

## DUCT Multitube Single Jacket

2d0864:DL024:X---S-

### Product Details

Anatolia DUCT Multitube Single Jacket Fibre Optic Cables are suitable for duct applications. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel and the cable core is surrounded with water-swellaable tape to prevent water ingress in the interstices of cable core. The cable core is surrounded with thermoplastic sheath making the cable robust and installation friendly.

Note – When required an additional polyamide jacket bonded to the thermoplastic sheath can be provided.

### Product Application

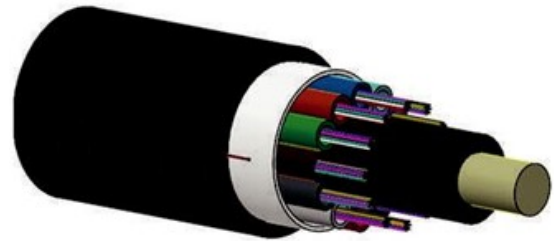
These cables are typically used for outside plant (OSP) applications including duct and lashed aerial in harsh environments. They can be installed in ducts with either pulling, trenching or blowing techniques and in aerial applications with traditional lashing methods.

### Features & Benefits

- Available up to 864 fibre count in either single-mode or multi-mode optical fibres
- Multitube design with ripcords for easy and quick mid span access
- Minimum fibre strain due to reversal oscillating (SZ) stranding
- Water-blocking technology for gel free core helps in quicker end preparation
- Easily removable rugged thermoplastic jacket
- Flexible, light weight, easy to handle & install
- Tensile and crush resistant
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. RIPCORD(S)
6. OUTER SHEATH



Duct



Totally Dielectric



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS CPR rating for LSZH sheath

## Specifications

Physical Characteristics								
Fibre Count	12-72	96	144	288	432	576	864	
Fibres per tube	12	12	12	12	24	24	24	
No. of tube	1~6	8	12	24	18	24	36	
Nominal Cable Diameter (mm) ± 0.5mm	9.6	11.0	13.6	16.2	19.2	22.2	26.0	
Nominal Cable Weight (kg/km) ± 10%	70	100	145	200	280	400	485	
Mechanical and Environmental Characteristics*								
Test	Standard / Notes	Product Performance						
Max. Tensile Strength (N)	IEC-60794-1-21-E1	2000	2700	2700	3000	3000	3000	3000
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D						
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	2000	2700	2700	3000	3000	3000	3000
Impact strength (N.m)	IEC-60794-1-21-E4	25						
Torsion	IEC-60794-1-21-E7	± 180°						
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr						
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C		Operation: -30°C to +70°C			Storage: -40°C to +70°C	
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage						

\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D and ITU-T G.655. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,1	≤ 1260
G655	-	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,1	≤ 1450

\*\* This fibre is also available as a bend insensitive

## Fibre Standard Colour Code

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

\* For more than 12 tubes, single or double stripes marking are done as per EIA/TIA 598.

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>

## Non Metallic Double Jacket Dielectric Armored

2d0864:BL024:X-GRD-

### Product Details

Anatolia ARMOR Multitube Double Jacket Dielectric Armored Fibre Optic Cables are suitable for direct burial as well as for duct applications. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. Glass roving yarns are distributed over the inner sheath and an overall thermoplastic jacket provides the cable with both mechanical and environmental protection.

### Product Application

These cables are typically used for outside plant (OSP) applications, including duct, direct buried and lashed aerial in harsh environments. They can be directly buried using plowing or trenching techniques. These cables can also be installed in ducts with either pulling or blowing techniques and installed with traditional aerial lashing methods.

### Features & Benefits

- Available up to 864 fibre count in either single-mode or multi-mode optical fibres
- Double Jacket and dielectric armoring provides additional protection against crush and impact and also protects against rodent attacks
- Multitube design with ripcords for easy and quick mid span access
- Dry water-blocking technology for gel free core helps in quicker end preparation
- Easily removable rugged thermoplastic jacket
- Flexible, light weight, easy to handle & install
- Tensile and crush resistant
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. INNER SHEATH
6. PHERIPHERAL STRENGTH MEMBER
7. RIPCORD(S)
8. OUTER SHEATH



Underground



Rodent Resistance



Water Blocked



UV Protected

## Performance Standards

Cable Complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS

## Specifications

Physical Characteristics							
Fibre Count	12-72	96	144	288	432	576	864
Fibres per tube	12			24			
No. of tube	6	8	12	24	18	24	36
Nominal Cable Diameter (mm) ± 0.5mm	13.0	14.5	17.0	19.8	22.0	24.5	28.0
Nominal Cable Weight (kg/km) ± 10%	160	200	270	340	394	530	640
Mechanical and Environmental Characteristics*							
Test	Standard / Notes	Product Performance					
Max. Tensile Strength (N)	IEC-60794-1-21-E1	3000	3000	3000	3500	3500	3500
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D					
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	3000	3000	3000	3000	3000	3000
Impact strength (N.m)	IEC-60794-1-21-E4	25					
Torsion	IEC-60794-1-21-E7	± 180°					
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr					
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -30°C to +70°C	Storage: -40°C to +70°C			
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage					

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km.No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,10	≤ 1260

\*\* This fibre is also available as a bend insensitive

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

\* For more than 12 tubes, single or double stripes marking are done as per EIA/TIA 598.

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>

## Multitube Single Jacket Steel Tape Armored

2d0864:BL024:X-TRS-

### Product Details

Anatolia Multitube Single Jacket Steel Tape Armored Cables are suitable for direct burial as well as for duct applications. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes, stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel, and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. Corrugated steel tape armor surrounds the cable core with thermoplastic jacket bonded over the armor layer making the cable robust and installation friendly.

### Product Application

These cables are typically used for outside plant (OSP) applications, including duct, direct buried and lashed aerial in harsh environments. They can be direct buried using plowing or trenching techniques. These cables can also be installed in ducts with either pulling or blowing techniques and in aerial applications with traditional lashing methods.

### Features & Benefits

- Available up to 864 fibre count in either single-mode or multi-mode optical fibres
- Steel tape armor and PE jacket provide rodent protection along with improved crush and impact protection
- The Steel tape enables post installation cable locating
- Multitube design with ripcords for easy and quick mid span access
- Dry water-blocking technology for gel free core helps in quicker end preparation
- Easily removable rugged thermoplastic jacket
- Flexible, light weight, easy to handle & install
- Tensile and crush resistant
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. CORRUGATED STEEL TAPE
6. RIPCORD(S)
7. OUTER SHEATH



Underground



Rodent Protection



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS, CPR Certification for LSZH sheath

## Specifications

Physical Characteristics								
Fibre Count	12-72	96	144	288	432	576	864	
Fibres per tube	12	12	12	12	24	24	24	
No. of tubes	1~6	8	12	24	18	24	36	
Nominal Cable Diameter (mm) ± 0.5mm	11.5	12.2	14.7	17.2	19.2	22.2	25.0	
Nominal Cable Weight (kg/km) ± 10%	130	145	205	260	320	450	520	
Mechanical and Environmental Characteristics*								
Test	Standard / Notes	Product Performance						
Max. Tensile Strength (N)	IEC-60794-1-21-E1	2700	3500	3500	3500	3500	3500	3500
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D						
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	3000	3000	3000	3000	3000	3000	3000
Impact strength (N.m)	IEC-60794-1-21-E4	25						
Torsion	IEC-60794-1-21-E7	± 180°						
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr						
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C		Operation: -30°C to +70°C			Storage: -40°C to +70°C	
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage						

\* After the test, the change in attenuation shall be ≤ 0.05 dB/km.No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D andITU-T G.655. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,1	≤ 1260
G655	-	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,15	≤ 1450

\*\* This fibre is also available as a bend insensitive (Sterlite Tech's NOVA fibre)

## Fibre Standard Colour Code

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

\* For more than 12 tubes, single or double stripes marking are done as per EIA/TIA 598.

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>



## Multitube Double Jacket Steel Tape Armored

2d0864:BL024:X-TRD-

### Product Details

Anatolia Multitube Double Jacket Steel Tape Armored Cables are suitable for direct burial as well as for duct applications. This cable is a stranded loose tube cable with optical fibre placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel, and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. Corrugated Steel Tape armor surrounds the inner sheath with thermoplastic jacket bonded to the armor layer making the cable robust and installation friendly.

### Product Application

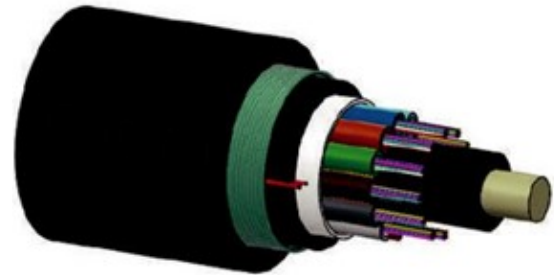
These cables are typically used for outside plant (OSP) applications, installed mainly as direct buried. They can be buried directly using plowing or trenching techniques. These cables can also be installed in ducts with either pulling or blowing techniques and in aerial applications with traditional lashing methods.

### Features & Benefits

- Available up to 864 fibre count in either single-mode or multi-mode optical fibres
- Steel tape armor and PE jacket provide rodent protection along with improved crush and impact protection
- The Steel tape enables post installation cable locating
- Multitube design with ripcords for easy and quick mid span access
- Dry water-blocking technology for gel free core helps in quicker end preparation
- Easily removable rugged thermoplastic jacket
- Flexible, easy to handle & install
- Tensile and crush resistant
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. INNER SHEATH
6. CORRUGATED STEEL TAPE
7. RIPCORD(S)
8. OUTER SHEATH



Underground



Rodent Protection



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC. 60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS CPR rating for LSZH sheath

## Specifications

Physical Characteristics								
Fibre Count	12-72	96	144	288	432	576	864	
Fibres per tube	12	12	12	12	24	24	24	
No. of tubes	1~6	8	12	24	18	24	36	
Nominal Cable Diameter (mm) ± 0.5mm	13.0	14.5	17.0	19.2	21.5	24.2	27	
Nominal Cable Weight (kg/km) ± 10%	150	190	260	315	380	520	600	
Mechanical and Environmental Characteristics*								
Test	Standard / Notes	Product Performance						
Max. Tensile Strength (N)	IEC-60794-1-21-E1	3000	3000	3000	3000	3000	3000	3000
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D						
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	3500	3500	3500	3500	3500	3500	3500
Impact strength (N.m)	IEC-60794-1-21-E4	50						
Torsion	IEC-60794-1-21-E7	± 180°						
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr						
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -30°C to +70°C			Storage: -40°C to +70°C		
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage						

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D and ITU-T G.655. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,10	≤ 1260
G655	-	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,15	≤ 1450

\*\* This fibre is also available as a bend insensitive

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

\* For more than 12 tubes, single or double stripes marking are done as per EIA/TIA 598.

## Packing and Lengths

Packing: Wooden drums with protection

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>



## Multitube Double Jacket Steel Wire Armored

2d0144:BL012:X-WRD-

### Product Details

Anatolia Multitube Double Jacket Steel Wire Armored Cables are especially suited for harsh installation environment. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel, and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. Steel wire armor surrounds the inner sheath with thermoplastic jacket placed over the armor layer making the cable robust and installation friendly.

### Product Application

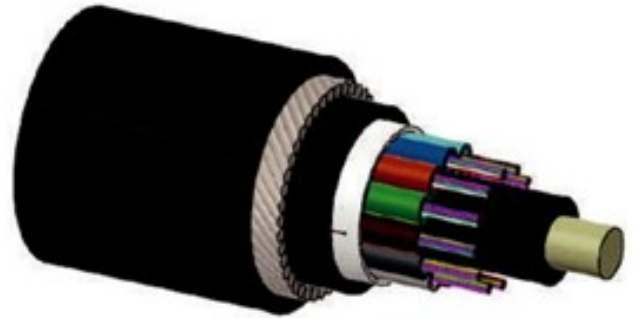
These cables are typically used in heavy construction zones including heavy traffic area, wind farm developments, pipelines, oil and gas fields, heavy industrial sites and a variety of additional harsh environments. This cable is suitable for direct buried and other hazardous applications and are typically used in harsh environments.

### Features & Benefits

- Available up to 144 Fibre count in either single-mode or multi-mode optical fibres
- Steel wire armoring has excellent mechanical performance with high tensile properties
- Very high crush and impact resistant cable, suitable for harsh installation environment
- Cable can be offered with laminated aluminum for added moisture protection
- Steel wire armor and PE jacket provide rodent protection along with improved crush and impact protection
- The Steel wire enables post installation cable locating
- Multitube design with ripcords for easy and quick mid-span access
- Dry water-blocking technology for gel free core helps in quicker end preparation
- Easily removable rugged thermoplastic jacket
- Flexible, easy to handle & install
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. INNER SHEATH
6. STEEL WIRE ARMOR
7. RIPCORD(S)
8. OUTER SHEATH



Underground



Rodent Protection



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS,

## Specifications

Physical Characteristics				
Fibre Count		12-72	96	144
Fibres per tube		12	12	12
No. of tubes		1~6	8	12
Nominal Cable Diameter (mm) ± 0.5mm		15.5	17.0	19.5
Nominal Cable Weight (kg/km) ± 10%		420	500	625
Mechanical and Environmental Characteristics*				
Test	Standard / Notes	Product Performance		
Max. Tensile Strength (N)	IEC-60794-1-21-E1	10000	10000	10000
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D		
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	5000	5000	5000
Impact strength (N.m)	IEC-60794-1-21-E4	50		
Torsion	IEC-60794-1-21-E7	± 180°		
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr		
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -30°C to +70°C	Storage: -40°C to +70°C
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage		

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,10	≤ 1260

\*\* This fibre is also available as a bend insensitive

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>

## DUCT Gel Free Multitube Single Jacket

2d0288:DL012:D---S-

### Product Details

Anatolia GEL Free Multitube Single Jacket Fibre Optic Cables are suitable for duct applications. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. As opposed to Gel filled, water is blocked by water-swellable yarns and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. The cable core is surrounded with thermoplastic sheath making the cable robust and installation friendly.

### Product Application

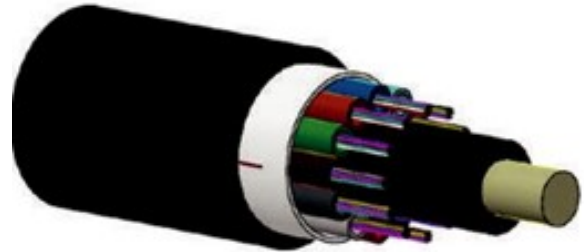
These cables are typically used for outside plant (OSP) applications, including duct and lashed aerial in harsh environments. They can be installed in ducts with either pulling, trenching or blowing techniques and in aerial applications with traditional lashing methods.

### Features & Benefits

- Available up to 288 fibre count in either single-mode or multi-mode optical fibres
- Multitube design with ripcords for easy and quick mid span access.
- Dry water blocking materials inside and outside the tubes enable full water protection.
- Water blocking yarns inside tubes enable rapid, clean fibre splicing and storage inside the joint enclosures.
- Easily removable rugged thermoplastic jacket.
- Flexible, light weight, easy to handle & install.
- Tensile and crush resistant.
- UV protected.
- Tightly controlled physical parameters.
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & WATER SWELLABLE YARNNS
3. WS YARNNS
4. CORE WRAPPING
5. RIPCORD(S)
6. OUTER SHEATH



Duct



Totally Dielectric



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, RoHS CPR rating for LSZH sheath

## Specifications

Physical Characteristics				
Fibre Count	12-72	96	144	288
Fibres per tube	12	12	12	12
No. of tube	1~6	8	12	24
Nominal Cable Diameter (mm) ± 0.5mm	10.8	12.5	16.0	18.2
Nominal Cable Weight (kg/km) ± 10%	80	110	175	190
Mechanical and Environmental Characteristics*				
Test	Standard / Notes	Product Performance		
Max. Tensile Strength (N)	IEC-60794-1-21-E1	2700	2700	2700
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D		
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	2000	2000	2000
Impact strength (N.m)	IEC-60794-1-21-E4	25		
Torsion	IEC-60794-1-21-E7	± 180°		
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -30°C to +70°C	Storage: -40°C to +70°C
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage		

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV, ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,25 / ≤ 0,26	-	≤ 0,20	≤ 0,10	≤ 1260

\*\* This fibre is also available as a bend insensitive (Sterlite Tech's NOVA fibre)

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customized drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>

## Gel Free Multitube Single Jacket Steel Tape Armored

2d0288:BL012:D-TRS-

### Product Details

Anatolia Gel Free Multitube Single Jacket Steel Tape Armored Cables are suitable for direct burial as well as for duct applications. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water swellable yarns and the cable core is surrounded with water-swellable tape to prevent water ingress in the interstices of cable core. Corrugated Steel Tape armor surrounds the cable core with thermoplastic jacket placed over the armor layer making the cable robust and installation friendly.

### Product Application

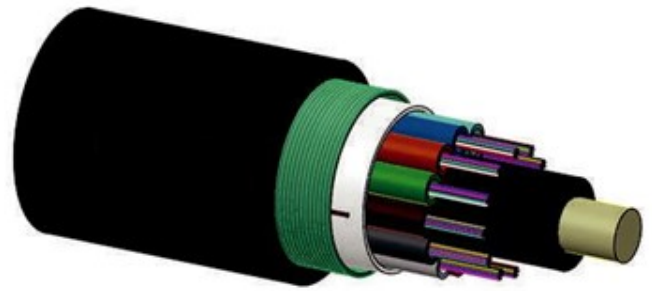
These cables are typically used for outside plant (OSP) applications, including duct and direct buried installations in harsh environments. They can be direct buried using plowing or trenching techniques. These cables can also be installed in ducts with either pulling or blowing techniques and in aerial applications with traditional lashing methods.

### Features & Benefits

- Available up to 288 fibre count in either single-mode or multi-mode optical fibres
- Steel tape armor and PE jacket provide rodent protection along with improved crush and impact protection
- The Steel tape enables post installation cable locating
- Multitube design with ripcords for easy and quick mid span access
- Dry water blocking materials inside and outside the tubes enable full water protection
- Water blocking yarns inside tubes enable rapid, clean fibre splicing and storage inside the joint enclosures
- Easily removable rugged thermoplastic jacket
- Flexible, light weight, easy to handle & install
- Tensile and crush resistant
- UV protected
- Tightly controlled physical parameters
- Combination of fibre types available on request

### Typical Construction of Cable

1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & WATER SWELLABLE YARNS
3. WS YARNS
4. CORE WRAPPING
5. CORRUGATED STEEL TAPE
6. RIPCORD(S)
7. OUTER SHEATH



Underground



Rodent Protection



Water Blocked



UV Protected

## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations, CPR certification for LSZH sheath, RoHS

## Specifications

Physical Characteristics					
Fibre Count		12-72	96	144	288
Fibres per tube		12	12	12	12
No. of tubes		1~6	8	12	24
Nominal Cable Diameter (mm) ± 0.5mm		12.4	14.0	17.4	19.5
Nominal Cable Weight (kg/km) ± 10%		135	170	250	280
Mechanical and Environmental Characteristics*					
Test	Standard / Notes	Product Performance			
Max. Tensile Strength (N)	IEC-60794-1-21-E1	2700	2700	2700	2700
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D			
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	3000	3000	3000	3000
Impact strength (N.m)	IEC-60794-1-21-E4	25			
Torsion	IEC-60794-1-21-E7	± 180°			
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -30°C to +70°C	Storage: -40°C to +70°C	
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage			

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D and IT. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD, ps/√km	PMD LDV ps/√km	Cut-off Wavelength (lcc), nm 1310nm
	1310nm	1550nm	1625nm			
G652D**	≤ 0,35 / 0,36	≤ 0,25 / ≤ 0,26	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,10	≤ 1260

\*\* This fibre is also available as a bend insensitive

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Aqua

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km, 4km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>



## Multitube Double Jacket FRP Armored

2d0144:BL012:X-FRD-

### Product Details

Anatolia Multitube Double Jacket FRP Armored Fibre Optic Cables are suitable for use in ducts or overhead scenarios. This cable is a stranded loose tube cable with optical fibres placed inside robust buffer tubes stranded around a fibre reinforced plastic (FRP) central strength member. In addition to optical fibres, the buffer tubes contain water blocking gel and the cable core is surrounded with water-swellable tape and water-swellable yarns to prevent water ingress in the interstices of cable core. Flat FRP are helically wrapped over the inner sheath and an overall thermoplastic jacket provides the cable with both mechanical and environmental protection.

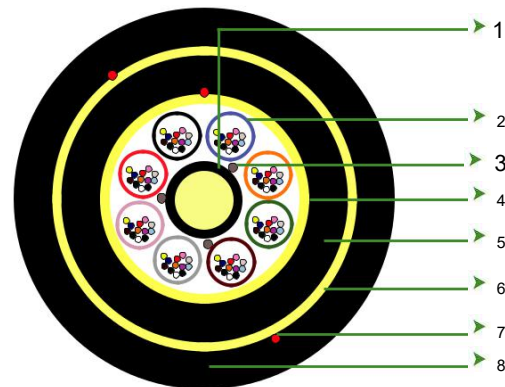
### Product Application

These cables are typically used for outside plant (OSP) application and for multipurpose installation (overhead, direct buried, in ducts). Mainly used in aerial applications for short to medium span-lengths including deployment along existing aerial rights-of-way and electric transmission towers. This cable is also suitable for aerial-to-duct / underground/direct buried transitions.

### Features & Benefits

- Available up to 96 fibre count in either single-mode or multi-mode optical fibres
- Double Jacket and dielectric armoring provides additional protection against crush and impact and also protects against rodent attacks.
- Multitube design with ripcords for easy and quick mid span access.
- Dry water-blocking technology for gel free core helps in quicker end preparation.
- Easily removable rugged thermoplastic jacket.
- Flexible, light weight, easy to handle & install.
- Tensile and crush resistant.
- UV protected.
- Tightly controlled physical parameters.
- Combination of fibre types available on request

### Typical Construction of Cable



1. CENTRAL STRENGTH MEMBER
2. LOOSE TUBE WITH FIBRES & GEL
3. WS YARNS
4. CORE WRAPPING
5. INNER SHEATH
6. FLAT FRP STRENGTH MEMBER
7. RIPCORD(S)
8. OUTER SHEATH



## Performance Standards

Cable complies to the following main Standards IEC.60794 series, ANSI/ICEA S-87-640, Telcordia GR-20, ITU-T Recommendations

## Specifications

Physical Characteristics		
Fibre Count	12-72	144
Fibres per tube	12	12
No. of tubes	1~6	12
Nominal Cable Diameter (mm) ± 0.5mm	11.2	16.5
Nominal Cable Weight (kg/km) ± 10%	95	200

Mechanical and Environmental Characteristics*				
Test	Standard / Notes	Product Performance		
Maximum Operating Tension	IEC-60794-1-21-E1	9000 N	9600 N	
Bending Radius	IEC-60794-1-21-E11	Dynamic = 20D, Static = 15D		
Crush Resistance (N/100mm)	IEC-60794-1-21-E3	4000	4000	
Impact strength (N.m)	IEC-60794-1-21-E4	25		
Torsion	IEC-60794-1-21-E7	± 180°		
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hr		
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +60°C	Operation: -40°C to +70°C	Storage: -40°C to +70°C
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hrs no water leakage		

\*\* After the test, the change in attenuation shall be ≤ 0.05 dB/km. No damage or crack on cable & no fibre break.

## Cabled Optical Fibres Characteristics

The optical fibres are in accordance to the specifications ITU-T G.652D. Refer to specific data sheets for details.

Transmission Characteristics						
Fibre Type	Attenuation coefficient, dB/km (Average/Maximum)			PMD,	PMD LDV,	Cut-off Wavelength
	1310nm	1550nm	1625nm	ps/√km	ps/√km	(lcc), nm 1310nm
G652D**	≤ 0,35 / 0,36	≤ 0,22 / ≤ 0,23	≤ 0,24 / ≤ 0,26	≤ 0,20	≤ 0,1	≤ 1260

\*\* This fibre is also available as a bend insensitive (Sterlite Tech's NOVA fibre)

## Fibre Standard Colour Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Tube Standard Color Code (As per EIA/TIA 598)

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua

## Packing and Lengths

Packing: Wooden drums

Lengths (tolerance ±5%): 2km

Note - Customised drum lengths available on request.

## Sheath printing details

Anatolia < Fibre Type ><Fibre Count><Product Type ><OFC Laser Symbol ><Telephone Symbol ><Month & Year of Production><Cable ID>< Meter Marking>