DESCRIPTION/APPLICATION

Thomas & Betts, Aster Products offers a complete line of superior single mode and multimode fiber optic connectors and cable assemblies. The product line for connectors includes: SC, FC, ST®, Biconic and SMA connectors. Examples of the extensive line of cable assemblies available include: pigtails, hybrids, duplex, service drop, multi-fiber breakout and ribbon.

Our single mode and multimode connector's zirconia ferrules are pre-rounded, providing a positive contact end face with superior optical performance. The final polish obtained on the selected fiber optic connector will depend upon the optical performance required by your system.

Thomas & Betts, Aster Products offers a choice of single mode SC, FC, ST® and Biconic field installable connectors that can be installed on 900mm buffered fiber up to 3.0mm cable. These connectors can be provided as state-of-the-art cable assemblies or pigtails that provide the optical and mechanical characteristics required by Bellcore. Key connector parameters to look for in a single mode cable assembly are: low insertion back-reflection, apex off-set and fiber height. Thomas & Betts, Aster Products has the latest optical test equipment to insure these parameters are met. The cable assemblies supplied are intermateable with other EIA/TIA 604 industry standard connectors and adapters.

Termination kits are available to support all field installable connectors.

Thomas & Betts is a leading supplier of fiber optic components and fiber management systems that are designed to support the growing demands of the telecommunications industry.

FIBER OPTIC CONNECTORS AND CABLE ASSEMBLIES
FIBER OPTIC CONNECTORS AND CABLE ASSEMBLIES

APPLICATIONS
- Communications
- Telephony
- CATV
- High Speed Digital Systems
- Data Transport

CABLE ASSEMBLY FEATURES
- Conform to Bellcore requirements GR-000326-CORE, Issue II
- Low back reflections for single mode assemblies
- Superior optical performance
- Floating ferrules on the SM and MM SC and FC connectors
- Environmentally stable

<table>
<thead>
<tr>
<th>CONNECTOR</th>
<th>SC</th>
<th>FC I</th>
<th>FC II</th>
<th>ST</th>
<th>BICONIC</th>
<th>SMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM Ferrule</td>
<td>Zirconia Ceramic</td>
<td>125mm</td>
<td>125mm</td>
<td>126mm</td>
<td>Glass Epoxy</td>
<td>N/A</td>
</tr>
<tr>
<td>Hole I.D.</td>
<td>&lt;1 mm</td>
<td>&lt;1 mm</td>
<td>&lt;3 mm</td>
<td>&lt;4 mm</td>
<td>&lt;2 mm</td>
<td>N/A</td>
</tr>
<tr>
<td>Concentricity</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MM Ferrule</td>
<td>Zirconia Ceramic</td>
<td>126mm</td>
<td>126mm</td>
<td>128mm</td>
<td>Arcap (Alloy)</td>
<td>N/A</td>
</tr>
<tr>
<td>Hole I.D.</td>
<td>&lt;3 mm</td>
<td>&lt;3 mm</td>
<td>&lt;4 mm</td>
<td>&lt;4 mm</td>
<td>&lt;2 mm</td>
<td>N/A</td>
</tr>
<tr>
<td>Concentricity</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware/Body</th>
<th>Brass Nickel Plate</th>
<th>Stainless Steel</th>
<th>Brass Nickel Plate</th>
<th>Zinc Nickel Plate</th>
<th>PES</th>
<th>Brass Nickel Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware/Coupling</td>
<td>Plastic</td>
<td>Stainless Steel</td>
<td>Brass Nickel Plate</td>
<td>Zinc Nickel Plate</td>
<td>PES</td>
<td>Brass Nickel Plate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable Size</th>
<th>O.D. Max.</th>
<th>O.D. Min</th>
<th>Tensile strength</th>
<th>Boot Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0mm</td>
<td>900mm</td>
<td>900mm</td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
<tr>
<td>Buffered fiber</td>
<td>Buffered fiber</td>
<td>Buffered fiber</td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20lbs force</td>
<td>N/A</td>
</tr>
</tbody>
</table>

| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

<40dB: N/A <55dB: Blue <65dB (APC): Green Multimode: Black

<-40dB: Yellow <-55dB (APC): Black

Dimensions shown are for reference only. Dimensions are in millimeters (inches).
**FIBER OPTIC CONNECTORS AND CABLE ASSEMBLIES**

**Specifications**

SC connectors have a non-optical disconnect (pull-proof) floating ferrule designed to be used in a push-pull housing. The SC connector is available polished to either a -55dB back reflection or an APC polish with a <-65dB back reflection.

FC connectors feature a fixed key design that achieves optimum transmission performance upon initial insertion. The bulkhead adapter is available with either a 2.14mm (.084 inch) key slot for use with a -55dB back-reflection connectors or a 2.00mm (0.079 inch) key slot used with a FC/APC connector to achieve <-65dB back reflection. The FC is available in either a non-optical disconnect (FCII) or a non-pull proof (FCI) design.

ST connectors are keyed bayonet-latching style design with a locking mechanism to guarantee consistent alignment. The ST nut is a closed ramp “J” hook.

Biconic connectors are intermateable with the industry standard devices. The field installable SM and MM connectors have a smaller cavity design providing a fiber guide for easy-to-assemble termination with less internal fiber breakage during assembly.

### Optical Specifications

<table>
<thead>
<tr>
<th>CONNECTORS</th>
<th>SC</th>
<th>FC I</th>
<th>FCII</th>
<th>ST</th>
<th>BICONIC</th>
<th>SMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single mode Insertion Loss</td>
<td>0.3dB</td>
<td>0.3dB</td>
<td>0.3dB</td>
<td>0.3dB</td>
<td>0.7dB</td>
<td>N/A</td>
</tr>
<tr>
<td>Back Reflection (Std)</td>
<td>-50dB</td>
<td>-50dB</td>
<td>-50dB</td>
<td>-50dB</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Back Reflection (APC)</td>
<td>-65dB</td>
<td>-65dB</td>
<td>-65dB</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

| Multimode Insertion Loss | 0.2dB | 0.2dB | 0.2dB | 0.5dB | 0.8dB | 0.7dB |

| Operating Temp. | -40° to +85° C |
| Mating Durability | 200 total, clean 25 (change) | <0.2dB | <0.2dB | <0.2dB | <0.2dB | <0.4dB |

All values for insertion loss and back reflection are typical.

### Material / Optical Specifications

<table>
<thead>
<tr>
<th>ADAPTERS</th>
<th>SC</th>
<th>FC I</th>
<th>FCII</th>
<th>ST</th>
<th>BICONIC</th>
<th>SMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single mode Sleeve</td>
<td>Zirconia Split Ceramic Bulkhead or Panel</td>
<td>Zirconia Split Ceramic Bulkhead or Panel</td>
<td>Zirconia Split Ceramic Bulkhead or Panel</td>
<td>Zirconia Split Ceramic Bulkhead or Panel</td>
<td>Glass Filled Epoxy</td>
<td>N/A</td>
</tr>
<tr>
<td>Mounting Application</td>
<td>Ceramic Bulkhead or Panel</td>
<td>Ceramic Bulkhead or Panel</td>
<td>Ceramic Bulkhead or Panel</td>
<td>Ceramic Bulkhead or Panel</td>
<td>Flat</td>
<td>N/A</td>
</tr>
<tr>
<td>Multimode Sleeve</td>
<td>Phosphor Bronze</td>
<td>Zirconia Ceramic Bulkhead or Panel</td>
<td>Zirconia Ceramic Bulkhead or Panel</td>
<td>Phosphor Bronze</td>
<td>Glass Filled Epoxy</td>
<td>Brass Nickel Plate</td>
</tr>
<tr>
<td>Bushing Mounting</td>
<td>Bulkhead or Panel</td>
<td>Bulkhead or Panel</td>
<td>Bulkhead or Panel</td>
<td>Bulkhead or Panel</td>
<td>Bulkhead or Panel</td>
<td>Bulkhead or Panel</td>
</tr>
<tr>
<td>Type</td>
<td>Rectangular Simplex or Duplex</td>
<td>Single “D” Hole or Double “D”</td>
<td>Single “D” Hole or Double “D”</td>
<td>“D” Hole</td>
<td>Round</td>
<td>“D” Hole</td>
</tr>
<tr>
<td>Body</td>
<td>PBT</td>
<td>Stainless Steel Plate</td>
<td>Stainless Steel</td>
<td>Zinc Nickel</td>
<td>PES</td>
<td>Zinc Nickel Plate</td>
</tr>
<tr>
<td>Dust Cap</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## MODEL NUMBERS / ORDERING INFORMATION

### FIBER AND CABLE TYPE
- **1A**: 900µm HYTREL TIGHT BUFFER
- **1B**: 900µm HARD PVC TIGHT BUFFER
- **1C**: 3mm HARD PVC O/DNF RISER
- **1D**: 2.4mm TELFON O/DNF PLENUM
- **1E**: 900µm SOFT PVC TIGHT BUFFER
- **1F**: 3mm SOFT PVC O/DNF RISER
- **1G**: 3mm RUGGEDIZED POLYURETHANE

### 2A
- 4x7mm OVAL HARD PVC O/DNF RISER (3mm BREAKOUT)

### 2B
- 3mm ZIP HARD PVC O/DNF RISER

### 2C
- 3x5.6mm OVAL TELFON O/DNF PLENUM (2.4mm BREAKOUT)

### FIBER TYPE
- **A**: CORNING SMF-28
- **B**: M/M 50/125 µm
- **C**: M/M 62.5/125 µm

### BREAKOUT LENGTH
- **X**: NO BREAKOUT, SINGLE FIBER
- **1**: 12 INCH
- **2**: 24 INCH

### CABLE ASSEMBLY DESIGNATION

#### FJ

### LENGTH
- 000 THROUGH 999 FOR LENGTH IN WHOLE METERS OR FEET. "A" IN THIRD PLACE TO INDICATE 1/2 METER LENGTHS ("07A" - 7.5). SEQUENTIAL ALPHA CHARACTERS USED FOR CUSTOM CABLES.

#### UNITS
- **M**: LENGTH IN METERS
- **F**: LENGTH IN FEET
- **C**: CUSTOM

#### SECOND END POLISH
- **X**: NO SECOND END (PIGTAIL)
- OTHERWISE CODED PER FIRST END LIST

#### SECOND END CONNECTOR
- **X**: NO SECOND END (PIGTAIL)
- OTHERWISE CODED PER FIRST END LIST

#### FIRST END CONNECTOR
- **B**: FC II
- **D**: ST
- **E**: SC SIMPLEX
- **F**: FC I
- **G**: SC DUPLEX

### FIRST END POLISH
- **1**: APC (≤ 65dB)
- **2**: UPC (≤ 55dB)
- **3**: PC
- **4**: FLAT

### MODEL NUMBERS / ORDERING INFORMATION

```plaintext
FJ   #X   X   #   X   #   X   ###

CABLE ASSEMBLY DESIGNATION

FIBER AND CABLE TYPE
1A = 900µm HYTREL TIGHT BUFFER
1B = 900µm HARD PVC TIGHT BUFFER
1C = 3mm HARD PVC O/DNF RISER
1D = 2.4mm TELFON O/DNF PLENUM
1E = 900µm SOFT PVC TIGHT BUFFER
1F = 3mm SOFT PVC O/DNF RISER
1G = 3mm RUGGEDIZED POLYURETHANE
2A = 4x7mm OVAL HARD PVC O/DNF RISER (3mm BREAKOUT)
2B = 3mm ZIP HARD PVC O/DNF RISER
2C = 3x5.6mm OVAL TELFON O/DNF PLENUM (2.4mm BREAKOUT)

FIBER TYPE
A = CORNING SMF-28
B = M/M 50/125 µm
C = M/M 62.5/125 µm

BREAKOUT LENGTH
X = NO BREAKOUT, SINGLE FIBER
1 = 12 INCH
2 = 24 INCH

LENGTH
000 THROUGH 999 FOR LENGTH IN WHOLE METERS OR FEET. "A" IN THIRD PLACE TO INDICATE 1/2 METER LENGTHS ("07A" - 7.5). SEQUENTIAL ALPHA CHARACTERS USED FOR CUSTOM CABLES.

UNITS
M = LENGTH IN METERS
F = LENGTH IN FEET
C = CUSTOM

SECOND END POLISH
X = NO SECOND END (PIGTAIL)
OTHERWISE CODED PER FIRST END LIST

SECOND END CONNECTOR
X = NO SECOND END (PIGTAIL)
OTHERWISE CODED PER FIRST END LIST

FIRST END CONNECTOR
B = FC II
D = ST
E = SC SIMPLEX
F = FC I
G = SC DUPLEX

FIRST END POLISH
1 = APC (≤ 65dB)
2 = UPC (≤ 55dB)
3 = PC
4 = FLAT
```

Above Board Electronics • 800-453-1692 FAX: 408-573-4343 • AboveBoardElectronics.com

465
**DESCRIPTION/APPLICATION**

Thomas & Betts Plastic Fiber Optic Cable consists of a PMMA core, polymer clad with a durable black polyethylene jacket. It is available in 100 and 500 foot lengths in both simplex and duplex zipcord styles.* The cable is compatible with a complete line of Thomas & Betts connector products which include: the Thomas & Betts PCB Data Link System, Active duplex Connector, Bulkhead Connector, RS-232-C Modem and Splice Kit.

**DESIGN CONSIDERATIONS**

- Low-profile, lightweight.
- Perfect for sub 130 meter applications.
- No polishing.
- Compatible with Thomas & Betts self-termination technology.
- Low bend radius (approximately 1-inch).
- High strain relief.
- Wide temperature range (-35°C to +80°C).
- Low-cost.
- No installation tooling necessary.
- 1mm plastic fiber.

**PLASTIC FIBER OPTIC CABLE**

**Ordering Information**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>93902-100</td>
<td>100&quot; Simplex Optical Cable</td>
</tr>
<tr>
<td>93902-500</td>
<td>500&quot; Simplex Optical Cable</td>
</tr>
<tr>
<td>93802-100</td>
<td>100&quot; Roll Duplex Plastic Fiber Cable</td>
</tr>
<tr>
<td>93802-500</td>
<td>500&quot; Roll Duplex Plastic Fiber Cable</td>
</tr>
</tbody>
</table>
DESCRIPTION/APPLICATION
The Universal Fiber Optic Cleaving Tool eliminates time consuming polishing of optical fibers. The tool delivers consistent high quality cleaves by field personnel outside the laboratory environment. Human engineered, the palm-sized cleaving tool incorporates a simple two-stroke design. This eliminates subjective operator skills while producing the end angle required for single-mode splicing without chips, lips or hackle.

The universal cleaving tool is designed for single and multi-mode fiber with nominal diameters (O.D.) of 125 micron without operator adjustments of any kind. Tool package includes bench mounting clamp, hand carrying strap and protective case.

DESIGN CHARACTERISTICS
• Single-mode precision
• Fast, in-field terminations
• Eliminates polishing
• No special training required
• Eliminates tedious microscopic fiber inspection
• Delivers over 3000 reliable cleaves

For tool repair and service, call Tool Service Group at (609) 234-5211.

TYPICAL END ANGLE DISTRIBUTION
END ANGLE SPECIFICATION:
Maximum end angle: 3° Typical end angle: see graph

FIBER TEST SAMPLE:
Corning Glass Works, AT&T, and Northern Telecom. (Single-mode).

High Quality in-field cleaves first time...every time
**Universal Cleaving Tool Specifications**

**Operating Procedure**

1. **Fiber Size:**
   Ensure that the fiber to be broken is a glass fiber of nominal diameter: 125 μm* and buffer O.D. is 250 μm to 1.5 mm *(fiber diameters other than 125 μm can be accommodated — consult factory).

2. **Fiber Preparation:**
   Prepare fiber for cleaving by removing 50 mm (2") of buffer.

3. **Fiber Breaking:**
   Insert fiber into adapter until it stops (fiber should be protruding out of tool), then press clamp down into lock position.

4. **Slide Safety Latch Down:**
   While latch is in down position, squeeze lever until it stops, then release.

5. **Firmly Squeeze Fiber-Breaking Clamp and While Squeezing Slide Clamp Slightly Away from Tool:**
   Remove fiber stub from fiber-breaking clamp and safely discard, then unlock clamp on adapter and remove cleaved fiber.

**Accessories**

For convenience of operation this tool comes complete with the following accessories.

1. **Table Mounting Clamp**
   Insert clamp into hole on tool and mount on table.

2. **Hand Carrying Strap**
   Mount carrying strap clasp to pin at base of tool.

3. **Protective Case**
   Store tool and adapter in case provided.

**Ordering Information**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>92208-TB</td>
<td>Universal Cleaving Tool</td>
</tr>
<tr>
<td>92208BC</td>
<td>Breaking Clamp Replacement</td>
</tr>
</tbody>
</table>