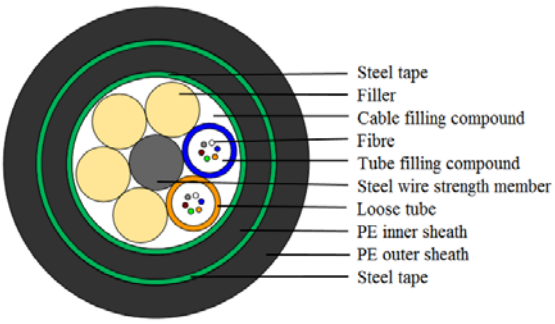
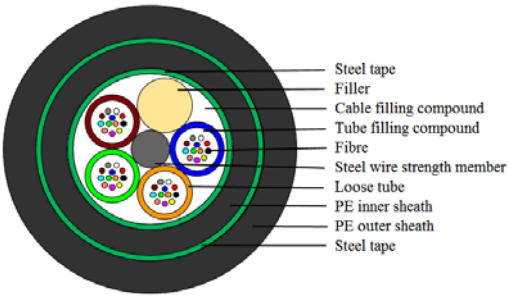
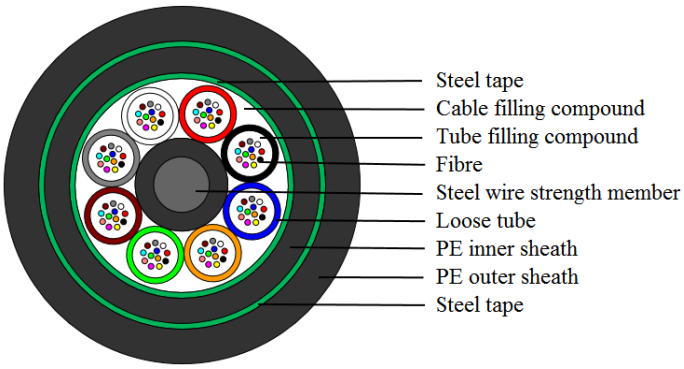
Direct Burial Cable

Features







- The unique second coating and stranding technology provide the fibres with enough space and bending endurance, which ensure good optical property of the fibres in the cable
- Accurate process control ensures good mechanical and temperature performance
- High quality raw material guarantees the long service life of cable

Direct Burial Cable
Description

Optical fibres are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds.

Steel wire is applied as central strength member.

Ultraviolet radiation protected sheath.

Loose tubes are SZ stranded around the central strength member.

Cable filling is used in and over the cable core to prevent it from water ingress.

Corrugated steel tape and high-density polyethylene sheath are covered over the cable core and each core is Silica Gel.

Corrugated steel tape and high-density polyethylene sheath are applied as outer sheath.

Double steel tape layer is used as anti rodent material.

Standards Reference

The cable offered by RiT are designed, manufactured and tested according to the standards as follows:

ITU-T G.652	Characteristics of a single-mode optical fibre
IEC 60794-1-1	Optical fibre cables-part 1-1: Generic specification-General
IEC 60794-1-2	Optical fibre cables-part 1-2: Generic specification-Basic optical cable test procedure
IEC 60794-3	Optical fibre cables-part 3: Sectional specification-Outdoor cables
IEC 60794-3-10	Optical fibre cables-part 3-10: Outdoor cables-Family specification for duct and direct buried optical communication cables
IEC 60794-3-11	Optical fibre cables-Part 3-11: Outdoor cables-Detailed specification for duct and directly buried single-mode optical fibre telecommunication cables

Direct Burial Cable
Specifications

Optical Fibres supplied in this specification meet the requirements of ITU-T G.652D. GR 20

Parameters	Specification
MFD（1310nm）	9.2+/-0.4um
MFD（1550nm）	10.4+/-0.5um
Cladding diameter	125μm±1.0μm
Fiber diameter	245+/-7um, with UV coating, and colored to : 250+/-15um
Core/cladding concentricity error	≤ 0.6um
Coating/cladding concentricity error	≤ 12.0um
Cladding non circularity	≤ 1.0%
Cut off wavelength	λcc ≤1260nm
Attenuation coefficient	1310nm: 0.36dB/km max after cabling
	1550nm: 0.22dB/km max after cabling
Bending-loss performance of optical fiber @1310nm&1550nm	≤0.05dB (100 turns around a mandrel of 50mm diameter)
Polarization mode dispersion link value	≤0.1ps/√km
Zero-dispersion wavelength	1312+/-12nm
Zero-dispersion slope	≤0.091ps/nm^2.km

Direct Burial Cable
Specifications

Fibre and Loose Tube Identification

The color code of fibres and loose tube will be identification in accordance with the following color sequence, other sequence also is available.

Color code of FIBRE						
12	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Grey	White
48/96	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Grey	White
	7	8	9	10	11	12
	Red	Black	Yellow	Violet	Pink	Aqua

Color code of TUBE						
12	1	2	3	4	5	6
	Blue	Orange	Filler	Filler	Filler	Filler
48	1	2	3	4	5	
	Blue	Orange	Green	Brown	Filler	
96	1	2	3	4	5	6
	Blue	Orange	Green	Brown	Grey	White
	7	8				
	Red	Black				

Direct Burial Cable
Specifications

Dimensions and Descriptions

The standard structure of Direct Burial Cable is shown in the following table, other structure and fibre count are also available according to customer requirements.

Item	Contents	Value		
		12	48 /72	96
Loose tube	Number	2	4 /12	8
	Outer diameter (mm)	1.8	2.1	2.1
Filler	Number	4	1	-
Max. fiber counts per tube	G.652D.Silica.gel	6	12/6	12
Central strength member	Material	Steel wire		
	Diameter (mm)	2.0	1.7	2.0
	PE layer diameter (mm)	-	-	3.5
Armor	Material	Steel tape		
Water Blocking Material	Material	Cable filling		
Inner sheath	Material	HDPE		
	Color	Black		
	Thickness (mm)	Nominal: 1.0		
Armor	Material	Steel tape		
Outer sheath	Material	HDPE		
	Color	Black		
	Thickness (mm)	Nominal: 2.0	Nominal: 2.0	Nominal: 2.0
Cable diameter(mm) Approx.		14.4	14.4/15.2	17.1
Cable weight(kg/km) Approx.		240	235/250	310

Main Mechanical and Environmental Performance

Item	Value
Tensile performance(N)	2670
Crush(N)	4000
Operation temperature	-40℃～+70℃
Installation temperature	-10℃～+60℃
Storage temperature	-40℃～+70℃

Direct Burial Cable
Specifications

Mechanical, Physical and Environmental Test Characteristics

The mechanical and environmental performances of the cable are in accordance with the following table. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1550nm.

Items	Test Method	Requirements
Tension	**IEC 60794-1-2-E1** Load: According to 3.5 Sample length: Not less than 50m. Duration time: 1min.	Additional attenuation: ≤0.1dB after test No damage to outer jacket and inner elements
Crush	**IEC 60794-1-2-E3** Load: According to 3.5 Duration of load: 1min	Additional attenuation: ≤0.1dB after test No damage to outer jacket and inner elements
Impact	**IEC 60794-1-2-E4** Radius: 300 mm Impact energy: 20 J Impact number: 1 Impact points: 5	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Bend	**IEC 60794-1-2-E11A** Mandrel radius: 10*D Turns: 4 Cycles: 3	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Repeated bending	**IEC 60794-1-2-E6** Bending radius: 20*D Cycles: 25 Load: 150N	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Torsion	**IEC 60794-1-2-E7** Cycles:10 Length under test: 1m Turns: ± 90° Load: 150N	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Water Penetration	**IEC 60794-1-2-F5B** Time : 24 hours Sample length : 3m Water height : 1m	No water leakage.
Temperature cycling	**IEC 60794-1-2-F1** Sample length: at least 1000m Temperature range: -40℃~+70℃ Cycles: 2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.05 dB/km.
Other parameters	According to **IEC 60794-1**	

Direct Burial Cable
Specifications

Packaging and Drum

Cable Sheath Marking
Unless otherwise specified, the cable sheath marking shall be as follows:

- Color: white
- Contents: RiT, the year of manufacture, the type of cable, cable number, length marking
- Interval: 1±0.2% m

Outer sheath marking legend can be changed according to user's requests.

Reel Length
Standard reel length: 2/4 km/reel, other length is also available.

Cable Drum
The cables are packed in fumigated wooden drums.

Cable Packing
Both ends of the cable will be sealed with suitable plastic caps to prevent the entry of moisture during shipping, handling and storage. The inner end is available for testing.

Direct Burial Cable
Ordering Information

Number	Description
R2930067	Direct Burial F/O Cable, SM, 6 (1x6) Fibers, Central Steel Wire, Anti Rodent, Double-Jacketed Steel Tape + HDPE
R2930127	Direct Burial F/O Cable, SM, 12 (2x6) Fibers, Central Steel Wire, Anti Rodent, Double-Jacketed Steel Tape + HDPE
R2930727	Direct Burial F/O Cable, SM, 72 (12x6) Fibers, Central Steel Wire, Anti Rodent, Double-Jacketed Steel Tape + HDPE
R2930487	Direct Burial F/O Cable, SM, 48 (4x12) Fibers, Central Steel Wire, Anti Rodent, Double-Jacketed Steel Tape + HDPE
R2930967	Direct Burial F/O Cable, SM, 96 (8x12) Fibers, Central Steel Wire, Anti Rodent, Double-Jacketed Steel Tape + HDPE