





**TACTICAL OPTICAL FIBRE CABLE** 

### **TACTICAL OPTICAL FIBRE CABLE**

AFL's portfolio of fibre optic cable products is unmatched. With AFL, it always begins with quality products. Since the first use of fibre optics, AFL has led the way with innovative cable products that deliver exceptional solutions for our customers. Our robust product line is now in service in over 100 countries around the world.

AFL's portfolio of fibre optic cables suitable for deployment in the harshest of environmental conditions extends from highly flexible, cut-resistant deployable cables to braided armoured breakout cables. These solutions provide the bandwidth, performance and reliability required in cutting-edge passive applications.

AFL offers specialty fibre cables which deliver predictable, repeatable and durable performance in the most demanding conditions, including those where high temperatures, chemicals and radiation exist.

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#### **Harsh Environments**

Characterised by diverse operating conditions not found in most commercial locations, industrial applications require rugged and dependable network components. These applications must be able to transmit and receive large amounts of data reliably and across long distances in order for operations to function safely and efficiently. Research has shown that most network failures in industrial applications are a result of failed transmissions. This makes selecting the right network components including cable, a mission-critical function.

For applications requiring high-bandwidth and high-speed functionality, fibre optics can be a natural solution. Unlike copper cable, fibre optic cabling is resistant to electromagnetic interference (EMI), making it an ideal option for environments involving high voltages or machinery with variable frequency drives. Fibre optic cables do not conduct electricity, nor do they ignite in the presence of flammable materials, making them a safe alternative to traditional wiring.

Designed for extreme environmental conditions, AFL's Tactical Cable product line provides bandwidth, performance and versatility for applications where standard communication cables would never survive. Our ruggedised tactical jackets and diverse cable constructions protect cables from temperature extremes, UV/sunlight, solvents, abrasion and impact. As a leading manufacturer and innovator of fibre optic cables, AFL's Tactical Cables deliver predictable, repeatable and durable performance in the most demanding conditions.





#### **Industrial Environments**

From heavy industrial manufacturing and complex hydraulic fracturing drills to deployable broadcasting studios and positive train controls, the need for reliable high-bandwidth cable to deliver critical data transmissions is vital. Industrial applications like these require AFL's Tactical Fibre Optic Cables.

Designed for performance in the most severe conditions, AFL's family of Tactical Cables provide reliability and outstanding performance characteristics for supplying critical data. Our expertise in developing and manufacturing tactical fibre optic cables allow networks to run safer, with less disruption, and better productivity than any other system on the market. AFL's Tactical Cables have been deployed in many industries, including:

- Industrial Product Manufacturing
- Oil & Gas Refineries
- Transport Hubs
- Chemical Plants
- Deployable Broadcasting Applications
- Automotive Manufacturing
- Avionic Communication Systems
- Distribution Pipelines
- Light Rail Monitoring
- On-Demand Broadcasts
- Military Deployable Communications
- Topside Mining Operations
- Broadcast Studios





### The Right Tactical Cable For The Job

AFL's background in fibre optic cable development has created a solid foundation for our Tactical Cable product line. However, our design services don't just stop at the standard product line. We understand that every situation is unique. Each installation has its own environmental challenges and performance requirements. That's why we offer customised real-problem, value-engineered solutions.

Our designers and engineers are experts in their field, offering an array of knowledge on every job with an emphasis on timeliness and quality. With years of experience in communications infrastructures, AFL provides system-wide solutions to include necessary materials, installation, testing and turnup. Some of our unique capabilities include:

- Unique cable constructions based on existing formations to increase fibre counts or decrease OD parameters
- Cable jacket options that provide resistance to distinctive environmental conditions such as rodents or the presence of chemical solvents
- Cable additive choices that can provide increased abrasion or crush resistance
- Cable armouring options for even more durability

#### **Tactical Cables at a Glance**

Rely on AFL's line of ruggedised tactical cables for superior performance and reliability at a smaller size.

| PRODUCT                       | OD &<br>WEIGHT | FIBRE<br>COUNT | CRUSH/IMPACT<br>RESISTANCE | ABRASION/CUT<br>RESISTANCE | FLEXIBILITY |
|-------------------------------|----------------|----------------|----------------------------|----------------------------|-------------|
| TRADITIONAL<br>TIGHT BUFFERED |                | •              | 0                          | 0                          | 0           |
| TACTICAL                      |                |                | •                          |                            |             |
| TACTICAL+                     |                |                |                            |                            | •           |
| MICRO-TACTICAL                |                |                | •                          |                            |             |
| TACTICAL<br>BREAKOUT          | 0              | 0              |                            |                            | •           |
| BREAROOT                      |                |                |                            |                            |             |





#### **Rodent Deterrent Cable Jackets**

Cables placed in outside plant or harsh environment applications are designed to endure the extreme challenges associated with temperature fluctuations, crush and impact, tensile loading, and even immersion or burial applications. Yet, surprisingly one of the biggest threats to fibre optic cable signal integrity is rodents chewing on cables to whittle down their incisors hence damaging the fibres within. The result is exposed or broken fibre links causing increased maintenance costs, reduced productivity and possibly lost revenue.

To combat these furry attacks, AFL has developed a new rodent deterrent enhancement option for its tactical and OSP fibre optic cables. These new jacket options significantly reduce cable damage from gnawing rodents. Tests show that the AFL bittering agent used in our new Rodent Deterrent Tactical and OSP cables repel rodents for far longer than cables without it.

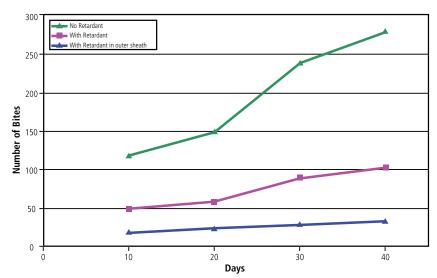


Figure 1 – Rodent Deterrent Greatly reduces "rodent bites" on cables with additives in outer jacket
\*The above data is for comparison value only and does NOT represent, constitute nor warrantee customer
application performance.

Physical barriers like conduit can be effective for direct burial applications but they increase installation and material costs. Armouring tapes included in the cable construction can be effective as well but increase the diameter and weight of the cable. They will also require gloves for installation and electrical grounding and bonding become necessary concerns. Electrical current applied to the outside of the cable has been known to be used but holds little success and can be hazardous to technicians and installers. As a last resort, some installers have turned to rodenticides or lethal poisons to prevent rodent damage. Of course these are never a good idea due to the toxicity to humans and their environmental effects. AFL now offers an optimal alternative to these less than ideal methods. They provide a much safer and economical method of preventing rodent damage and since the bittering agents are incorporated directly into the cable jacket, there is no significant size or weight increase.

While there have been many methods to prevent rodents from chewing on fibre optic cables, by utilising AFL's new rodent deterrent cable jackets, customers can realise reduced maintenance costs and longer cable life cycles. Overall, these new cable jacket options offer a non-toxic, safe and effective method of controlling damage caused by rodents while still offering the ruggedness expected from AFL's tactical cables. Contact AFL for specific ordering or specification information.





| TEMPERATURE RANGE          |               |  |  |  |
|----------------------------|---------------|--|--|--|
| INSTALLATION -46°C to 85°C |               |  |  |  |
| OPERATING                  | -46°C to 85°C |  |  |  |
| STORAGE -55°C to 85°C      |               |  |  |  |

### **Tactical Tight Buffered Cable**

AFL Tactical Tight Buffered Cables are ideal for use in installations where extreme environmental conditions are present. Designed to be deployed and retrieved in the field, AFL's Tactical Tight Buffered Cables are highly resistant to damage caused by repeated impacts crushing forces, abrasion and extreme temperatures.

#### **Features & Benefits**

- Cut resistant polyurethane jacket with flame retardant options available
- Highly flexible construction allows for multiple deployments
- All aramid strength members
- Performance in wide temperature range
- High impact and crush resistance
- Durable in high traffic areas
- MIL-PRF-46291 qualified fibre available (-RH designation)
- Tested to meet MIL-PRF-85045

#### **Applications**

- Field deployment in abusive environments
- Temporary installation of critical communications lines where quick retrieval and re-use is necessary
- High Traffic areas
- Security and Sensing applications
- Broadcast deployments
- Installations in harsh environments

#### **Cable Components**



#### **Specifications**

| CHARACTERISTIC                 | TEST PROCEDURE         | PERFORMANCE          |
|--------------------------------|------------------------|----------------------|
| Tensile and Elongation         | EIA/TIA-455-33         |                      |
| Operating Tensile Strength     | EIA/TIA-455-33         |                      |
| Low-Temp Flexibility           | EIA/TIA-455-37         |                      |
| Cyclic Flexing                 | EIA/TIA-455-104        | 2000                 |
| Crush Resistance               | EIA/TIA-455-41         | 1800 N/cm or greater |
| Impact                         | EIA/TIA-455-25 200     |                      |
| Temperature Cycling            | EIA/TIA-455-3          | -46°C to 85°C        |
| Temperature / Humidity Cycling | EIA/TIA-455-5 Method B |                      |
| Life Aging                     | EIA/TIA-455-4          |                      |
| Freezing Water Immersion       | EIA/TIA-455-98         |                      |



#### **Ordering Information**

| AEL NO       | FIBRE | NOMINAL       | NOMINAL        | MAXIMUM TEN  | ISILE LOAD (N) | MINIMUM BEN  | D RADIUS (CM) |
|--------------|-------|---------------|----------------|--------------|----------------|--------------|---------------|
| AFL NO.      | COUNT | DIAMETER (MM) | WEIGHT (KG/KM) | INSTALLATION | LONG TERM      | INSTALLATION | LONG TERM     |
| X%001*30180H | 1     | 3.0           | 8              | 600          | 178            | 4.5          | 3.0           |
| X%001*40180H | 1     | 4.0           | 13.5           | 800          | 240            | 6.0          | 4.0           |
| X%001*46180H | 1     | 4.6           | 18.1           | 800          | 240            | 6.9          | 4.6           |
| X%002*55180H | 2     | 5.5           | 25             | 1780         | 578            | 5.5          | 2.8           |
| X%004*55180H | 4     | 5.5           | 25             | 1780         | 578            | 5.5          | 2.8           |
| X%002*58180H | 2     | 5.8           | 32             | 1780         | 578            | 8.7          | 5.8           |
| X%004*58180H | 4     | 5.8           | 32             | 1780         | 578            | 8.7          | 5.8           |
| X%006*61180H | 6     | 6.1           | 33             | 1780         | 578            | 9.2          | 6.1           |
| X%008*64180H | 8     | 6.4           | 44             | 2090         | 712            | 6.4          | 3.2           |
| X%012*64180H | 12    | 6.4           | 47             | 2090         | 712            | 6.4          | 3.2           |
| X%024*85180H | 24    | 8.5           | 59             | 2980         | 979            | 8.5          | 4.3           |

Note: Diameter and weight subject to change without notice

# Replace percent (%) in AFL No. with corresponding jacket type below.

1 = Tactical Polyurethane

2 = Flame Retardant Polyurethane

3 = LSZH Polyurethane

4= StrataJac® Tactical+ Encapsulation

# Replace asterisk (\*) in AFL No. with corresponding fibre type below.

 $5 = 50/125~\mu m~multimode~GIGA\text{-}Link^{\tiny TM}~600$ 

6 = 62.5/125 μm multimode GIGA-Link<sup>™</sup> 300

9 = Single-mode

K = SM Futureguide SR-15e Bend Insensitive

 $L=50/125~\mu m~\text{OM3}$ 

 $C = 50/125 \mu m OM4$ 

500  $\mu m$  primary coated fibre available = G. Customer specified print available.





### Tactical<sup>+</sup> Tight Buffered Cable

AFL's new Tactical+ fibre optic cables with StrataJac® encapsulation set a new standard for extreme environments. The Tactical+ cable combines the performance of a rugged industrial jacket compound with the reliability of a military cable design. This new tactical design provides superior abrasion resistance when compared to traditional industry leading military cables. Tested beyond standards, the unique Tactical+ fibre optic cables offer a low friction, tough, abrasion resistant encapsulation that will outlast any cable on the market. Available in single and double jacketed configurations with extra aramid yarn or glass yarn reinforcement AFL Tactical+ cables are virtually indestructible.

#### **Features & Benefits**

- Superior abrasion and cut resistance
- High impact resistance for unforeseen trauma to cables
- Performance in wide temperature ranges
- Extremely durable outer jacket enables survivability in deployment and retrieval applications
- Resistant to the harshest industrial chemicals
- Aramid strength members for exceptional pull strength
- Available in a wide range of fibre types and channel counts
- Compatible with AFL's rodent deterrent additive for extra protection against rodent attacks

#### **Applications**

- Outside Broadcast
- Military
- Security
- Direct burial with rodent deterrent additive
- Instrumentation and control
- Pipeline and industrial asset monitoring
- Oil and gas

#### **Specifications**

| CHARACTERISTIC                 | TEST PROCEDURE         | PERFORMANCE           |
|--------------------------------|------------------------|-----------------------|
| Tensile and Elongation         | EIA/TIA-455-33         |                       |
| Operating Tensile Strength     | EIA/TIA-455-33         |                       |
| Low-Temp Flexibility           | EIA/TIA-455-37         |                       |
| Cyclic Flexing                 | EIA/TIA-455-104        | >2000                 |
| Crush Resistance               | EIA/TIA-455-41         | >4,000 N/cm by design |
| Impact                         | EIA/TIA-455-25         | 200                   |
| Temperature Cycling            | EIA/TIA-455-3          | -46°C to 85°C         |
| Temperature / Humidity Cycling | EIA/TIA-455-5 Method B |                       |
| Life Aging                     | EIA/TIA-455-4          |                       |
| Freezing Water Immersion       | EIA/TIA-455-98         |                       |



#### **Ordering Information**

| AFL NO.      | FIBRE | NOMINAL       | WEIGHT  | TENSI        | ON (N)    | MINIMUM BEN  | D RADIUS (CM) |
|--------------|-------|---------------|---------|--------------|-----------|--------------|---------------|
| AFL NO.      | COUNT | DIAMETER (MM) | (KG/KM) | INSTALLATION | LONG TERM | INSTALLATION | LONG TERM     |
| X4002*55180H | 2     | 5.5           | 28      | 1780         | 578       | 8.5          | 4.3           |
| X4004*55180H | 4     | 5.5           | 28      | 1780         | 578       | 8.5          | 4.3           |
| X4006*61180H | 6     | 6.1           | 32      | 1780         | 578       | 9.4          | 4.7           |
| X4012*64180H | 12    | 6.4           | 39      | 2090         | 712       | 10.8         | 5.4           |

Note: Diameter and weight subject to change without notice

# Replace percent (%) in AFL No. with corresponding jacket type below.

1 = Tactical Polyurethane

2 = Flame Retardant Polyurethane

3 = LSZH Polyurethane

4= StrataJac® Tactical+ Encapsulation

# Replace asterisk (\*) in AFL No. with corresponding fibre type below.

 $5 = 50/125 \ \mu m \ multimode \ GIGA-Link^{\scriptscriptstyle TM} \ 600$ 

 $6 = 62.5/125 \ \mu m \ multimode \ GIGA-Link^{TM} \ 300$ 

9 = Single-mode

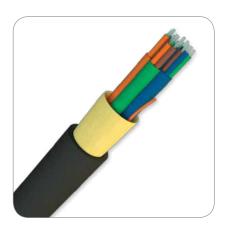
K = SM Futureguide SR-15e Bend Insensitive

L = 50/125 μm OM3

 $C = 50/125 \mu m OM4$ 

500  $\mu m$  primary coated fibre available = G. Customer specified print available.





#### **Applications**

- Broadcast
- Petrochemical
- Rail
- Mining
- Military

#### Micro-Tactical Cable

AFL's new Micro-Tactical Fibre Optic Cable combines the ruggedness of military tactical cable designs with the ultra-high fibre density of AFL's micro-cable technology. Designed for rapid deployment in optical networks requiring high mechanical performance specifications, extreme environmental exposure, and highly dynamic operating conditions, the military grade micro-tactical cable is able to withstand high tensile loads, severe crushing forces, repeated impacts, and extreme temperatures. And with AFL's selection of tactical cable jacket materials, the cable can be used in applications requiring exposure to UV, moisture, industrial chemicals or confined spaces. With fibre counts up to 96, the micro-tactical from AFL is the highest fibre count military grade tactical cable available on the market today.

#### **Features & Benefits**

- Highly flexible for rapid deployment and ease of installation
- Ruggedised tactical cable design for operating in harsh conditions
- High fibre density allows for longer deployment lengths
- Longer assembly lengths reduce number of optical connections and enhance network performance
- Supportive of all fibre types for high speed optical networking

#### Performance Data - Testing Per MIL PRF 85045

| CHARACTERISTIC        | PERFORMANCE                                  |
|-----------------------|--|
| Operating Temperature | -46°C to +85°C                               |
| Storage Temperature   | -55°C to +85°C                               |
| Crush Resistance      | 2000 N/cm of cable OD                        |
| Impact Resistance     | 50 per ANSI/TIA 455-25 Military Requirements |
| Flex Resistance       | 2000   |

#### **Ordering Information**

| AFL NO.        | FIBRE    | NOMINAL       | NOMINAL        | MAXIMUM TEN  | NSILE LOAD (N) | MINIMUM BEN  | ID RADIUS (CM) |
|----------------|----------|---------------|----------------|--------------|----------------|--------------|----------------|
| AFL NO.        | COUNT    | DIAMETER (MM) | WEIGHT (KG/KM) | INSTALLATION | LONG TERM      | INSTALLATION | LONG TERM      |
| X%004*30180Q:4 | Up to 4  | 3.0           | 8              | 00           | 178            | 4.5          | 3.0            |
| X%004*40180Q:4 | Up to 4  | 4.0           | 13.5           | 800          | 240            | 6.0          | 4.0            |
| X%004*46180Q:4 | Up to 4  | 4.6           | 18.1           | 800          | 240            | 6.9          | 4.6            |
| X%016*55180Q:4 | Up to 16 | 5.5           | 25             | 1780         | 578            | 5.5          | 2.8            |
| X%024*61180Q:4 | Up to 24 | 6.1           | 33             | 1780         | 578            | 9.2          | 6.1            |
| X%048*64180Q:4 | Up to 48 | 6.4           | 44             | 2090         | 712            | 6.4          | 3.2            |
| X%096*85180Q:4 | Up to 96 | 8.5           | 59             | 2980         | 979            | 8.5          | 4.3            |

### Replace percent (%) in AFL No. with corresponding jacket type below.

- 1 = Tactical Polyurethane
- 2 = Flame Retardant Polyurethane
- 3 = LSZH Polyurethane
- 4= StrataJac® Tactical+ Encapsulation

### Replace asterisk (\*) in AFL No. with corresponding fibre type below.

- $5 = 50/125 \,\mu\text{m}$  multimode GIGA-Link<sup>TM</sup> 600
- 6 = 62.5/125 µm multimode GIGA-Link™ 300
- 9 = Single-mode
- K = SM Futurequide SR-15e Bend Insensitive
- $L = 50/125 \mu m OM3$
- $C=50/125\;\mu m\;OM4$

Customer specified print available.





| TEMPERATURE RANGE          |               |  |  |  |
|----------------------------|---------------|--|--|--|
| INSTALLATION -20°C to 85°C |               |  |  |  |
| OPERATING                  | -46°C to 85°C |  |  |  |
| STORAGE -57°C to 85°C      |               |  |  |  |

# **Braided Amoured Tactical Tight Buffered Cable**

AFL Armored Tactical Tight Buffered Cables are ideal for use in installations where extreme environmental conditions are present. With the addition of a wire braid embedded within the jacketing system, these cables are highly resistant to damage caused by repetitive impacts, high flex, crush, and abrasion as well as other harsh conditions. By utilising AFL's tight buffered fibre technology field, termination is simplified.

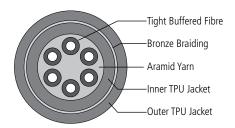
#### **Features & Benefits**

- Cut resistant polyurethane outer jacket
- Highly flexible construction allows for multiple deployments
- Performance in wide temperature range
- High impact and crush resistance
- Durable in high traffic areas
- Water and UV resistant
- Multiple jacket colours available
- Capable of supporting all Multi-Gigabit Ethernet Protocols

#### **Applications**

- Field deployment in abusive environments
- High traffic areas
- Security and sensing applications
- High Flex Applications
- Installations in industrial environments
- Temporary installation of critical communications lines where quick retrieval and re-use is necessary

#### **Cable Components**



#### **Ordering Information**

| AFL NO.         | FIBRE NOMINAL |               | NOMINAL        | TENSI        | MINIMUM   |                  |
|-----------------|---------------|---------------|----------------|--------------|-----------|------------------|
| AFL NO.         | COUNT         | DIAMETER (MM) | WEIGHT (KG/KM) | INSTALLATION | LONG TERM | BEND RADIUS (CM) |
| X%001*30180#-BB | 1             | 6.6           | 64             | 1112         | 290       | 6.6              |
| X%002*58180#-BB | 2             | 9.5           | 124            | 1450         | 290       | 9.5              |
| X%004*58180#-BB | 4             | 9.5           | 124            | 1450         | 290       | 9.5              |
| X%006*61180#-BB | 6             | 9.8           | 128            | 1450         | 290       | 9.8              |
| X%012*70180#-BB | 12            | 10.7          | 156            | 1750         | 350       | 10.7             |

Note: Diameter and weight subject to change without notice

### Replace percent (%) in AFL No. with corresponding jacket type below.

- 1 = Tactical Polyurethane
- 2 = Flame Retardant Polyurethane
- ${\bf 3} = LSZH \ Polyure than e$
- 4= StrataJac® Tactical+ Encapsulation

### Replace asterisk (\*) in AFL No. with corresponding fibre type below.

- 5 = 50/125 μm multimode GIGA-Link<sup>™</sup> 600
- $\dot{6} = 62.5/125 \,\mu m$  multimode GIGA-Link<sup>™</sup> 300
- 9 = Single-mode
- K = SM Futurequide SR-15e Bend Insensitive
- $L = 50/125 \, \mu m \, OM3$
- $C = 50/125 \, \mu m \, OM4$

# Replace pound sign (#) in AFL number with number corresponding below.

 $G = 500 \mu m$  Coated Optical Fibre

 $H = 250 \mu m$  Coated Optical Fibre

500  $\mu m$  primary coated fibre available.

Customer specified print available = G.





| TEMPERATURE RANGE |               |  |  |  |
|-------------------|---------------|--|--|--|
| INSTALLATION      | -50°C to 85°C |  |  |  |
| OPERATING         | -60°C to 85°C |  |  |  |
| STORAGE           | -50°C to 85°C |  |  |  |

#### **Mechanical**

| PARAMETER    | VALUE      |  |  |  |
|--------------|------------|--|--|--|
| Tensile      |            |  |  |  |
| Installation | 2112 (475) |  |  |  |
| Operational  | 333 (75)   |  |  |  |

#### **Tactical Breakout Cable**

AFL's Tactical Breakout Cables are ideal for use in harsh environment applications requiring a rugged deployable cable solution. Consisting of 2 mm sub-cables, each optical fibre is suitable for direct termination enabling fast and easy installation. This reduced diameter, light weight and high strength cable features a tough abrasion resistant polyurethane jacket that offers exceptional performance through a wide range of temperatures. It is also impervious to common chemicals found in industrial environments. Available with a flame retardant jacket option the BU series breakout cable is ideal for use in mines, petrochemical facilities and other industrial applications.

#### **Features & Benefits**

- Deployable design
- UV, Fungus and water resistant
- Highly crush and impact resistant
- 2.0 mm sub-cables available in a variety of colors
- Available with shiny or matte lowfriction jacket
- Custom colours available
- Available with bend insensitive SM and MM optical fibre
- Supports all multi-gigabit Ethernet standards
- RoHS compliant

#### **Applications**

- MIL PRF 85045
- ANSI/ICEA-S-104-696
- RoHS Compliant
- Highly abrasion and cut resistant
- Resistant to most fuels, oils and greases
- Excellent low-temperature flexibility





#### **Ordering Information**

| AFI NO       | FIBRE | NOMINAL DIAMETER   | NOMINAL WEIGHT | PHYSICAL F   | MINIMUM<br>BEND RADIUS (CM) |     |
|--------------|-------|--------------------|----------------|--------------|-----------------------------|-----|
| AFL NO.      | COUNT | COUNT (MM) (KG/KM) |                | CRUSH (N/CM) |                             |     |
| B%002*20180H | 2     | 7.8                | 52             | 2000         | 200                         | 7.5 |
| B%004*20180H | 4     | 7.8                | 52             | 2000         | 200                         | 7.5 |
| B%006*20180H | 6     | 8.8                | 58             | 2000         | 200                         | 8.5 |
| B%008*20180H | 8     | 10.0               | 77             | 2000         | 200                         | 10  |
| B%012*20180H | 12    | 11.4               | 97             | 2000         | 200                         | 11  |

# Replace percent (%) in AFL No. with corresponding jacket type below.

- 1 = Tactical Polyurethane
- $2 = Flame \ Retardant \ Polyurethane$
- 3 = LSZH Polyurethane
- 4= StrataJac® Tactical+ Encapsulation

### Replace asterisk (\*) in AFL No. with corresponding fibre type below.

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- $6 = 62.5/125 \ \mu \text{m multimode GIGA-Link}^{\scriptscriptstyle \mathsf{TM}} \ 300$
- 9 = Single-mode
- K = SM Futureguide SR-15e Bend Insensitive
- $L=50/125~\mu m~OM3$
- $C=50/125~\mu m~OM4$

500 μm primary coated fibre available = G.
Customer specified print available.





| TEMPERATURE RANGE |               |  |  |  |  |
|-------------------|---------------|--|--|--|--|
| INSTALLATION      | -20°C to 85°C |  |  |  |  |
| OPERATING         | -46°C to 85°C |  |  |  |  |
| STORAGE           | -57°C to 85°C |  |  |  |  |

#### **Mechanical**

| PARAMETER    | VALUE      |
|--------------|------------|
| Tensile      |            |
| Installation | 2112 (475) |
| Operational  | 333 (75)   |

#### **Braided Amoured Tactical Breakout Cable**

AFL's Braided Armoured Tactical Breakout Cables are ideal for use in harsh environment applications requiring a rugged deployable cable solution. Consisting of 2 mm sub-cables, each optical fibre is suitable for direct termination enabling fast and easy installation. This reduced diameter, light weight, and high strength cable features a tough abrasion resistant polyurethane jacket that offers exceptional performance through a wide range of temperatures. It is also impervious to common chemicals found in industrial environments. Available with a flame retardant jacket option the BU series breakout cable is ideal for use in mines, petrochemical facilities, and other industrial applications.

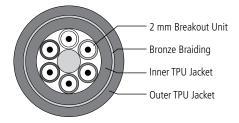
#### **Features & Benefits**

- Deployable design
- UV, Fungus, and water resistant
- Highly crush and impact resistant
- 2.0 mm sub-cables available in a variety of colours
- Available with shiny or matte low-friction jacket
- Custom colours available
- Available with bend insensitive SM and MM optical fibre
- Supports all multi-gigabit Ethernet standards
- RoHS compliant

#### **Applications**

- MIL PRF 85045
- ANSI/ICEA-S-104-696
- RoHS Compliant
- Highly abrasion and cut resistant
- Resistant to most fuels, oils and greases
- Excellent low-temperature flexibility
- Braid application per IEEE 1580 available

#### **Cable Components**



#### **Ordering Information**

| AFL NO.         | FIBRE | NOMINAL DIAMETER | NOMINAL WEIGHT | PHYSICAL P | MINIMUM              |      |  |
|-----------------|-------|------------------|----------------|------------|----------------------|------|--|
| AFL NO.         | COUNT | (MM)             | (MM) (KG/KM)   |            | CRUSH (N/CM) IMPACTS |      |  |
| B%002*2018XH-BB | 2     | 11.5             | 68             | 2000       | 200                  | 11.5 |  |
| B%004*2018XH-BB | 4     | 11.5             | 68             | 2000       | 200                  | 11.5 |  |
| B%006*2018XH-BB | 6     | 12.5             | 185            | 2000       | 200                  | 12.5 |  |
| B%008*2018XH-BB | 8     | 13.7             | 219            | 2000       | 200                  | 13.7 |  |
| B%012*2018XH-BB | 12    | 15.5             | 9265           | 2000       | 200                  | 15.5 |  |

Replace percent (%) in AFL No. with corresponding jacket type below.

- 1 = Tactical Polyurethane
- 2 = Flame Retardant Polyurethane
- 3 = LSZH Polyurethane
- 4= StrataJac® Tactical+ Encapsulation

Replace asterisk (\*) in AFL No. with corresponding fibre type below.

 $5 = 50/125 \,\mu m$  multimode GIGA-Link<sup>TM</sup> 600

6 = 62.5/125 μm multimode GIGA-Link™ 300

9 = Single-mode

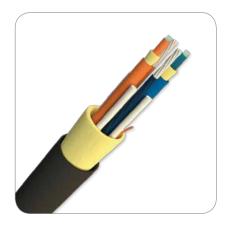
K = SM Futureguide SR-15e Bend Insensitive

 $L=50/125\;\mu m\;OM3$ 

 $C=50/125~\mu m~OM4$ 

500  $\mu m$  primary coated fibre available = G. Customer specified print available.





#### **Applications**

- Broadcast
- Petrochemical
- Rail
- Mining
- Military

### **Tactical Copper / Fibre Composite Cable**

AFL's tactical copper/fibre composite cables are ruggedised and easy to use in rapid deployment networks and other applications requiring high mechanical performance standards, environmental exposure, or dynamic end use where low voltage power and high speed fibre optic communications are combined. Constructed as a breakout style cable, each optical fibre has enhanced protection in an elastomeric sub-cable jacket. Additionally, each electrical conductor is constructed utilising high strand count copper with premium ETFE insulation. Offered in a tactical breakout cable construction, AFL's tactical copper/fibre composite cable offers excellent tensile strength, crush resistance, impact resistance, bending performance and a wide operating temperature range. With AFL's selection of tactical cable jacket materials, the cable can be used in applications requiring exposure to UV, moisture, industrial chemicals or confined spaces.

#### **Features & Benefits**

- Highly flexible for rapid deployment and ease of installation
- Ruggedised tactical cable design for operating in harsh conditions
- High fibre density allows for longer deployment lengths
- Longer assembly lengths reduce number of optical connections and enhance network performance
- Supportive of all fibre types for high speed optical networking

#### Performance Data—Testing per MIL PRF 85045

| CHARACTERISTIC                        | PERFORMANCE           |  |  |  |
|---------------------------------------|-----------------------|--|--|--|
| Testing per Installation Tensile Load | 540 lbs               |  |  |  |
| Operating Tensile Load                | 135 lbs               |  |  |  |
| Min. Bend Radius Short Term           | 7.8 cm                |  |  |  |
| Min. Bend Radius Long Term            | 3.9 cm                |  |  |  |
| Operating Temperature                 | -55°C to +85°C        |  |  |  |
| Storage Temperature                   | -60°C to +85°C        |  |  |  |
| Crush Resistance                      | 2000 N/cm of cable OD |  |  |  |
| Impact Resistance                     | 200                   |  |  |  |
| Flex Resistance                       | 2000                  |  |  |  |

#### **Ordering Information**

| AFL NO.            | MAXIMUM ATTENUATION (dB/km) |         |         | OVERFILLED LAUNCH<br>MINIMUM BANDWIDTH<br>(MHz·km) |         | 1 GIGABIT ETHERNET<br>MINIMUM LINK<br>DISTANCE<br>(METERS) |         | 10 GIGABIT ETHERNET<br>MINIMUM LINK<br>DISTANCE<br>(METERS) |                     |
|--------------------|-----------------------------|---------|---------|--|---------|--|---------|---|---------------------|
|                    | 850 nm                      | 1300 nm | 1550 nm | 850 nm   | 1300 nm | 850 nm   | 1300 nm | 850 nm<br>(Serial)  | 1300 nm<br>(Serial) |
| B%002*2018XH-2CU16 | N/A                         | 0.5     | 0.5     | N/A  | N/A     | N/A  | N/A     | N/A   | N/A                 |

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- $L=50/125\;\mu m\;OM3$
- $C=50/125~\mu m~OM4$

500 μm primary coated fibre available = G.
Customer specified print available.

# Please contact your AFL Sales Representative for information about our other products or services.



Fibre Cable



Cable Assemblies



**Enclosures & Racks** 



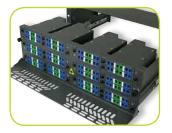
Test, Inspect & Locate



MTP Cabling System



Fibre Termination & Splicing



**Fibre Passive Devices** 



**Copper Cabling Systems** 



Harsh Environment



Networking & Media Conversion

Our exceptional products, innovative solutions and engineering expertise make connections possible. AFL provides industry-leading solutions, products and services to the energy, service provider, enterprise and industrial markets as well as a number of emerging markets. Whether you need to build or upgrade a network or apply the latest fibre optic technology, AFL connects you with the solutions that fit your every need.



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