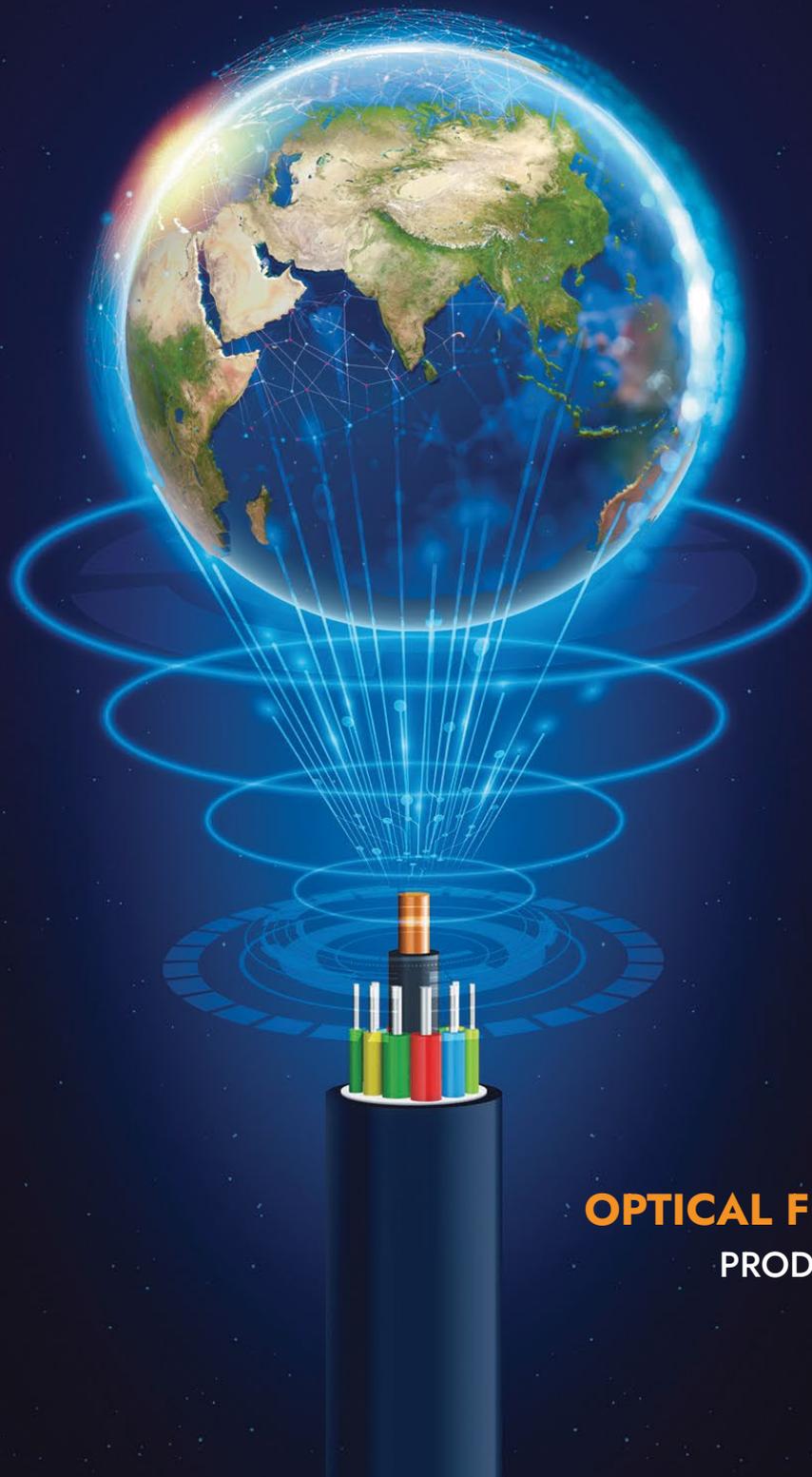


# THE FUTURE OF CONNECTIVITY



**OPTICAL FIBRE CABLES**

PRODUCT CATALOGUE

10 X 1

# APAR EMPOWERING A SMARTER WORLD SINCE 1958



Presence in

**140+**

Countries

**9**

Manufacturing Units



**#1**

Largest global aluminium & alloy conductor manufacturer



**#3**

Largest global manufacturer of Transformer oils



**#1**

Largest manufacturer of Renewable & Speciality Cables in India



Manufacturer of OFC & Hybrid Cables

**65**

**YEARS**

of Manufacturing Experience

**\$1.8**

**BILLION**

FY23 Consolidated Revenue

**19.3%**

**CAGR**

Last 5 years

**49%** EXPORT REVENUES

# TELECOM SOLUTIONS OVERVIEW

APAR is a leading Global Telecom Solutions company focusing on innovative solutions for global markets. The uniqueness lies in its design and manufacturing capabilities supported by backward integration. The wide range of tele-communication Optical Fibre Cable and Hybrid Cable products have been carved out from its rich experience across Telecom, Defense, Power and Transport industries over the years. APAR Telecom services has capability and potential to create digital networks, passive infrastructure gateways and network densification for Urban (Mobility Networks and FTTx, broadband Networks), Rural (Middle Mile and Last mile connectivity), Defense MHA (Border & Cantonment Fortification) and Enterprise Connectivity (across multiple Industries).

APAR's Telecom Solutions is driven by Innovation, customer-centricity and sustainability.

# WORLD CLASS PRODUCTION FACILITIES

APAR offers an extensive range of fibre optic cables for outdoor, indoor and speciality applications, ranging from 1F to 864F, and up to 1152F in ribbon design, with an installed capacity of 200,000 km of cable per annum.

We are also capable of manufacturing and delivering customised cables for special applications, such as specific diameter micro cables for FTTX, drop cables with G 657 bend insensitive fibre for last-mile connectivity, and long span ADSS (All Dielectric Self-supporting) aerial cables designed to be strung alongside power lines.

Our state-of-the-art machinery enables us to manufacture all types of fibre optic cables along with highly equipped quality system, accredited with ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 27001:2013 & TL9000 from BSI and IRCLASS. Over the past 25 years, we have supplied wide range of Fibre Optic Cables across various sectors.



World Class Fibre Optic Cable Manufacturing Facilities.



# APAR TELECOM SOLUTIONS

## OFC - OPTICAL FIBRE CABLES

APAR Telecom tailors high-capacity cable solutions for data centers, ISPs, telcos, and worldwide internet companies. APAR Fibre optic cables surpass copper lines in both capacity and transmission distance, enhancing internet speed upto 100 Gbps. APAR offers a comprehensive range of fibre optic cables for different communication needs, including aerial, underground, microduct, ribbon, IO, and indoor cables meeting international standards in a contemporary manufacturing facility certified with ISO, OHSAS, and TL9000. APAR's commitment to quality ensures that cables are manufactured to global standards and customer specifications.

**APAR Telecom, a Global Telecom Solutions Leader, offers innovative connectivity solutions for:**

**Urbanisation:** Mobility Networks across 4G/5G/6G and FTTx broadband Networks.

**Rural Connectivity:** Bridging the digital gap of fibre across rural regions.

**Border Fortefication:** Defence & MHA with border communication solutions.

**Enterprise:** Data centers, Railways & Metro's, Airports, Power Utilities, Renewable Solar & Wind Solutions, Oil & Gas, Mining, Space and many more.

## HYBRID CABLES - GIGAVOLT

The Giga-Volt hybrid solution incorporates both fibre and copper conductors in one cable that deliver power and data to a remote device through copper and fibre medium. As the connectivity needs converges, APAR hybrid cables will assist builders to meet their demand with this unique cable designs across multiple use cases across 5G, Wi-fi, DAS, IOT & M2M

**Reduced Environmental Impact:** Giga-Volt combines power and data transmission into a single cable, eliminating the need for separate cables and reducing overall material usage.

**Cost-Effective Installation:** By deploying a single Giga-Volt cable instead of separate power and data cables, service providers save time, space, and capital during installation.

**Faster Network Rollout:** Giga-Volt acts as a unified solution, streamlining network infrastructure and facilitating faster deployment of advanced networks like 5G.

**Simplified Cable Management:** Using a single Giga-Volt cable reduces complexity by eliminating the need to manage multiple cables at the field level.

**Lower Total Cost of Ownership (TCO):** Giga-Volt offers a slim design and supports all network topologies, potentially leading to a lower overall cost of ownership for the network.

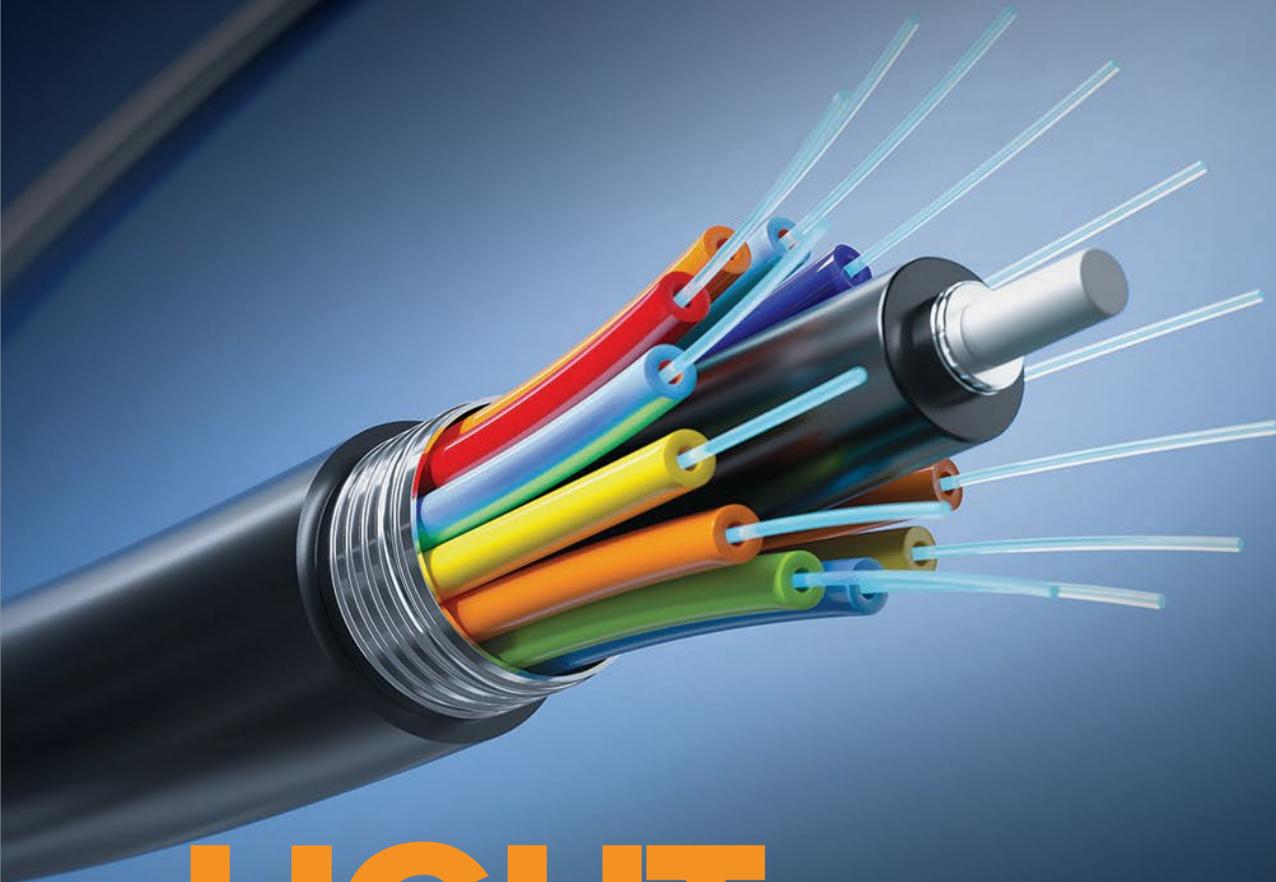
## LAN CABLES - TARANG SHAKTI

High-performance connectivity meets personalized solutions at APAR While known for superior materials and global standards (ANSI/TIA, ISO/IEC, EN, UL/ETL/TUV), APAR goes beyond LAN cables. We distinguish ourselves by:

**Customised Solutions:** Avoid off-the-shelf. Our skilled team creates LAN cable and optical fibre solutions for your specific needs, maximizing efficiency and exceeding expectations.

**Engine of Innovation:** We invest extensively in R&D, pushing technology forward. Access innovative solutions to meet rising bandwidth, speed, and reliability needs. We set industry standards, not merely meet them.

**Devoted Partnerships:** We value long-term connections over transactions. Our attentive crew ensures a smooth and worry-free experience from initial consultations to post-installation support.



# LIGHT WEIGHT AND COMPACT

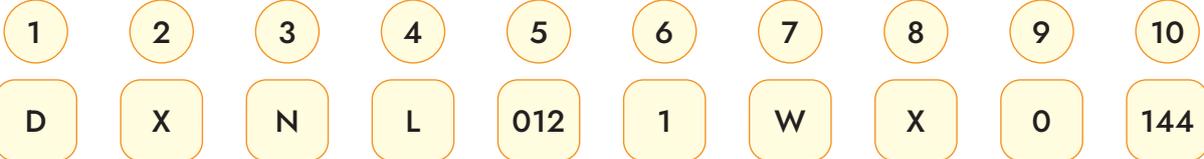
Optical fibre cables offer a hassle-free alternative to traditional copper cables. Their sleek and slim design, combined with their lightweight and compact construction, make them a breeze to install and manage.



**FLAME  
RETARDANT  
AND  
FIRE RESISTANT**

**FIBRE OPTIC  
CABLES**

# CATALOGUE CABLE CODING SYSTEM



**1 | Installation**

- A = Aerial Self Support
- B = Direct Buried
- D = Duct
- M = Figure8
- P = Drop/Rise

**2 | Fire Rating**

- R = Flame Retardant
- S = Fire Survival
- X = No Fire Rating

**3 | Construction**

- M = Metallic
- N = Non-metallic

**4 | Buffer Type**

- L = Loose Tube
- R = Ribbon Tube
- T = Tight Buffer
- M = Micro Module

**5 | Fibre/Tube Or Buffer**

001 to 144

**6 | Number Of Jackets**

- 0 = No Jacket
- 1 = Single Jacket
- 2 = Double Jacket
- 3 = Triple Jacket

**7 | Water Protect Type**

- W = Wet Tube - Wet Core
- R = Wet Tube - Dry Core
- Y = Dry Tube - Dry Core

**8 | Type Of Armour**

- C = Glass Yarn
- F = Steel Tape
- W = Steel Wire
- P = FRP
- A = Aluminum Tape
- X = No Armour
- B = Wire Braided
- U = ACSR Wire
- M = Copper Wire

**9 | Fibre Type**

- 0 = G652D
- 1 = G654
- 2 = G655
- 3 = G656
- 4 = G657A1
- 5 = G657A2
- 6 = G657B1
- 7 = G657B2
- 9 = G657B3
- 10 = OM1
- 11 = OM2
- 12 = OM3
- 13 = OM4

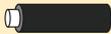
**10 | Fibre Count**

0001 to 1152

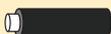
**Example:**  
**Standard 44F Duct cable**

Code = DXNL0121YX0144

## OPTICAL FIBRE COLOUR CODING

FIBRE OPTIC COLOUR CODING AS PER EIA/TIA 598 INTERNATIONAL STANDARD					
1	Blue		13	Blue with Black Ring	
2	Orange		14	Orange- with Black Ring	
3	Green		15	Green- with Black Ring	
4	Brown		16	Brown- with Black Ring	
5	Grey		17	Grey- with Black Ring	
6	White		18	White- with Black Ring	
7	Red		19	Red- with Black Ring	
8	Black		20	Natural with Black Ring	
9	Yellow		21	Yellow- with Black Ring	
10	Violet		22	Violet- with Black Ring	
11	Pink		23	Pink- with Black Ring	
12	Aqua		24	Aqua- with Black Ring	

\* "-" Marked are ring marked fibre.

FIBRE OPTIC BUFFER COLOUR CODING AS PER EIA/TIA 598 INTERNATIONAL STANDARD					
1	Blue		13	Blue with Black Strip	
2	Orange		14	Orange- with Black Strip	
3	Green		15	Green- with Black Strip	
4	Brown		16	Brown- with Black Strip	
5	Grey		17	Grey- with Black Strip	
6	White		18	White- with Black Strip	
7	Red		19	Red- with Black Strip	
8	Black		20	Black with Yellow Strip	
9	Yellow		21	Yellow- with Black Strip	
10	Violet		22	Violet- with Black Strip	
11	Pink		23	Pink- with Black Strip	
12	Aqua		24	Aqua- with Black Strip	

## FIBRE OPTIC CABLE PRODUCT VARIETY

### Fireproof

#### Product: Fire Resistant/Flame Retardant Fibre Optic Cables

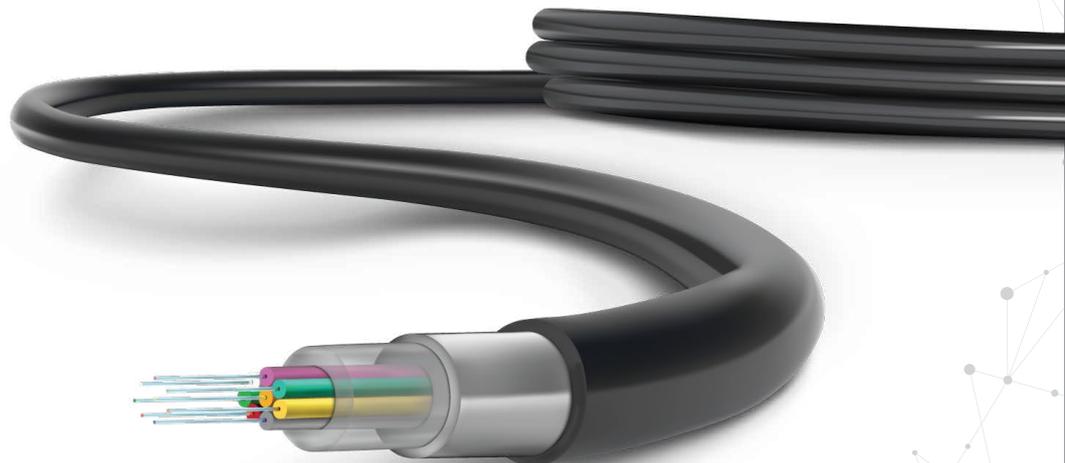
Application: Oil and Gas sector, Metro Railway and other special sectors.

Flame Retardant, Oil Resistance, High Mechanical Protection, and Harsh Environment compliant.

SR. NO.	PRODUCT DESCRIPTION	FIBRE RANGE	CABLE CODE
01	Uni Tube Double Jacket Steel Wire Armoured Cable	1F-48F	BRML###2#W0###
02	Uni Tube Double Jacket Braided Armoured Cable	1F-48F	BRML###2#B0###
03	Loose Tube Double Jacket Steel Wire Armoured Cable	1F-288F	BRML###2#W0###
04	Loose Tube Double Jacket Braided Armoured Cable	1F-288F	BRML###2#B0###
05	Loose Tube Triple Jacket FRP Armoured Cable	1F-288F	BRML###2#P0###
06	Tight Buffered Triple Jacket FRP Armoured Cable	1F-24F	BRNT###3#P0###
07	Tight Buffered Triple Jacket FRP Armoured Cable	8F-48F	BRNT###3#P0###

Fire Resistant, Flame Retardant, Oil Resistance, High Mechanical Protection, and Harsh Environment compliant. (750°C up to 90 minutes.)

08	Uni Tube Single Jacket Dielectric Armoured Cable	1F-24F	DSNL###2#X0###
09	Uni Tube Double Jacket Steel Wire Armoured Cable	1F-48F	BSML###2#W0###
10	Uni Tube Double Jacket Braided Armoured Cable	1F-48F	BSML###2#B0###
11	Loose Tube Double Jacket Steel Wire Armoured Cable	1F-288F	BSML###2#W0###
12	Loose Tube Double Jacket Braided Armoured Cable	1F-288F	BSML###2#B0###
13	Loose Tube Triple Jacket FRP Armoured Cable	1F-288F	BSML###2#P0###
14	Tight Buffered Triple Jacket FRP Armoured Cable	1F-24F	BRNT###3#P0###
15	Tight Buffered Triple Jacket FRP Armoured Cable	8F-48F	BRNT###3#P0###



# UNI TUBE DOUBLE JACKET STEEL WIRE ARMoured CABLE [FIREPROOF]

BRML###2#WO###  
1F-48F

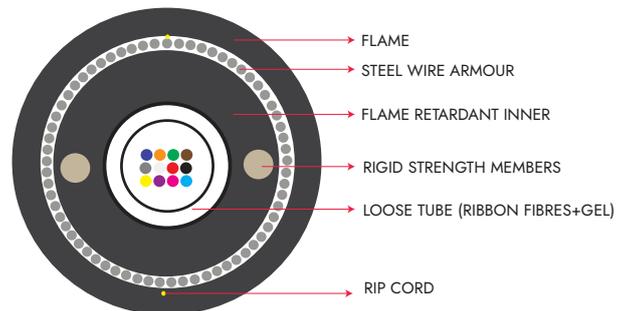
## Fireproof

### PRODUCT INFORMATION

APAR's FLAME RETARDANT Double Jacket Steel Wire Armoured cable is suitable for duct or direct burial applications. The cable is unitube with optical fibres in jelly-filled central tube. The tube is covered by a strong thermoplastic material, inner sheath. Two rigid strength members are embedded in inner sheath to give cable extra tensile strength. This inner sheath is peripherally covered by steel wires, which gives cable excellent mechanical protection. The cable is jacketed with special material for fire protection extruded to strong and smooth finish. This flame retardant product is available in 1-48F.

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during a fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and flame retardant.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in customized options as per customer requirements.

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000.



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	11.4	245±10%	3000
4F	4	11.4	245±10%	3000
6F	6	11.4	245±10%	3000
12F	12	11.4	245±10%	3000
24F	24	11.7	255±10%	3000
48F	48	12.5	305±10%	3000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES		
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D		
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	2000N		
Impact strength (N.m)	IEC-60794-1-21-E4	15		
Torsion	IEC-60794-1-21-E7	± 180°		
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C	Operation -20°C to +70°C	Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours		
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage		
Flammability Test	IEC 60332-1-2	Comply		
Smoke density	IEC 61034 1-2	Comply		
Conductivity/ PH	IEC 60754-2	Comply		
Acid & Corrosive Gas Emission	IEC 60754-1	Comply		

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# UNI TUBE DOUBLE JACKET BRAIDED ARMoured CABLE

## BSML###2#W0### 1F-48F

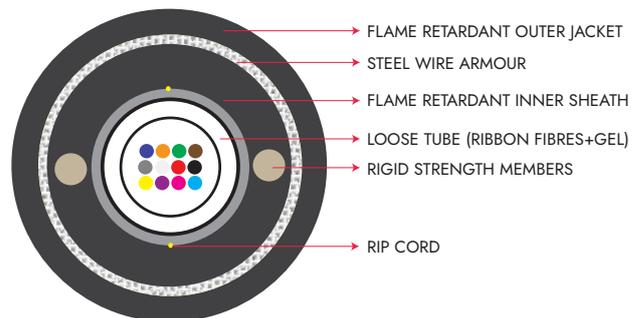
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RETARDANT Double jacket braided armoured cable is suitable for duct or direct burial applications. The cable is unitube with optical fibres in jelly-filled central tube. The loose tube is covered by strong thermoplastic material inner sheath. Two rigid strength Members are embedded in inner sheath to give cable extra tensile strength. This inner sheath is peripherally covered by steel wire braiding, which gives the cable excellent mechanical protection. The cable is jacketed with special material for fire protection extruded to strong and smooth finish. This flame retardant product is available in 1-48F.

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-48F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical & rodent protection
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754  
EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	11.0	190±10%	1500
4F	4	11.0	190±10%	1500
6F	6	11.0	190±10%	1500
12F	12	11.0	190±10%	1500
24F	24	11.5	200±10%	1500
48F	48	13.0	250±10%	1500

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	2000N
Impact strength (N.m)	IEC-60794-1-21-E4	10
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE DOUBLE JACKET STEEL WIRE ARMoured CABLE

BSML###2#W0###  
1F-144F

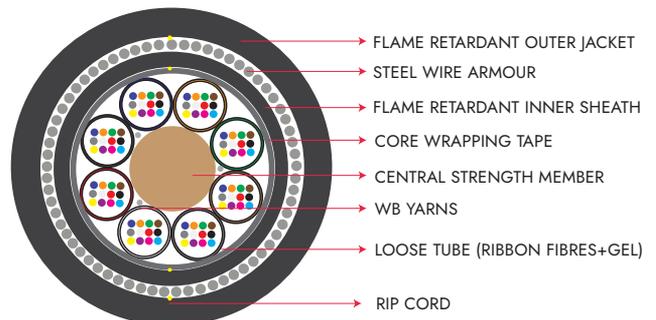
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RETARDANT steel wire armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in jelly-filled loose tubes, which are stranded over FRP (fibre-reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water-blocking compound surrounded with suitable tape to avoid water penetration. The cable is sheathed with special fire retardant material. The high tensile wire armouring is provided over the inner sheath. The cable is jacketed with special material for fire protection extruded to strong and smooth finish. This flame retardant product is available in 1-144F.

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and rodent protection
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NUMBER OF TUBE'S	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	6F~12F	1~6	13.5	315 ±25%	4000
96F	12	8	14.5	365 ±25%	4000
144F	12	12	17.0	470 ±30%	4000
288F	12	24	19.2	575 ±30%	5000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	5000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC~ Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE DOUBLE JACKET STEEL BRAIDED ARMoured CABLE

BSML###2#W0###  
1F-144F

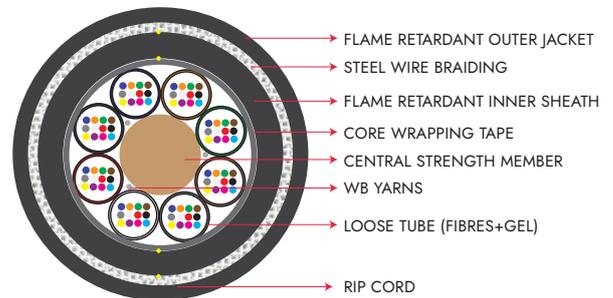
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RETARDANT braided armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in jelly-filled loose tubes, which are stranded over FRP (fibre-reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water-blocking compound surrounded with suitable tape to avoid water penetration. The cable is sheathed with special fire retardant material. The braided wire armouring is provided over the inner sheath. The cable is jacketed with special material for fire protection extruded to strong and smooth finish. This flame retardant product is available in 1-144F.

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical & rodent protection.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA,  
ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NUMBER OF TUBE'S	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	6F~12F	1~6	13.0	230 ±10%	1500
96F	12	8	14.0	270 ±10%	1500
144F	12	12	16.5	360 ±10%	2000
288F	12	24	18.7	430 ±10%	2000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
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 +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC~ Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE DOUBLE JACKET STEEL BRAIDED ARMoured CABLE [FIREPROOF]

BSML###2#W0###  
1F-144F

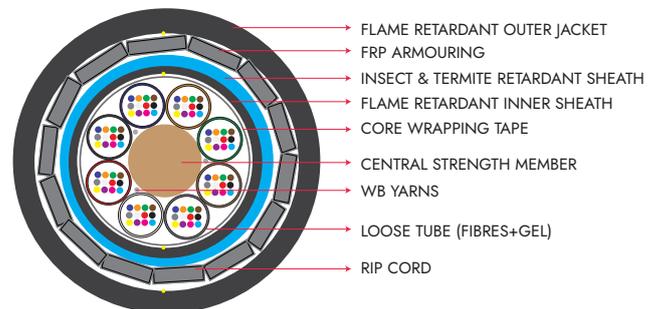
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RETARDANT FRP armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in jelly-filled loose tubes, which are stranded over FRP (fibre-reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water-blocking compound surrounded with suitable tape to avoid water penetration. The cable is sheathed with special fire retardant material. The Inner Sheath is covered with termite retardant polyamide. The FRP armoring is provided over the inner sheath. The fire retardant jacket gives the cable a strong and smooth finish. This flame retardant product is available in 1-144F

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical & rodent protection.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA,  
ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NUMBER OF TUBE'S	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	6F~12F	1~6	14.5	140 ±10%	3000
96F	12	8	15.5	270 ±10%	3000
144F	12	12	18.0	335 ±10%	4000
288F	12	24	20.5	440 ±10%	4000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	4000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC~ Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# TIGHT BUFFERED TRIPLE JACKET FRP ARMoured CABLE

BSML###2#W0###  
1F-24F

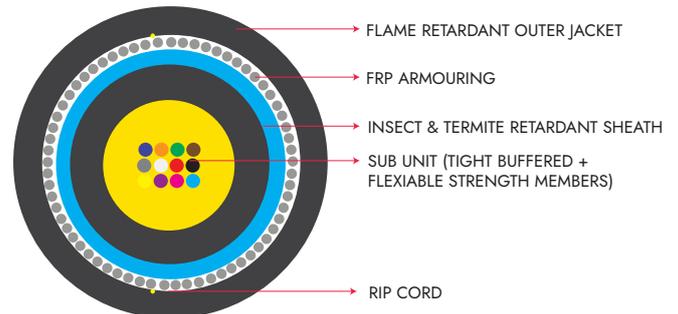
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RETARDANT Double jacket FRP armoured cable is suitable for duct or direct burial applications. The cable is tight buffered fibre design cable. The cable consists of tight buffered optical fibres filled in the module along with flexible strength members. The module is made of a strong thermoplastic material inner sheath. This inner sheath is peripherally covered by FRP armouring, which gives the cable excellent mechanical protection and rodent resistance. The cable is then jacketed with flame retardant material. The jacket gives the cable a strong and smooth finish. This flame retardant product is available in 1-24F.

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, in tunnels, metro lines and other places where one need very high degree of fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during a fire, has limited fire spread, has limited smoke generation and is halogen free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical & rodent protection.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
4F	4	13.0	200±10%	4000
6F	6	13.8	220±10%	4000
12F	12	15.0	255±10%	4000
24F	24	16.5	290±10%	4000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES		
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D		
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	2000N		
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 +70°C	Operation -20°C to +70°C	Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours		
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage		
Flammability Test	IEC 60332-1-2	Comply		
Smoke density	IEC 61034 1-2	Comply		
Conductivity/ PH	IEC 60754-2	Comply		
Acid & Corrosive Gas Emission	IEC 60754-1	Comply		

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# TIGHT BUFFERED TRIPLE JACKET FRP ARMoured CABLE

BRNT###3#PO###  
1F-48F

## Fireproof

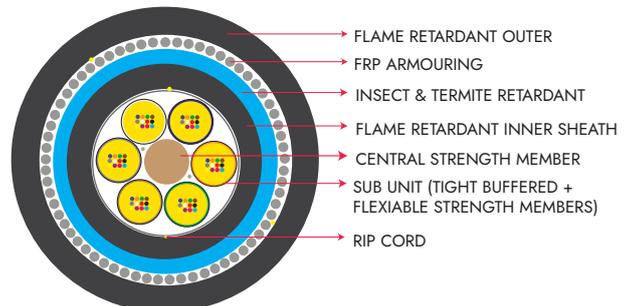
### PRODUCT INFORMATION

APAR's Fire survival steel wire armoured cable is suitable for direct burial or duct application. The cable consists of tight buffered optical fibres and Aramid yarn Jacketed by LSZH, which are stranded over FRP (fibre-reinforced plastic rod), is an excellent central strength member.

The stranded core is filled with special water-blocking compound surrounded with suitable tape to avoid water penetration. The cable is sheathed and jacketed with special material for fire protection. The Inner Sheath is covered with termite retardant polyamide. The FRP armoring is provided over polamide sheath. The jacket gives the cable a strong and smooth finish. This flame retardant product is available in 1-48F

### PRODUCT APPLICATION

- ◆ Typical installation environment is indoor and indoor/outdoor in and between public buildings, tunnels, metro lines and other places where one needs high fire safety and support for critical communication.
- ◆ Very high degree of fire safety is required as the cable will function during a fire, has limited fire spread, has limited smoke generation and is halogen-free.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical & rodent protection.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in fire resistant options

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Low Smoke



Rodent Resistant



Water Resistant



UV Protected



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE / TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
4F	4	21.3	490 ±25%	4000
8F	4	21.3	490 ±25%	4000
12F	4	21.3	490 ±25%	4000
24F	4	21.3	490 ±25%	4000
48F	8	22.5	525 ±25%	4000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	5000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



◆ If there are more than 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# UNI TUBE SINGLE JACKET DIELECTRIC ARMoured CABLE

DSNL###1#X0###  
1F-24F

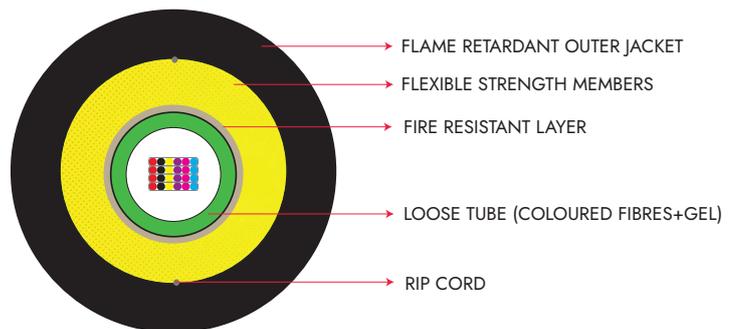
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT single jacket steel dielectric armoured cable is suitable for duct application. The cable is Unitube construction with optical fibres in jelly filled tube. The central tube is covered by fire resistant layer. The cable is sheathed and jacketed with special material for fire protection. The jacket gives the cable a strong and smooth finish. This product is available in 1-24F.

### PRODUCT APPLICATION

- ◆ Suitable for indoor/outdoor confined spaces
- ◆ Fire prone areas
- ◆ Hazardous environments
- ◆ Critical systems and signaling applications
- ◆ Warning systems for mining sites, server rooms



### PRODUCT FEATURES

- ◆ Small size. light weight, flexible and easy to install.
- ◆ Available in wide range of 1F-24F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and fire resistance properties.
- ◆ Extended fire survival up to 750° C for 180 Minutes

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, EC 60331-25 / AS/NZS 60331-25 ,IEC 60332, AS/NZS 1660-5-2, IEC 61034,  
IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Fire Resistant



Low Smoke



Best Flexibility



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	7.5	70±10%	1200
4F	4	7.5	70±10%	1200
6F	6	7.5	70±10%	1200
12F	12	7.5	70±10%	1200
24F	24	8.5	88±10%	1200

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	2000N
Impact strength (N.m)	IEC-60794-1-21-E4	10
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (180 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# UNI TUBE DOUBLE JACKET STEEL WIRE ARMoured CABLE

BRML###2#W0###  
1F-24F

## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT double jacket steel wire armoured cable is suitable for duct or direct burial application. The cable is unitube design consisting of optical fibres in jelly filled loose tube. The loose tube is covered by strong thermoplastic material inner sheath. Two rigid strength members are embedded in inner sheath to give cable extra tensile strength. This inner sheath is peripherally covered by steel wire armouring, which gives cable excellent mechanical protection. Fire resistant material layers provided over tube and inner sheath. The cable is jacketed with special material for fire protection. The jacket gives the cable a strong and smooth finish. This fire resistant product is available in 1-24F

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, warning systems for mining sites, server rooms

### PRODUCT FEATURES

- ◆ Available in wide range of 1F-24F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection, rodent proof and fire resistant design.
- ◆ Meeting the international fire standards.
- ◆ Also available in customized options as per requirements.

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60331, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



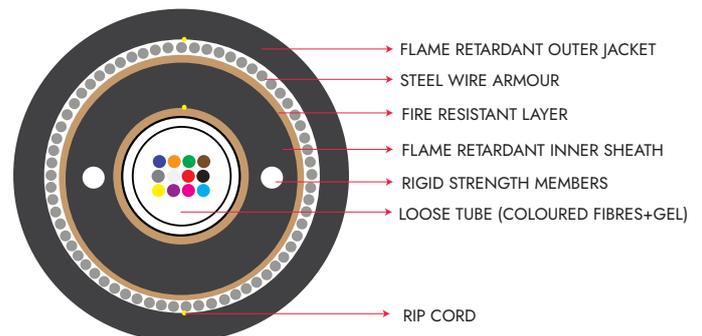
Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	12.0	260±10%	3000
4F	4	12.0	260±10%	3000
6F	6	12.0	260±10%	3000
12F	12	12.0	260±10%	3000
24F	24	12.5	280±10%	3000
48F	48	13.8	325±10%	3000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +70°C Operation: -20°C to +70°C Storage: -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (90 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# UNI TUBE DOUBLE JACKET BRAIDED ARMoured CABLE

BSML###2#WO###  
1F-24F

## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT double jacket steel wire braided armoured cable is suitable for duct or direct burial application. The cable is unitube consisting of optical fibres in jelly filled loose tube. The loose tube is covered by strong thermoplastic material inner sheath. Two rigid strength members are embedded in inner sheath to give cable extra tensile strength. This inner sheath is peripherally covered by steel wire braided armouring, which gives cable excellent mechanical protection. Fire Resistant material layers provided over tube and inner sheath. The cable is sheathed and jacketed with special material for fire protection. The jacket gives cable a strong and smooth finish. This fire resistant product is available in 1-24F.

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mining sites and server rooms

### PRODUCT FEATURES

- ◆ Available in wide range of 1F-24F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection, rodent proof and fire resistant design.
- ◆ Meeting the international fire standards.
- ◆ Also available in customized options as per requirements.

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/ TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	11.8	190±10%	1500
4F	4	11.8	190±10%	1500
6F	6	11.8	190±10%	1500
12F	12	11.8	190±10%	1500
24F	24	12.5	220±10%	1500
48F	48	13.8	270±10%	1500

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (90 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE DOUBLE JACKET STEEL WIRE ARMoured CABLE

BSML###2#W0###  
1F-144F

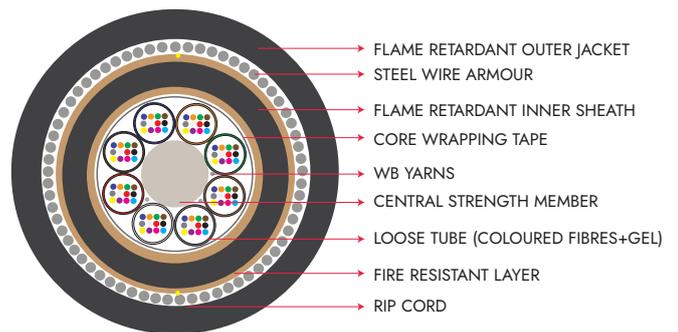
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT steel wire armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in jelly filled loose tubes, which are stranded over FRP (fibre reinforced plastic rod), is excellent central strength member. The stranded core is filled with special water blocking compound surrounded with suitable tape to avoid water penetration. Fire Resistant material layers provided for fire protection. The cable is sheathed with special fire retardant material. The high tensile wire armouring is provided over inner sheath. The fire retardant jacket gives the cable a strong and smooth finish. This product is available in 1-144F

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mine sites and Fire prone areas.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and flame retardant.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in customized options as per customer requirements.

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60331, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	1~4	14.0	340 ±25%	4000
96F	12	15.2	405 ±25%	4000
144F	12	19.5	510 ±30%	4000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES		
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D		
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N		
Impact strength (N.m)	IEC-60794-1-21-E4	50		
Torsion	IEC-60794-1-21-E7	± 180°		
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C	Operation -20°C to +70°C	Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours		
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage		
Flammability Test	IEC 60332-1-2	Comply		
Smoke density	IEC 61034 1-2	Comply		
Conductivity/ PH	IEC 60754-2	Comply		
Acid & Corrosive Gas Emission	IEC 60754-1	Comply		
Fire Resistant Test	IEC 60331-1-25	Comply (90 minutes)		

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE DOUBLE JACKET STEEL BRAIDED ARMoured CABLE

BSML###2#W0###  
1F-144F

## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT braided armoured cable is suitable for direct burial or duct application. The cable consist of optical fibres in jelly filled loose tubes, which are stranded over FRP (fibre reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water blocking compound surrounded with suitable tape to avoid water penetration. Fire Resistant material layers provided for fire protection. The cable is sheathed with special fire retardant material. The braided wire armouring is provided over inner sheath. The fire retardant jacket gives the cable a strong and smooth finish. This fire resistant product is available in 1-144F.

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mining sites, Server rooms, Fire prone areas

### PRODUCT FEATURES

- ◆ Available in wide range of 1F-144F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and flame retardant.
- ◆ Meeting the international fire safety standards.
- ◆ Also available in customized options as per customer requirements.

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, IEC 60331, IEC 60332, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



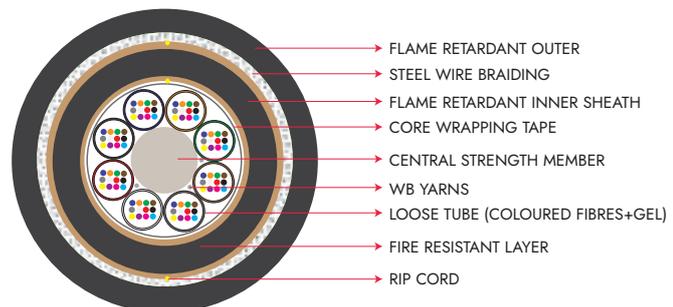
Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	1~4	13.7	260 ±10%	2500
72F	12	13.7	260 ±10%	2500
96F	12	15.0	300±10%	2500
144F	12	17.5	390±10%	2500

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES		
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D		
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N		
Impact strength (N.m)	IEC-60794-1-21-E4	50		
Torsion	IEC-60794-1-21-E7	± 180°		
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C	Operation -20°C to +70°C	Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours		
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage		
Flammability Test	IEC 60332-1-2	Comply		
Smoke density	IEC 61034 1-2	Comply		
Conductivity/ PH	IEC 60754-2	Comply		
Acid & Corrosive Gas Emission	IEC 60754-1	Comply		
Fire Resistant Test	IEC 60331-1-25	Comply (90 minutes)		

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# LOOSE TUBE TRIPLE JACKET FRP ARMoured CABLE

BRML###2#P0###  
1F-96F

## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT FRP armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in jelly filled loose tubes, which are stranded over FRP (fibre reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water blocking compound surrounded with suitable tape to avoid water penetration. Fire Resistant material layers provided for fire protection. The cable is jacketed with special fire retardant material. The termite resistant intermediate sheath is provided over inner sheath. The FRP armoring is provided over intermediate sheath. The fire retardant jacket gives the cable a strong and smooth finish. This fire resistant product is available in 1-96F

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mining sites, Server rooms and Fire prone areas.

### PRODUCT FEATURES

- ◆ Available in wide range of 1F-96F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and fire survival.
- ◆ Meeting international fire safety standards.
- ◆ Also available in customized options as per customer requirements.
- ◆ Excellent strength and complete protection from rodents
- ◆ Extended Fire resistance up to 120 Minutes at 750° C

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, EC 60331-25 / AS/NZS 60331-25, IEC 60332, AS/NZS 1660-5-2, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



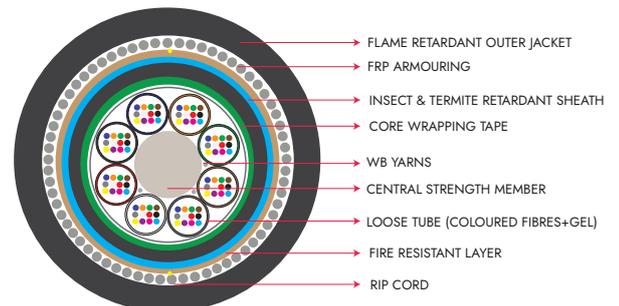
Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
6F-72F	1~4	18.3	390 ±15%	4000
96	8	19.4	430 ±15%	4000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (120 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC ~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# TIGHT BUFFERED TRIPLE JACKET FRP ARMoured CABLE

BSML###2#W0###  
1F-24F

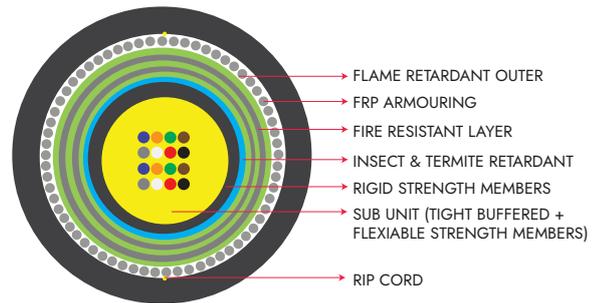
## Fireproof

### PRODUCT INFORMATION

APAR's FIRE RESISTANT double jacket FRP armoured cable is suitable for duct or direct burial application. The cable is tight buffered fibre design consisting of tight buffered fibres along with flexible strength members. The module is made of strong thermoplastic material inner sheath. The termite resistant intermediate sheath is provided over inner sheath. Fire Resistant material layers provided for fire protection. The FRP armoring is provided over intermediate sheath, which gives cable excellent mechanical protection and rodent resistance. The cable is then jacketed with flame retardant material. The jacket gives the cable a strong and smooth finish. This product is available in 1-24F

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mining sites, Server rooms and Fire prone areas.



### PRODUCT FEATURES

- ◆ Available in wide range of 1F-24F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and fire survival.
- ◆ Meeting international fire safety standards.
- ◆ Also available in customized options as per customer requirements.
- ◆ Excellent strength and complete protection from rodents
- ◆ Extended Fire resistance up to 120 Minutes at 750° C

### COMPLIANCE STANDARDS

IEC 60793, IEC 60794, EC 60331-25 / AS/NZS 60331-25 ,IEC 60332, AS/NZS 1660-5-2, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
2F	2	13.2	200±10%	3000
4F	4	14.0	210±10%	3000
6F	6	14.5	220±10%	3000
12F	12	15.5	245±10%	3000
24F	24	11.5	240±10%	3000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation -20°C to +70°C    Operation -20°C to +70°C    Storage -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (120 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.

# TIGHT BUFFERED TRIPLE JACKET FRP ARMoured CABLE

BRNT###3#PO###

8F-48F

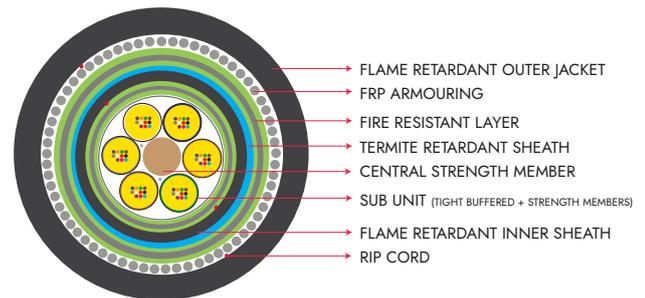
## Fireproof

### PRODUCT INFORMATION

Apar's FIRE RESISTANT FRP armoured cable is suitable for direct burial or duct application. The cable consists of optical fibres in tight buffer & aramid yarn jacketed by LSZH. This module is stranded over FRP (fibre reinforced plastic rod), an excellent central strength member. The stranded core is filled with special water blocking compound surrounded with suitable tape to avoid water penetration. The cable is inner jacketed with special flame retardant material. The termite resistant intermediate sheath is provided over inner sheath. Fire resistant material layers are provided for fire protection. The FRP armoring is provided over intermediate sheath. The cable is then jacketed with flame retardant material. The jacket gives the cable a strong and smooth finish. This product is available in 8-48F

### PRODUCT APPLICATION

- ◆ Fire resistant design is typically installed between public buildings, in tunnels, metro lines and other places where a very high degree of fire safety and support for critical communication is required.
- ◆ Critical systems and signaling applications, Warning systems for mining sites, Server rooms and Fire prone areas.



### PRODUCT FEATURES

- ◆ Available in wide range of 8F-48F, in both single-mode and multi-mode fibre variants.
- ◆ Excellent mechanical protection and fire survival.
- ◆ Meeting international fire safety standards.
- ◆ Also available in customized options as per customer requirements.
- ◆ Excellent strength and complete protection from rodents
- ◆ Extended Fire resistance up to 120 Minutes at 750° C

### COMPLIANCE STANDARDS

IIEC 60793, IEC 60794, EC 60331-25 / AS/NZS 60331-25, IEC 60332, AS/NZS 1660-5-2, IEC 61034, IEC 60754 EIA/TIA, ITU-T, Telcordia GR-20, EN187000



Flame Retardant



Fire Resistant



Low Smoke



Water Resistant



**Note:** Customized specifications can be made available upon specific request.

## PHYSICAL PROPERTIES

FIBRE COUNT	FIBRE/TUBE	NOMINAL CABLE DIAMETER (MM)	NOMINAL CABLE WEIGHT (KG/KM)	MAXIMUM TENSILE STRENGTH (N)
4F	4	22.1	515 ±25%	3000
8F	4	22.1	515 ±25%	3000
12F	4	22.1	515 ±25%	3000
24F	4	22.5	515 ±25%	3000
48F	8	23.4	550 ±25%	3000

## MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

NAME OF TEST	REFERENCE STANDARD	OFFERED VALUES
Cable Bending Radius	IEC-60794-1-21-E11	Long term = 20D, Short term = 10D
Crush Resistance (N/10 cm)	IEC-60794-1-21-E3	3000N
Impact strength (N.m)	IEC-60794-1-21-E4	50
Torsion	IEC-60794-1-21-E7	± 180°
Temperature Cycling	IEC-60794-1-22-F1	Installation: -20°C to +70°C Operation: -20°C to +70°C Storage: -20°C to +70°C
Drip Test	IEC-60794-1-21-E14	30 cm, 70°C, 24 hours
Water Penetration	IEC-60794-1-22-F5B	1m water head, 3m samples, 24 hours no water leakage
Flammability Test	IEC 60332-1-2	Comply
Smoke density	IEC 61034 1-2	Comply
Conductivity/ PH	IEC 60754-2	Comply
Acid & Corrosive Gas Emission	IEC 60754-1	Comply
Fire Resistant Test	IEC 60331-1-25	Comply (120 minutes)

## COLOUR CODING

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more 12 fibres per tube then single or double stripes marking will be offered in compliance to EIA/TIA

### FIBRE STANDARD COLOUR CODE



- ◆ If there are more than 12 tubes per cable then single or double stripes marking will be offered in compliance to EIA/TIA 598.

## PRINTING DETAILS

- ◆ APAR INDIA ~Fibre Count~ Fibre Type~ OFC  
~Laser Symbol~ Telephone Symbol~ Year of Manufacturing~ Cable ID~ Meter Marking
- ◆ Customized marking available on request.

## PACKING DETAILS

- ◆ Packing Length- 2Km, 4Km, 6Km (tolerance +/- 5%)
- ◆ Packing Material- Wooden Drum
- ◆ Customized drum lengths are available on request.



T: 022 2526 3400 / 6780 0400 | E: [info.telecom@apar.com](mailto:info.telecom@apar.com) | <https://apar.com/telecom-solutions>

 @apar-telecom-solutions

 @APARCableSolutions

 @aparcablesolutions

 @AparLdc

 @APARLightDutyCablesWires

**apar.com**