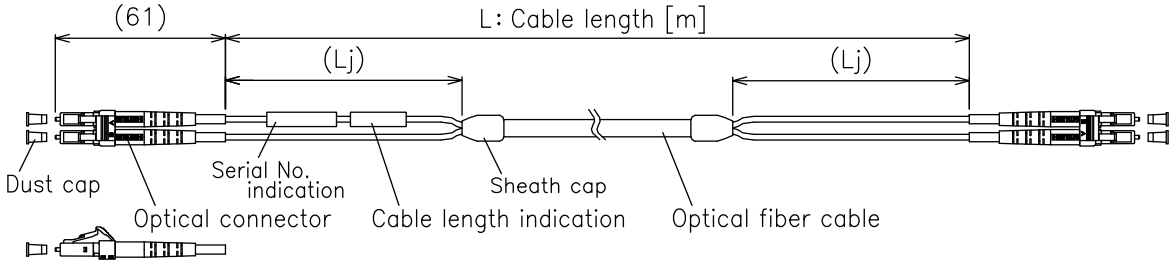


Fig.2 Construction of Optical Fiber Cable

12. CONFIGURATION

[LCF connectors on both sides]

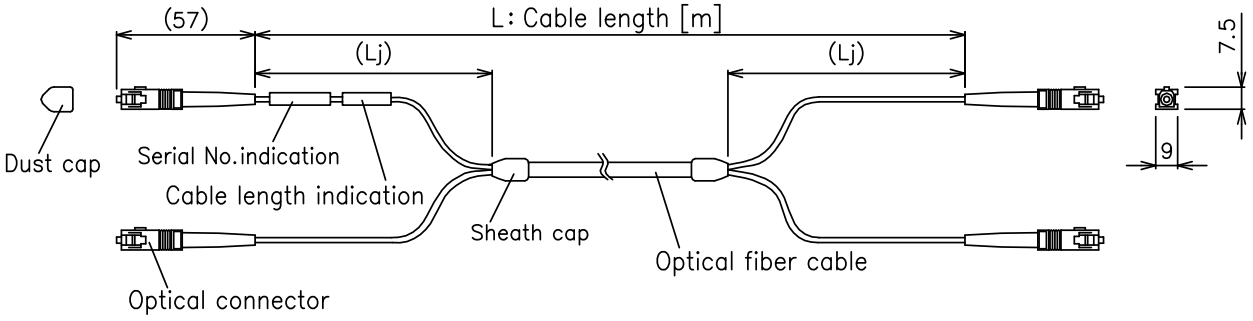


[mm]

Length of removing sheath
In case L=1m, Lj=150[mm]
In case L≧2m, Lj=300[mm]

Fig 3. Configuration of Optical Fiber Cable

[SC connectors on both sides]

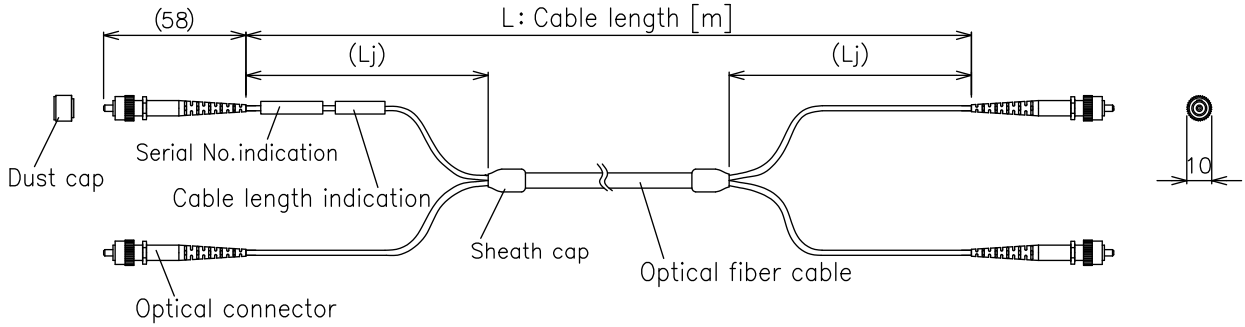


[mm]

Length of removing sheath
In case L=1m, Lj=150[mm]
In case L≧2m, Lj=300[mm]

Fig 4. Configuration of Optical Fiber Cable

[FC connectors on both sides]



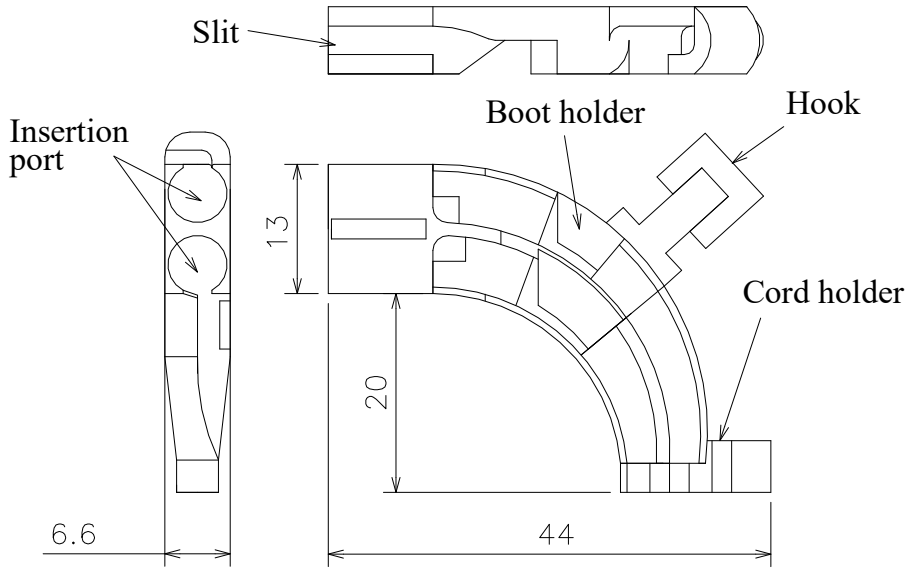
[mm]

Length of removing sheath
In case L=1m, Lj=150[mm]
In case L≧2m, Lj=300[mm]

Fig 5. Configuration of Optical Fiber Cable

13. OTHERS

Protective holder



Item	Specification
Applicable optical fiver cable	QG Series
Applicable connector	LC duplex connector (DLCF-G50-D2)
Materials	PC (Black)
Operating Temperature	-20～+60℃

Note) Never mount this product onto connector other than the Mitsubishi connector or use a damaged protective holder. Failure to observe this could result in damage or increased losses.