KITCO™
fiber optics

# Military Catalog

KITCO fiber optics

**Our Mission**

**Our mission is to be the leading provider of fiber optic connectorization products, training and services to the military and commercial communications industry. We will do this by exceeding our customer's expectations for service, quality and responsiveness in a way that also benefits our employees, our suppliers and our community. KITCO Fiber Optics will design and deliver products and provide services at the highest standards in our industry, and we will strive to continually improve our business processes to provide our customers a level of service that consistently meets or exceeds expectations.**

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- All statements, technical information and recommendations related to these products, or any products in this catalog, are based on information believed to be reliable, however the accuracy or completeness thereof is not guaranteed. Before using the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability in connection with such use.
- Product images are not to scale.

***KITCO Fiber Optics is a leading provider of fiber optic connectorization products and consulting services to the military and commercial communications industry. We are recognized within the defense industry as fiber optic connectivity experts, and for more than 20 years have customized our products and services to meet strict military standards.***

***We are proud to announce that we are now AS9100: D Certified!***

## *Tools and Tool Kits*

- **Shipboard MIL-C-83522/16 and MIL-PRF-28876 Connector; MIL-PRF-29504/14 and MIL-PRF-29504/15 Termini**
- **Aviation MIL-DTL-38999 Connector, MIL-PRF-29504/04 and MIL-PRF-29504/05 Termini**
- **TFOCA II® Connector Termination and Fusion Splicer Kits**
- **Pierside Connectivity, MIL-PRF-28876 and MIL-83522/16 Connector**
- **BLOLITE ® Shipboard Blown Optical Fiber**

## *Training*

- **Certified NAVSEA Military/Shipboard**
- **Certified Aviation Training**
- **TFOCA II® Ground Tactical Fiber**
- **Pierside Connectivity**
- **Certified BLOLITE® (BOF) Training Course**
- **ETA FOI/FOT Certification Training**
- **NAVSEA Certified Cableway Training**
- **NAVSEA Certified Circular Copper Connector Training**

## *Technical Services*

- **Termination of BOF/Conventional MIL-PRF-85045 Cables**
- **Termination of M28876, M83522/16, M29504**
- **Termination of M38999 and M29504/04/05**
- **Testing and Troubleshooting**
- **Certification/License for BOF**
- **System Repair**
- **INSURV Inspections**

## *Custom Cable Assemblies*

- **Measurement Quality Jumpers (MQJs)**
- **Aerospace Measurement Quality Jumpers (AMQJs)**
- **MIL-PRF-28876 Connector; TFOCA II®, Hermaphroditic, ST, FC, SC, LC, MIL-DTL-38999**
- **MIL-STD-2042C**

***KITCO's Virginia Beach location is AS9100D /ISO 9001:2015 Certified***

# Aviation Termination Kits



## Commercial Aviation Fiber Optic Termination Kit
## Part# 0741-8000

The 0741-8000 Aviation Termination Kit is a multi-purpose kit designed to accommodate commercial air transport fiber optic connectors. This kit can be configured to work with specific aircraft platforms, and contains the single temperature (90º C) epoxy curing oven.

**This kit will allow the technician to terminate and install the following connectors/termini:**

- **ARINC 801 Termini**
- **EN-4531 (ARINC 801) Termini**
- **M29504/04 Pin Termini, 1.6mm**
- **M29504/05 Socket Termini, 1.6mm**
- **ST Style Connectors**
- **LC Style Connectors**
- **ARINC 801 Circular Connectors**
- **ARINC 801 Rectangular Connectors**
- **M38999 Connectors**

# Aviation Termination Kits




## Military and Commercial Aviation Fiber Optic Termination Kit
## Part# 0741-8001

The 0741-8001 Military and Commercial Aviation Fiber Optic Termination Kit is a multi-purpose kit designed to accommodate military and commercial fiber optic connectors. This fiber optic kit will terminate most fiber optic connectors found onboard the aircraft. The 0741-8001 kit contains our programmable epoxy curing oven that allows for a scheduled ramp cure profile. This kit can also be configured to work with specific aircraft platforms.

**This kit will allow the technician to terminate and install the following connectors/termini:**

- **ARINC 801 Termini**
- **EN-4531 (Appendix C) Termini**
- **M29504/04 Pin Termini, 1.6mm**
- **M29504/05 Socket Termini, 1.6mm**
- **ST Style Connectors**
- **LC Style Connectors**
- **ARINC 801 Circular Connectors**
- **ARINC 801 Rectangular Connectors**
- **M38999 Connectors**

# Aviation Termination Kits


## Elio Fiber Optic Termination Kit
## Part# 0741-8005

The 0741-8005 Elio Fiber Optic Termination Kit was designed with input from the Commercial Aviation Transport Industry. This fiber optic kit is designed to terminate the Souriau Elio terminus (EN 4531) for installation into circular and rectangular aerospace connectors.

**This kit contains the following items:**

- **Programable Oven**
- **Epo-Tek® 353ND Epoxy**
- **All required Polishing Films**
- **2.50mm Carbide Tungsten Polishing Puck**
- **200X Handheld Microscope**
- **All required termination tooling**
- **Insertion/Extraction Tools for the Elio Terminus**

# Aviation Inspection and Cleaning Kit


## Aviation Fiber Optic Handheld Inspection and Cleaning Kit
## Part# 0741-8010

The 0741-8010 Aviation Fiber Optic Handheld Inspection and Cleaning Kit, which contains a VIAVI FBP-HD4i display and FBP-P5000i probe was designed with input from the Commercial Aviation Transport Industry. This fiber optic kit is designed to clean and inspect most common types of fiber optic connectors found onboard the aircraft.

**This kit will allow the technician to inspect and clean the following connectors/termini:**

- **M38999 Connectors**
- **ARINC 801 Circular Connectors, 1.25mm**
- **ARINC 600 Rectangular Connectors, 1.25mm**
- **ARINC 801 Rectangular Connectors, 1.25mm**
- **Quadrax Size 8 Connectors**
- **ARINC 801 Termini, 1.25mm**
- **EN 4531 Termini**
- **M29504/04 Pin Termini, , 1.6mm**
- **M29504/05 Socket Termini, 1.6mm**
- **ST/SC/LC Connectors**

# Aviation Epoxy Curing Ovens

## 16-Port Dual Epoxy Oven — Part# 0700-9140

This epoxy oven comes with two 8-port heater blocks and is perfect for heat curing epoxies. It is factory set at 90°C for proper curing.

0700-9140


## Preform Reflow Oven — Part# 0741-1110

The 0741-1100 reflow oven was designed specifically for reflowing preform epoxy. The oven is used primarily for the stainless steel ruby jeweled M29504/04, 1.6mm, and M29504/05, 1.6mm, termini.

0741-1110


## Programmable Curing Oven Assembly — Part# 0721-1305

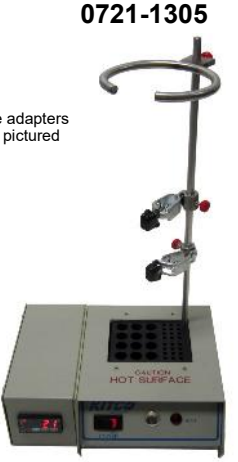
KITCO Fiber Optics designed this oven to allow soaking time and temperature selection for various industry epoxies. The SAE standard recommends curing fiber optic connectors in a programmable oven when building outside of a pressure bulkhead (i.e. - The build is subject to the temperature and pressure changes of an aerial platform during flight.) Ramping of the epoxy will result in a more robust cure for such an environment.

**The assembly contains the following:**

- **Programmable Oven**
- **Oven Heater Block**
- **1.6mm Cure Adapters for M29504/04 and M29504/05 Termini**
- **Cable Stand Post**
- **Cable Stand Ring**
- **Cable Clips**

0721-1305

Cure adapters not pictured




# Epoxy Curing Adapters

| | | |
|---|---|---|
| **M29504/04 and M29504/05** | **NSN# 5935-01-591-3829** | **Part# 0721-1125** |
| **ARINC 801 Cure Adapter** | **NSN# 5935-01-646-6508** | **Part# 0700-1456** |
| **ST Cure Adapter** | **NSN# 6070-01-420-0551** | **Part# 0700-1450** |

0721-1125

0700-1456

0700-1450

# Aviation Epoxy and Adhesives

## Threadlocker Adhesive NSN# 8030-01-055-6126 Part# 0700-5020

0700-5020


The 0700-5020 adhesive is specifically used to secure the M29504/05 socket metal alignment sleeve to the termini after polishing of the endface is completed. If this step is not performed, the alignment sleeve will unscrew while inserting and removing the terminus from the M38999 connector.

## Fast Cure Epoxy Part# 0700-5510

0700-5510


NAVAIR NA01-505-4 manual recommends the technician apply this fast cure epoxy to the base of the Kevlar®, thus preventing "wicking" of the epoxy from the rear of the M29504/04, 1.6mm, and M29504/05, 1.6mm, termini and under the outer jacket.

## Epo-Tek® 353ND Epoxy Part# 0700-5520

0700-5520

This is a two–component, room temperature curing epoxy adhesive. The system will cure at temperatures as low as –18° C (0° F) and has a convenient mix ratio, and excellent cohesive strength.

# Aviation Preparation Tools

## Epoxy Mixing Dish Part# 3300-6005

3300-6005

Mixing dishes are a clean convenient way to mix otherwise messy epoxies, specifically for application with our 0700-5120, Front Injection Tool,

## Stainless Steel Polishing Puck Part# 0721-1530
## NSN# 5120-01-588-2945

This polishing puck will allow the technician to polish 1.6mm termini, M29504/04 pin and M29504/05 socket .

## Epoxy Pipette Front Injection Tool for ARINC 801/Luxcis Termini Part# 0700-5120

0700-5120

This adjustable pipette is used to inject a precise amount of epoxy into the tip of the ARINC 801 termini ferrule. The ARINC 801 termini requires injecting the epoxy from the front, as rear injection will lock up the internal spring and render the termini useless. This front injection tool comes with 25 pistons and capillaries. Replacement boxes of 50 pistons and 50 capillaries are available.

## Pistons and capillaries (50 of each per box) Part# 0700-5122

0700-5122

## Scriber Pick Tool Part# 0700-3340

0700-3340

This pick tool is adapted to segregate the individual strands of aramid yarn when terminating loose structured fiber.

# Aviation Preparation Tools

## Cable Clamp — Part# 0721-1123

This tool was adapted from the medical community to be used as a quick and convenient alternative to the Hardman Double/Bubble® in securing an unterminated fiber in the stripping process.

0721-1123

# Aviation Installation Tools

## Insertion/Extraction Tools

Use to insert and extract rear release M29504/04, 1.6mm, and M29504/05, 1.6mm, Souriau Elio (EN4531), and the ARINC 801 termini. These tools have either plastic or metal tips.

**M29504/04 and M29504/05, ARINC 801 Insertion Tool (metal)** — **Part# 0721-1120**
**M29504/04 and M29504/05, ARINC 801 Ins/Ext Tool (metal)** — **Part# 0721-1121**
**Souriau Elio Ins/Ext Tool (plastic)** — **Part# 0721-1124**
**M29504/04 and M29504/05, ARINC 801 Extraction Tool (metal)** — **Part# 0721-1130**
**M29504/04 and M29504/05, ARINC 801 Ins/Ext Tool (plastic)** — **Part# 0721-1140**
**M29504/04 and M29504/05, Termini Assist Removal Tool (Delrin)** — **Part# 0721-1150**
**NSN# 5120-01-578-3510**

The 0721-1150 Termini Assist Removal Tool is specifically designed to assist the technician extracting a termini by gently pushing the pin or socket termini from the front up over the internal locking ring while using the extraction tool which greatly reduces stress created at the point between the termini and the cable assembly.

0721-1120

0721-1121

0721-1124

0721-1130

0721-1140

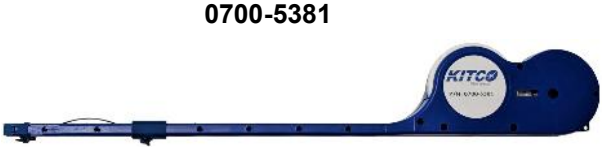
0721-1150

# Aviation Cleaning Tool

KITCO has designed a cleaning tool to be used exclusively on the F-35 Joint Strike Fighter Platform. This long reach tool is needed to clean MTP connectors located in the back of the chassis of the aircraft.

**MTP Cleaning Tool w/Lanyard** — **Part# 0700-5381**
**Replacement MTP Adapter Cap w/Lanyard Assembly** — **Part# 0700-5455**

0700-5381




0700-5455

# Aviation Cleaning Kits

KITCO's fiber optic cleaning kits are designed to clean many styles of termini and connectors. Choose from five different kits depending on which connector/termini you are cleaning.

**Master Cleaning Kit for 2.50mm, 2.00mm, 1.60mm, and 1.25mm ferrule** **Part# 0741-6000**
**Cleaning Kit for 2.50mm ferrule** **Part# 0741-6001**
**Cleaning Kit for 2.00mm ferrule** **Part# 0741-6002**
**Cleaning Kit for 1.60mm ferrule** **Part# 0741-6003**
**Cleaning Kit for 1.25mm ferrule** **Part# 0741-6004**

**0741-6000**


**0741-6001**


**0741-6002**


**0741-6003**


**0741-6004**


*Always CLEAN (and inspect) before you CONNECT!!*

# Aviation Inspection Tools

## Video Display w/Probe

**Part# FBP-SD4i**

Viavi's FBP-SD4i SmartClass™ Video Inspection Kit integrates fiber inspection and test into an efficient solution that promotes fiber-handling best practices and gives technicians flexibility and performance in one easy-to-use device.

**Key features are:**

- **3.5" touch screen display (FBP-HD4i)**
- **200/400x Video Probe (FBP-P5000i)**
- **Store all fiber inspection and test results on board**
- **Easily generate fiber certification reports**
- **Automated pass/fail analysis for fiber inspection and test**
- **Tips include: Universal 1.25 and 2.5mm, SC, LC**


**The following tips to be used with our FBP-SD4i, 0700-8640 Backplane Video Inspection Kit, 0700-8625 Video Probe, 0741-8010 Aviation Fiber Optic Inspection and Cleaning Kit and 0741-8015 Fiber Optic Inspection and Cleaning Kit:**

| | |
|---|---|
| **Viavi M29504/14 (pin) Video Probe Tip** | **Part# 0700-8644** |
| **Viavi M29504/15 (socket) Video Probe Tip** | **Part# 0700-8645** |
| **Viavi ST Bulkhead Video Probe Tip** | **Part# 0700-8646** |
| **Viavi SC Bulkhead Video Probe Tip** | **Part# 0700-8647** |
| **Viavi LC Bulkhead Video Probe Tip** | **Part# 0700-8655** |
| **Viavi Universal 1.25mm Patch Cord Video Probe Tip** | **Part# 0700-8656** |
| **Viavi Universal 2.50mm Patch Cord Video Probe Tip** | **Part# 0700-8657** |
| **Viavi M29504/04, 1.6mm (pin) Video Probe Tip** | **Part# 0700-8659** |
| **Viavi M29504/05, 1.6mm (socket) Video Probe Tip** | **Part# 0700-8660** |
| **Viavi Quadrax (pin) Video Probe Tip** | **Part# 0700-8672** |
| **Viavi Quadrax (socket) Video Probe Tip** | **Part# 0700-8673** |
| **Viavi Standard Barrel Assembly Video Probe Adapter** | **Part# FBPP-BAP1** |
| **Viavi Narrow Barrel Assembly Video Probe Adapter** | **Part# FBPP-BAP3** |

**0700-8644**

**0700-8645**

**0700-8646**

**0700-8647**

**0700-8655**

**0700-8656**

**0700-8657**

**0700-8659**

**0700-8660**

**0700-8672**

**0700-8673**

**FBPP-BAP1**


**FBPP-BAP3**

*Always CLEAN (and inspect) before you CONNECT!!*

# Commercial Aviation Test Equipment

TEMPO COMMUNICATIONS

## Quad Optical Power Meter

**Part# 0705-5520**

The 0705-5520 optical power meter is a rugged, high quality, general-purpose instrument suitable for many fiber optic measurement applications. Paired with LED or laser sources, this optical power meter is ideal for insertion loss testing of multimode and singlemode fiber optic connectors. This power meter can be also used for link loss testing of uninstalled cable harnesses. The 0705-5520 simplifies output power measurements of transmitters and other light sources. The four calibrated wavelengths, indium-gallium-arsenide (InGaAs) photo detector, and wide dynamic range make it suitable for measuring the output of both LED and laser based transmitters. In addition, a broad range of Snap-On Connector (SOC) adapters for both industry standard fiber optic connectors and many less common types, makes this power meter an indispensable tool for aerospace technicians. An ST adapter comes stand with this meter. SOC adapters available separately.

## Dual LED Source

**Part# 0705-5522**

Paired with the 0705-5520 optical power meter, the 0705-5522 is a LED source for testing the insertion loss of multimode fiber and connectors. With output at 850 /1310nm, this source is used with an optical power meter for dual wavelength link loss testing of installed cable plants. The 0705-5522 can be fitted with precision ST, FC or SC connector adapters which ensure maximum accuracy and repeatability when performing critical measurements on fiber optic systems. An ST adapter comes stand with this source. When ordering, please specify desired connector type. Call KITCO for more details.

## Dual Laser Source

**Part# 0705-5512**

Paired with the 0705-5520 laser source the 0705-5512 facilitates certification of aircraft harnesses and installed fiber optic links. The 0705-5512 provides dual 1310/1550µm output for fiber applications . This source can be fitted with precision ST, FC or SC connector adapters which ensure maximum accuracy and repeatability when performing critical measurements on fiber optic systems. An ST adapter comes stand with this source. When ordering, please specify desired connector type. Call KITCO for more details.

## Power Meter and Light/Laser Source Adapters

# *Military Aviation Test Equipment Compliant w/MIL-STD-461E*

TEMPO COMMUNICATIONS

## Quad Optical Power Meter w/EMI Shielding Part# 0705-5525


The 0705-5525 optical power meter is an easy to use, rugged, high quality, general-purpose instrument suitable for military use as the enhanced EMI performance complies with MIL-STD-461E, Method RS103 and tested to 190 V/m. Paired with LED or laser sources, this optical power meter is ideal for insertion loss testing of multimode and singlemode fiber optic connectors. This power meter can be also used for link loss testing of uninstalled cable harnesses. The 0705-5525 simplifies output power measurements of transmitters and other light sources. The four calibrated wavelengths, 1mm indium-gallium-arsenide (InGaAs) photo detector and wide range dynamic wavelengths make it suitable for measuring the output of both LED and laser based transmitters. In addition, a broad range of Snap-On Connector (SOC) adapters for both industry standard fiber optic connectors and many less common types, makes this power meter an indispensable tool for aerospace technicians. An ST adapter comes stand with this meter. SOC adapters available separately.

## Dual LED Source w/EMI Shielding Part# 0705-5535


Paired with the 0705-5525 optical power meter, the 0705-5535 is designed for military use as the enhanced EMI performance complies with MIL-STD-461E, Method RS103 and tested to 200 V/m. With output at 850nm and 1300nm, this source is used with an optical power meter for dual wavelength link loss testing of installed cable plants. The 0705-5535 is fitted with precision ST, FC or SC connector adapters which ensure maximum accuracy and repeatability when performing critical measurements on fiber optic systems. An ST adapter comes stand with this source. When ordering, please specify desired connector type. Call KITCO for more details.

## Dual Laser Source w/EMI Shielding Part# 0705-5545


Paired with the 0705-5525 optical power meter, the 0705-5545 is designed for military use as the enhanced EMI performance complies with MIL-STD-461E, Method RS103 and tested to 200 V/m and facilitates certification of aircraft harnesses and installed fiber optic links. The 0705-5545 provides dual 1310nm and 1550nm output with SAE AS062 launch profile for fiber applications per SAE aerospace standard ARP5061. This source is fitted with precision ST, FC or SC connector adapters which ensure maximum accuracy and repeatability when performing critical measurements on fiber optic systems. An ST adapter comes stand with this source. When ordering, please specify desired connector type. Call KITCO for more details.

## Power Meter and Light/Laser Source Adapters

# Aerospace Measurement Quality Jumpers

KITCO Fiber Optics now offers a solution for testing fiber optic cable harnesses utilizing the MIL-DTL-38999 connectors and rectangular connectors. Until now, reliable Aerospace Measurement Quality Jumpers (AMQJ), or reference cables, were not available to test aerospace fiber optic cables. KITCO's AMQJs are designed to duplicate the mating forces of two mated aerospace fiber optic cables, just as they would be installed on the aircraft platform.

KITCO's multi-channel AMQJs utilize a universal key to allow testing of any keying configurations that may be encountered. Our AMQJs are available in both the standard plug connectors with M29504/04, 1.6mm, pin and standard receptacle connectors with M29504/05, 1.6mm, socket termini. KITCO can also manufacture the plug connectors with socket inserts and receptacle connectors with pin inserts. Another design feature allows us to repair and/or replace individual strands, thereby eliminating a total replacement of the AMQJ and saving time and money.

The table below lists KITCO's standard AMQJ configurations. KITCO Fiber Optics specializes in developing and manufacturing custom AMQJs for most types of aerospace connectors, and we can work with you to develop the correct type of AMQJ for any platform application. **Please call us for additional details!**

| KITCO Part# | Item Description* | Length |
|---|---|---|
| KFO 70000-M01 | ARINC 801 Termini to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70000-M02 | ARINC 801 Termini to ST, 62.5/125µm,multimode | 2 meters |
| KFO 70001-M01 | ARINC 801 to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70001-M02 | ARINC 801 Termini to ST, Loose Structure, 62.5/125µm, multimode | 2 meters |
| KFO 70002-M01 | M29504/04 Termini to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70003-M01 | M29504/05 Termini to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70004-M01 | ST to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70004-M02 | ST to ST, Loose Structure, 62.5/125µm, multimode | 2 meters |
| KFO 70005 | ST to ST, Loose Structure, 100/140µm, multimode | 1 meter |
| KFO 70006 | M29504/04 Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 70007 | M29504/05 Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 70008 | ST to LC, 62.5/125µm, Loose Structure, multimode | 1 meter |
| KFO 70010 | 2-Channel Plug w/Sockets to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70011 | 2-Channel Receptacle w/Pins to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70013 | 2-Channel Receptacle to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70014 | 4-Channel Plug w/Sockets to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70016 | 4-Channel Plug to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70017 | 4-Channel Receptacle to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70018 | ARINC 801 Termini to ST, 8.3/125µm, Loose Structure, singlemode | 1 meter |
| KFO 70019 | ST to ST, 8.3/125µm, Loose Structure, singlemode | 1 meter |
| KFO 70021 | 5-Channel Receptacle w/Pins to ST, 62.5/125µm, multimode | 1 meter |
| KFO 70025 | 2-Channel Receptacle to ST, N-Keyed, 50/125um, multimode | 2 meters |
| KFO 70026 | 2-Channel Plug w/Sockets to ST, 50/125um, N-Keyed, multimode | 2 meters |
| KFO 70027 | 2-Channel Receptacle to ST, A-Keyed, 50/125um, multimode | 2 meters |
| KFO 70032 | ST-M29504/05 Termini to ST, 50/125µm, multimode | 2 meters |
| KFO 70033 | M29504/04 Termini to ST, 50/125um | 1 meter |
| KFO 70040 | 2-Channel ARINC 801 Plug to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70041 | 2-Channel ARINC 801 Receptacle to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70042 | 4-Channel ARINC Plug to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70043 | 4-Channel ARINC Receptacle to ST, Loose Structure, 62.5/125µm, multimode | 1 meter |
| KFO 70060 | ARINC 801 Termini w/Quadrax socket adapter to ST, 62.5/125µm, multimode | 2 meters |
| KFO 70070 | 5-Channel Plug, Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 70071 | 5-Channel Receptacle, Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 70072 | 5-Channel Plug w/Sockets, Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 70073 | 5-Channel Receptacle w/Pins, Ruby Jeweled to ST, Loose Structure,100/140µm, multimode | 1 meter |
| KFO 71015 | 4-Channel Receptacle w/Pins to ST, 50/125µm, multimode | 1 meter |
| KFO 71017 | 4-Channel Receptacle to ST, 50/125µm, multimode | 1 meter |
| KFO 71020 | 4-Channel Receptacle w/Pins to ST, 62.5/125µm, multimode | 1 meter |

**NOTE: Not all connector types are listed. Any of the above part numbers can be customized to meet your specific interface and length requirements, please call for details.**

***Unless otherwise noted, all multichannel receptacle assemblies are manufactured with sockets and all multichannel plug assemblies come standard with pins.**

# Blown Optical Fiber Kits



## BLOLITE® Support Kit for Shipboard Blown Optical Fiber
## Part# 0745-1010



The 0745-1010 Shipboard BLOLITE® Support Kit contains all the tools needed to support the actual blowing of shipboard blown optical fiber. This kit enables the installer to switch out inlet guides, as well as test the Microduct. Specialty wrenches, sign-off sheets, cleaning wires, tube cutters, duct test head, and a new and improved SpadeLok™ Duct Connector Tool is included in this support kit. All tools are protected in a rugged, custom carrying case.

**This kit contains the following items:**

- **Adjustable Wrench**
- **Tube Cutters (5mm and 8mm)**
- **Jacket Strip Tool**
- **Side Cutters**
- **Safety Glasses**
- **Hex Wrenches (3 mm and 5mm)**
- **Duct Test Head**
- **8mm Blowing Output Connector**
- **End Duct Trap**
- **Flexible Air Hose**

**..and many more**

## BLOLITE® Duct Testing Kit for Shipboard Blown Optical Fiber
## Part# 0745-1020



The 0745-1020 Duct Testing Kit contains all the tools needed to set up the new Air Supply Conditioning Unit and to test the pressurized duct for leaks and blockage. Wrenches, tube cutters, duct test head, projectiles, remote end duct connectors and all support tools for 8mm and 5mm are included. All tools are protected in a rugged custom carrying case.

**This kit contains the following items:**

- **Adjustable Wrench**
- **Sign Off Sheets**
- **Side Cutters**
- **Tube Cutters (5mm and 8mm)**
- **Duct Test Head**
- **End Duct Trap**
- **Flexible Air Hose**
- **Blowing Output Connectors (5mm and 8mm)**
- **Projectiles (2.5mm and 4.5mm)**
- **ACU Blowing Hose Head**
- **Spadelok Duct Connector Tool**

**..and many more**

# Blown Optical Fiber Kits

## Casualty Restoration Kit Navy Shipboard Fiber Optic Kit
## (Emergency Repair Kit for 8mm, 7 Tube Shipboard Multiduct, Blown Optical Fiber)

**Part# 0701-8000 NAVSEA Drawing# 7344573**

**NSN# 6080-01-659-2034**

The 0701-8000 Shipboard Casualty Restoration Kit is designed to enable the installer to quickly restore a completely severed section of BOF (Blown Optical Fiber). Eight (8) 100 foot jumpers of low smoke, zero halogen duplex shipboard COTS (Commercial off the Shelf) jumpers are included in the Shipboard Casualty Restoration Kit. These jumpers have M83522 ST connectors pre-installed on both ends to allow the technician to simply "plug and play." In a case where Blown Optical Fibers have been severed this kit includes 2 furcation units and all tools necessary to install these units to prepare the blown fiber for connectorization. Light Crimp Plus connectors and coupling adapters are also included as well as all appropriate connectorization tools. A rugged custom carrying case with shoulder strap protects all components and tools.

**This kit contains the following items:**

- **LightCrimp Plus Tools**
- **100 ft LSZH Duplex Singlemode Jumpers**
- **100 ft LSZH Duplex Multimode Jumpers**
- **8-Channel Furcation Unit**
- **LightCrimp Plus Connectors**
- **Headband Light**
- **Visual Fault Locator (VFL)**
- **Safety Glasses**

**… and many more**

# Blown Optical Fiber Accessories



## Straight Tube Coupler

This coupler features locking collars to prevent accidental disconnection and is installed onto 8mm Microduct tubing.

**8mm** NSN# 6060-01-528-0633 Part# 0745-2350
**5mm** Part# 0745-2340

0745-2350

0745-2340

## 8mm T Coupler NSN# 6060-01-552-8215 Part# 0745-2352

This coupler also features locking collars to prevent accidental disconnection and is used to check the pressure when blowing the optical fiber. Maximum operating pressure is 10 bar (g) or 145 psi.

0745-2352

## 8mm - 5mm Reducer Part# 0745-2355

It is necessary, when transitioning from 8-millimeter to 5-millimeter tubing to perform fiber blowing operations prior to attaching 5-millimeter tubing to blow paths. The 5-millimeter tube is used only to permit transition for improved routing and immediate termination inside the splice tray. This transition shall take place in protective enclosures (FOICB).

0745-2355

## Tube End Plug

Tube End Plugs fit securely into the 8mm Duct Connector to prevent contamination after Microduct are installed.

0745-2335

**8mm** NSN# 4730-01-561-4180 Part# 0745-2335

## SpadeLok™ 5mm/8mm Duct Coupling Tool Part# 0745-2280

0745-2280

The 0745-2280 SpadeLok™ Duct Connector Tool is a precision tool designed for locking and removing the Duct Connectors onto the BLOLITE® Microduct. By wedging the SpadeLok™ between the housing of the connector and the collet, the installer guarantees that the connector is tight and secure. To remove the Duct Connector, simply turn the tool around and use it to push the collet in to release the Microduct.

## Blowing Output Adapter

0745-2110

Blowing Output Adapters allows the installer to interface between the Duct Test Head and the Microduct.

**5mm Blowing Output Adapter** Part# 0745-2110
**8mm Blowing Output Adapter** Part# 0745-2120
**NSN# 6060-01-652-8391**

0745-2120

## Duct Test Head Part# 0745-2100

0745-2100

The 0745-2100 Duct Test Head interfaces between the Air Supply Conditioning Unit and the Microduct. Shut-off valves allow the installer to control the flow of air and a pressure gauge allows the installer to monitor the pressure being applied. This requires the Blowing Output Adapter, 0745-2120.

## Remote End Duct Projectile Trap, 8mm Part# 0745-2135

0745-2135

This device attaches to the far end of the Microduct. A shut-off valve stops the flow of air to allow the installer to pressure test the duct. When the valve is opened, a fiber optic projectile can be blown through the Microduct to check for a blockage. A removable reservoir safely catches the projectile.

# Blown Optical Fiber Accessories

## Tube Cutters/Jacket Slitter

The BOF Tube Cutters are specially designed to cut the Microduct at a 90° angle, which is necessary for duct connector installation. BOF Tube Cutters are available for 5mm and 8mm cable.

**5mm Tube Cutter** — **Part# 0745-2300**
**8mm Tube Cutter** — **Part# 0745-2310**
**Replacement Blades for 0745-2300 and 0745-2310** — **Part# 0745-2320**
**5mm and 8mm Tube Cutter** — **Part# 0745-2315**
**Replacement Blades for 0745-2315** — **Part# 0745-2319**

Our 0745-1245 Jacket Slitter is design to slit the jacket for the 7-way BOF tubing, M85045/25-01E.

**Jacket Slitter 1.0" - 1.4"** — **Part# 0745-1245**

0745-2300

0745-2310

0745-2315

0745-1245

## Air Blown Test Valve Assembly — Part# 0745-2155

KITCO's Air Blown Test Valve Assembly is composed of an 8mm, ten inch long, clear tube with an air valve on one end. Simply install the Microduct "tee" coupling and attach the Microduct Air Gauge, 0745-2145, to the air valve to check the Microducts' internal air pressure.

0745-2155

0745-2145

## Microduct Digital Air Gauge — Part# 0745-2145

KITCO's digital air gauge simplifies testing air blown Microduct. Our gauge reads up to 160 psi in increments of 0.50 psi. Used with our 0745-2155 Air Blown Test Valve Assembly, testing air blown microducts is a breeze.

0700-5065

## *Sealant Tape NSN# 5970-01-286-7457 — Part# 0700-5065

This tape is used to seal around the optical fibers inside the tapered tube plug.
***This tape is packaged in a 300" roll however is it sold in 1" x 1/16" thick pieces.**

## Tapered Tube Plugs

Tapered tube plugs are used to hold the optical fibers in place when attaching furcation units to the blown fiber microduct.

0745-2325

**8mm Tapered Tube Plug** — **Part# 0745-2325**
**5mm Tapered Tube Plug** — **Part# 0745-2324**

0745-2324

## Inlet Guides

0745-2180

Used as the entry point to the blow-head, the purpose is to provide a transition from the fiber reels and guide the fibers onto the tractor belts where they are pushed into the pressure chamber before being routed into the cable microducts. The inlet guides come in sizes ranging from 4 to 12 ports.

0745-2190

**4-Fiber Inlet Guide** — **Part# 0745-2180**
**8-Fiber Inlet Guide** — **Part# 0745-2190**
**12-Fiber Inlet Guide** — **Part# 0745-2195**

0745-2195

# Blown Optical Fiber Accessories

## Duct Testing Projectiles

These projectiles are used to ensure BOF tubes are clear and free of any obstructions. The 4.5mm projectile is used for the initial test and the 2.5mm projectile is used to clear the 4.5mm projectile if it is stuck inside the BOF tube.


**4.5mm Projectile (100 per pkg)** **Part# 0745-2160**
**2.50mm Projectile (100 per pkg)** **Part# 0745-2165**

## Blown Optical Fiber Furcation Units

KITCO Fiber Optics manufactures U.S. Navy Shipboard approved furcation units. These units consist of low smoke, zero halogen 2.4mm furcation tubing that surrounds Kevlar® and a 650mm (ID), 900mm (OD) hollow tube. One end of the unit is strain relieved with polyethylene tubing, shrink tubing and an aggressive epoxy. An 8mm BOF (Blown Optic Fiber) tube is also epoxied inside the shrinkable tubing to allow the installer to couple the furcation unit with the existing duct work. After sliding the 500mm Blown Optical Fiber down the hollow tube, the installer can utilize the Kevlar® and jacket to properly connectorize shipboard ST and/or SC connectors in accordance with MIL-STD-2042C. Immediately available in a 4 fiber, 2 meter configuration, 8 fiber, 2 meter and 3 meter configurations, and 12 fiber 1.8 meter configuration
**Limited configurations available upon request.**

**0705-8120**

**0705-8130**

| | | |
|---|---|---|
| **4 fiber, 2 meter** | **NSN# 6080-01-525-1214** | **Part# 0705-8120** |
| **8 fiber, 2 meter** | **NSN# 6080-01-525-1216** | **Part# 0705-8130** |
| **8 fiber, 3 meter** | | **Part# 0705-8130-M03** |
| **12 fiber, 1.8 meter** | | **Part# 0705-8140** |

# Fusion Splice Trays, Holders and Protection Sleeves

## Splice Tray w/Aluminum Cover NSN: 6080-01-578-9832
**Part# 0732-1106**
**NAVSEA Approved**

**0732-1106**


KITCO's Fiber Splice trays are designed to provide complete protection for delicate stripped fibers and splices for all types of fiber cable configurations and are designed to meet MIL-I-24728/8A specifications. The aluminum trays are five inches wide to provide enhanced fiber managements and are offered with a snap–on cover. Crimp tabs and tie-down holes make it easy to secure all types of fiber and fiber sub-units. The trays also feature mounting thru-holes for installation into enclosures and higher density stacking.

## Splice Sleeve Holders (1 pair) Part# 0732-1113
**NAVSEA Approved**

**0732-1113**

KITCO's Splice Sleeve Holders are designed to accommodate our standard fusion splice protection sleeves. These flexible and high quality silicone rubber devices can accommodate up to 12 splice sleeves and come with a high-peel strength 3M™ brand adhesive for easy application to almost any surface. Engineered to eliminate the concerns of water absorption, these holders may also be used for securing a variety of other types of

## Standard Series Fusion Splice Protection Sleeves (40mm)
**Part# 0703-3775**
**NAVSEA Approved**

**0703-3775**


KITCO's "Standard Size" fusion splice protection sleeve is designed to provide a robust performance and meet all MIL-PRF-24623/6A specifications. These sleeves have an after shrink diameter of 2.9mm and will accommodate fiber diameters up to 1.4mm. The splice protection sleeves are constructed with an inner EVA (Ethylene-Vinyl Acetate) meltable adhesive tube; stainless steel strength member and a polyolefin heat shrink outer tube.

****Sleeves are sold individually**

# Ground Tactical Military/Commercial Fiber Optic Product Line

The purpose of this introduction is to explain what is meant by TFOCA II®, GFOCA, DFOCA, QFOCA, TFOCA® Gen X, and MFOCA, and help the Warfighter understand what role KITCO Fiber Optics plays in providing the training and sustainment of all aspects of this industry from an unbiased point of view.

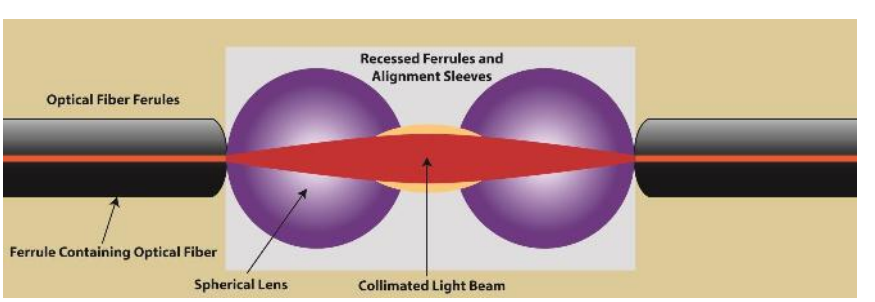
In early 1995 the United States Marine Corps, by the direction of MARCORSYSCOM (Marine Corp System Command), Quantico. VA, directed KITCO to design and manufacture a fiber optic termination kit that would allow the Warfighter to "connectorize", ST connectors, the Dual Biconic Hermaphroditic, the new TFOCA II®, or Tactical Fiber Optic Cable Assembly which is a four fiber, hermaphroditic (genderless), plug. This TFOCA II® is still used today by the United States Army. The reason the Marines asked KITCO for assistance is because of our previous involvement with NSWC, Dahlgren (Naval Surface Warfare Center, Dahlgren). KITCO had just assisted NSWC in writing the MIL-STD-2042 (SH), inventing MQJs (Measurement Quality Jumpers), writing the curriculum and offering a successful 5-Day Hands-On Shipboard Class, and outfitting every ship in the fleet with multipurpose fiber optic tool kits for the United States Navy.

AFSI (Amphenol Fiber Systems International) invented and patented the TFOCA II® hermaphroditic connector line in 1999 and was reviewed and renewed in 2009. A MIL-PRF-83526/16-17 committee was formed and meetings were held at the Defense Logistics Agency (DLA) in Columbus Ohio and various interested manufacturers, including KITCO Fiber Optics attended these meetings. After more than two years a MIL-PRF-83526/16-17 was written. Unfortunately, shortly after the draft was completed for the connector and the M29504 Termini, certain manufacturers withheld vital information that prevented completion and the release of the M83526 drawing that would make it an official DLA specification. However, KITCO Fiber Optics is extremely diligent and communicates with each connector and cable manufacturer on a constant and regular basis. For example, during an original committee meeting KITCO, by a unanimous vote, DLA decided to adopt the MIL-STD -2042 (SH) US Navy method of polishing, cleaning, inspecting, and the use of Measurement Quality Jumpers. The kits we have designed and offer in our product line support the entire Tactical Fiber Optic Cable Assembly product offering, including: TFOCA II®, (AFSI), GFOCA (Glenair®), COTS83526/16-17(OCC), TFOCA® Gen X (STRAN), DFOCA (Aptiv, formerly Delphi), and QFOCA (QPC). While there is not an official specification from DLA and the M83526/16-17 DRAFT has been withdrawn, all of the manufacturers above have the original COTS drawings and all have a commercial drawing that claims interoperability and compatibility within the industry. The United States Army through the auspices of PEO C3T and CECOM (Communications-Electronics Command), has selected the TFOCA II® and M85045/8A as the cable of choice for their WIN-T (Warfighter Information Network-Tactical) and TOC (Tactical Operations Center) Programs.

## What is MFOCA?

Approximately five years ago the United States Marine Corps decided to begin using Expanded Beam MFOCA fiber optic cable and connectors throughout their battlefield Networks, including almost every aspect the legacy Dual Biconic, Hermaphroditic product mentioned above. This connector was replaced with the TFOCA II® for many but now MARCORSYSCOM has decided to utilize the fully approved MIL-DTL-83526/20-21 Connector and a MFOCA Cable. The connector is, once again a genderless (hermaphroditic) connector shell that in most cases houses four "jeweled glass balls" that collimate and re-collimate the light from lens to lens. This unique process eliminates the necessity of having a "physical contact" connector", in other words, the end faces of the connector do not touch each other. Any sand, dirt, debris, or any other contaminants captured between the end faces are now less likely to ruin the expensive reel of fiber and cleaning of this connector can be accomplished by simply washing it off in any source of liquid, even in a dirty puddle of water! Inspection of this connector can be done with a simple eye loupe.

The fiber that this connector series gets its name is of the MIL-PRF-85045 variety and it contains two single mode and two multimode fibers, hence, "Mixed Mode Fiber Optic Cable Assemble". Unfortunately, the two multimode fibers that MARCORSYSCOM asked DLA to specify are 50/125 while the four TFOCA II® fibers that the Army uses is 62.5/125. The other two fibers of the MFOCA is 9/125, single mode. KITCO Fiber Optics is already making contingency plans that will offer conversion kit that will allow the two reels to become compatible in the near future as the Joint Warfighter efforts continue.



## Operation Pinpoint

Before the Warfighter can fix the fiber reel, whether it is a connector problem or a fiber problem, the first thing they must do is find the break. The equipment used to accomplish this is called an OTDR (Optical Time Domain Reflectometer). In simple terms, the OTDR projects a light down the fiber under test and when it "hits" the broken areas it measures the time it takes to return to the origin.

Operation Pinpoint is a new and innovative backpack kit that includes a powerful Viavi T-BERD 2000 OTDR and all the proper launch cables to locate a break in any reel of TFOCA II® and/or MFOCA reel of fiber. Not only do these TFOCA II® kits contain a military grade, ruggedized OTDR, but they also contain the correct HQLCs (High Quality Launch Cables), the correct length and interface as specified by the DoD. All cleaning and inspection supplies are included and the OTDR is protected with a "case within a case" concept. A hard copy of an easy to follow manual and DVD is included to make it easy for the Warfighter to instantly use this new backpack.

## Operation Pigtail

Not only is it very difficult to sustain a reel of TFOCA II® and/or MFOCA in the field, expensive and time consuming training is required to do so. Even then KITCO highly recommends that the repair (sustainment) be done at the depot level which involves a long life cycle. KITCO Fiber Optics does offer a full blown TFOCA II® Hands-On 5-Day Certified Training Class and is eager to accommodate the United States Army in any way feasible. The advantage of our training, of course, is that we are unbiased, and we train on the entire family of "FOCAs" as listed above, so no matter which connector the Warfighter is confronted with they will have the proper tools and knowledge to accomplish any vendor's product. MFOCA is very different from the perspective that when the Marine's committed to this product they had no contingency plan to either train or equip the Warfighter to sustain the reels of fiber. Now that some of the 5,500 reels that have been in the field have begun to deteriorate they have asked KITCO for a solution and we have launched "Operation Pigtail".

KITCO had already invented a four fiber fusion splice kit that would simultaneously strip, cleave, fuse, and protect two single mode and/or two multimode fibers. KITCO also had designed the JPS-400 which can survive a 68 ton tank skid (please Google "JPS-400 Tank-You Tube). **Note:** *Both of these products are found in this catalog.* The innovative idea of "Operation Pigtail" is to place six each of the TFOCA II® type pigtails, 10 feet long, 6 each of the JPS-400s, Quad Fusion Splicer with all the necessary accessories, and include a KITCO Sustainment Enclosure (KSE). All of this equipment is placed in an easy to carry backpack! There is absolutely no training necessary for the entire process of "Operation Pigtail". Step-by-Step instructions are embedded in the fusion splicer and there is also an accompanying hardcopy manual and DVD.

The KSE can be set up in about 15 minutes and two Warfighters (one from each end) can splay open the rest of the backpack pack, cut off the broken TFOCA II® or MFOCA connector and fusion splice on a brand new, factory polished, low–loss connector in a matter of minutes! This can be accomplished even at night, in the middle of the desert as two high powered miner's headlamps are included in the kit.

Fusion Splicing is not new to the Army, nor is it new to the Marine Corp. However, they have traditionally used their fusion splicers that KITCO has sold them to do in line splicing only. The splicing of pigtails has just occurred recently due to the fact that it not feasible to fix a TFOCA II® or MFOCA connector "in the field". Now with this unique and innovative method, the Army and Marine's are poised, for the first time, to sustain TFOCA II® and MFOCA instantly and quickly get their communications "good to go" Find the break - Operation Pinpoint, Fix the break - Operation Pigtail!

# TFOCA II® Military/Commercial Tool Kit

**Part# 0831-8000 TFOCA® Pigtail Kit**
**Part# 0831-8025 MFOCA Pigtail Kit**

KITCO introduces a full line of TFOCA II® pigtail sustainment kits, backpacks, tools, and accessories. TFOCA II® is KITCO's version of the MIL-DTL-83526/16 (DRAFT) of the Tactical Fiber Optic Cable Assemblies found in the harsh battlefield environment of the United States Army worldwide. Since re-termination is too difficult and expensive, KITCO has developed an efficient and easier way to utilize a Quad fusion splicer to splice a factory polished, low loss pigtail in a matter of minutes.

KITCO Fiber Optics manufactures a complete line of military ground tactical sustainment kits. The United States Army utilizes the MIL-DTL-83526/16 (DRAFT) Hermaphroditic Tactical Reels of Fiber in their WIN-T (Warfighter Information Network-Tactical) and TOC (Tactical Operations Center). These multiple pin and socket connectors are difficult to repair at the unit level especially without the proper training and without the necessary tools and tool kits. If you consider the harsh environment of WIN–T, it is impossible to re-terminate a TFOCA II® hermaphroditic plug in a harsh desert environment. The only option is to replace the reel and send the broken reel back to a depot to be repaired or stockpiled.

After extensive research, KITCO has a solution not only to the sustainment of the M83526/16 (DRAFT) reels of fiber, but also enables the ARMY to enhance their Network Enterprise by populating it with more fiber thus enhancing it with exponentially more bandwidth and make it practically imperious to cyber attacks. With the advent of the 0831-8000 WidgCO™ BackPack and KSE (KITCO Sustainment Enclosure), WIN-T can expand more fiber in the battlefield. No expensive training is necessary and the Army can "own" the maintenance of theses products. The 0831-8000 contains a Quad (4 fiber) Splicer, 6 TFOCA II® M83526/16 (DRAFT) "Pigtails", 6 JPS-400 Jacket Protection Sleeves, 50 ea. Glass Protection Sleeves, and all preparation, cleaning, and inspection equipment to splice a pigtail to sustain a broken connector or rejuvenate an in line splice. Now the Ground Tactical Warfighter can set up the KSE in almost any harsh environment, even at night, and commence to cut off a broken plug/receptacle and fusion splice on a factory polished, low loss, high quality pigtail in a matter of moments.

This backpack kit contains the following items:

- Quad Fusion Splicer (Four Fiber, Single Mode and/or Multimode Splicing Simultaneously)
- Precision Cleaver
- TFOCA II® Pigtails
- MFOCA Pigtails
- JPS-400, Jacket Protection Sleeve
- Fusion Splice Sleeves, Dual and Quad
- FiberSure™ Strip Tool
- TFOCA II® Jacket Strip Tool
- Visual Fault Locator
- Kevlar Shears
- Cleaning Wipes
- JPS-400 Wrench
- 7/16 Combination Wrench
- Miners Headlamp
- Channellock® Pliers
- ODM Video Probe Inspector

# MFOCA (Expanded Beam) Military/Commercial Tool Kit

**Part # 0831-8010**

KITCO supports a full line of MFOCA (Expanded Beam) pigtail sustainment kits, backpacks, tools, and accessories. MFOCA (Expanded Beam) is KITCO's version of the MIL-DTL-83526/20-21 Expanded Beam, Mixed Fiber Reels that the Marine Corps has fielded over 5,000 reels worldwide. Since re-termination is too difficult and expensive, KITCO has developed an efficient and easier way to utilize a Quad fusion splicer to splice a factory polished, low loss pigtail in a matter of minutes. The Marine Corps Mixed Fiber or Mixed Mode Fiber Reels has four fiber that meet the MIL-85045/8A specification and contains two single mode fiber and two multimode fiber in the same ruggedized jacket. The unique fusion splicer will spice the two single mode and the two multimode fiber at the same time and the ancillary products will prep and protect all four fibers as well. This Pigtail Kit also has the same detachable KSE (KITCO Sustainment Enclosure) as is found in the Army's 0831-8000 Pigtail Kit described above. This enclosure provide a clean environment free from moderate wind and sand. Two powerful miner's headlamps allow in line fusion splicing or the splicing of factory polished, low loss pigtail, even at night in harsh environments.

This MFOCA (Expanded Beam) Backpack kit contains the following items:

- Quad Fusion Splicer (4 fiber, Single Mode and/or Multimode Simultaneously)
- Precision Cleaver
- MFOCA (Expanded Beam) Pigtails, 10', 4 Fiber (2 Fiber, 50/125 micron, 2 Fiber 9/125 micron), MIL-DTL-83526/20-21
- JPS-400, Jacket Protection Sleeve
- Fusion Splice Sleeves, Dual and Quad
- FiberSure™ Strip Tool
- MFOCA (Expanded Beam) Jacket Strip Tool
- Visual Fault Locator
- Kevlar Shears
- Cleaning Wipes
- JPS-400 Wrench
- 7/16 Combination Wrench
- Miners Headlamps
- Channel Lock Pliers
- ODM Video Probe Inspector

# Portable OTDR, Cleaning and Inspection Backpack Kit

**Part # 0831-8050**

## "Operation Pinpoint"

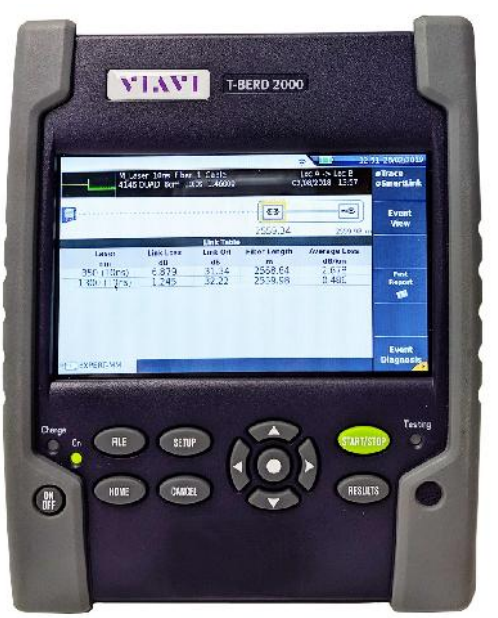
This Portable OTDR Kit contains a powerful, yet compact OTDR, a Video Inspection Probe, all appropriate High Quality Launch Cables (HQLCs) required by the Warfighter tasked to sustain Tactical Fiber Optic Reels (TFOCA II®), M83526/20-21 (DRAFT) (Expanded Beam) connectors, and all cleaning supplies to clean the end-faces of any connector the Warfighter may encounter.

This kit is specifically designed to *find any break* in any fiber the Warfighter may find. When the break is discovered KITCO highly recommends sustainment via "Operation Pigtail" by Fusion Splicing with our 0831-8000 Portable Fusion Splice Backpack.

This 0831-8050 Portable OTDR, Cleaning & Inspection Backpack kit contains the following items:

- High Resolution T-BERD 2000 OTDR
- 200/400x Probe
- Singlemode and Multimode HQLCs (High Quality Launch Cable)
- Cleaning Sticks
- Cleaning Spray
- Cleaning Wand

***See page 13 for a list of probe tips**



# Pigtail Consumable Replacement Kit

The 0831-8015, TFOCA II® and the 0831-8020, MFOCA Pigtail Replacement Kits contains the pigtails, fusion splice sleeves, and JPS-400 Jacket Protection Sleeves that are used to sustain TFOCA II® and MFOCA reels of fiber found in the Army and Marine battlefield environment. Each KITCO kit previously ordered has an easy to understand "kit key" listing each individual part number to re-order every individual part. However, these replacement kits allow the Warfighter an easy and effective way to replace the pigtails and protection products in bulk to save time and expense.

## TFOCA II®

**Part# 0831-8015**

**Quantity: 6**

**Quantity: 1**

**Quantity: 6**

## MFOCA (Expanded Beam)

**Part# 0831-8020**

**Quantity: 6**

**Quantity: 1**

**Quantity: 6**

# Ground Tactical Military/Commercial Fusion Splice Kit



## Quad Universal Splice Kit
**Part# 0831-1119**

The 0831-1119 is a Universal, Fusion Splice Kit. The splicer is designed to splice single, dual, or even all four TFOCA II® fibers simultaneously. This feature demonstrates a tremendous cost savings by allowing the technician to splice any fiber configuration using "pigtails". Systems may be made functional in a matter of moments - even in battlefield environments.

**This kit contains the following items:**

- **Quad Fusion Splicer**
- **Tweezers**
- **Wrenches**
- **Pliers**
- **Ruler**
- **Dual Splice Protection Sleeves**
- **Quad Splice Protection Sleeves**
- **Visual Fault Locator (VFL)**
- **Torx Driver**
- **Stripping Tools**
- **Kevlar Shears**

## TFOCA II® Termination/Fusion Splice Kit
**Part# 0831-8230**
**NSN# 5180-01-503-8251**

The 0831-8230 is a Combination Termination/Fusion Splice Kit. This kit will terminate the following connector types:

- **TFOCA II® Connectors: AFSI, AOS, Delphi, Glenair, QPC, STRAN Technologies**
- **M83522/16 ST Connectors**
- **SC Connectors**
- **LC Connectors**

**This kit contains the following items:**

- **Quad Fusion Splicer**
- **Termination Tools**
- **Fusion Splice Sleeves**
- **Military Oven**
- **Consumables**
- **Inspection Tools**

**...and many more!**

# Ground Tactical Military/Commercial Fiber Optic Tool Kit

## TFOCA II® Military/Commercial Fiber Optic Termination Kit

**Part# 0831-8235**

**NSN# 5180-01-574-5828**

The 0831-8235 is a Universal Connector Kit that will allow the Warfighter to replace or repair any style of ST, SC, LC or TFOCA II® connector they may encounter. A unique dual purpose oven, special universal crimping tool with interchangeable dies, and all other materials to maintain any connector found in theater are included.

**This kit contains the following items:**

- **Templates**
- **Cure Adapters**
- **Polishing Tools**
- **Crimp Tool**
- **Crimp Tool Dies**
- **Consumables (Polishing Paper, Epoxy, Syringes w/Needle Tips, Wipes)**
- **Kevlar Shears**
- **Stripping Tools**
- **Primer/Adhesive**
- **Epoxy**
- **Microscope**
- **Hot Melt and Epoxy Curing Oven**
- **Safety Mat**
- **Safety Glasses**

**… and much more**


# Ground Tactical Military/Commercial Inspection, Cleaning and Test Platform Kit

## Ground Tactical Military/Commercial – Inspection, Cleaning, and Test Platform Kit

**Part# 0831-8245**

**NSN# 5180-01-574-5887**

The 0831-8245 Inspection, Cleaning and Test Platform Kit contains a fully functional and portable OTDR (Optical Time Domain Reflectometer) that allows the Warfighter to immediately find excessive bends or breaks in any fiber optic link. A Quad Light Source for LED and LASER wavelengths is included as well as all necessary HQJs (High Quality Jumpers). Inspection Probe tips are included to allow inspection of endfaces of multiple termini (TFOCA II®), first and second generation connectors without disassembling them. All cleaning supplies such as swabs, wipes and fiber optic cleaning fluid are also included in this kit.

**This kit contains the following items:**

- **OTDR**
- **Light Source**
- **Power Meter**
- **Video Probe**
- **Probe Tips**
- **Cleaning Supplies**
- **HQRCs for Light Source/Power Meter**
- **HQLCs for OTDR**
- **Couplings**

# Ground Tactical Inspection Equipment

## Fiber Inspection Probe System

**Part# 0700-8222**

Using a Fiber Inspection Probe to ensure that connectors/adapters are clean and exempt of any defect is where accurate testing starts. With the 0700-8222 Fiber Inspection Probe System, the Warfighter can check connectors and other fiber terminations for polish quality and cleanliness. Benefit from the best optical resolution in the industry and see scratches and dirt particles as small as 1µm. The probe also uses a USB converter to send image captures to a portable platform or a PC.


- **Handheld Display w/7" screen**
- **Dual 200x/400x Magnification Probe**
- **Rechargeable Battery and Power Supply**
- **Universal 1.25 and 2.5mm Patchcord Tip, LC and SC Tip**
- **Soft Carrying Case**

# Ground Tactical Termination Tools

## Corning Pretium® Cleaver w/Diamond Blade

**Part# 0703-3740**

## Corning Pretium® Installation Tool

**Part# 0703-3745**

The 0703-3740 Cleaver is a companion product to the Corning 0703-3745 Pretium® Unicam® Installation Tool. The Corning Pretium® ST, SC, and LC style connectors are usually referred to as No Epoxy, No Polish (NENP) products.

These connectors are set with epoxy and "factory polished" which results in extremely low dB loss. An index matching gel material is also injected into these connectors so when the Warfighter cleaves and inserts the 90° angled fiber into the connector (utilizing the Pretium® Installation Tool) the connection is automatically completed. The Pretium® Installation Tool has a built-in Visual Fault Locator (VFL) that instantly verifies a successful connector installation. The Warfighter no longer has to wait for an oven to heat up or bother with mixing messy epoxy. An average connector can be completed from start to finish in well under 5 minutes

**0703-3740**

**0703-3745**

# Ground Tactical Termini

The TFOCA II™ termini are designed to meet MIL-DTL-83526/16 (DRAFT) specifications. Built around a 2.5mm zirconia ferrule, these termini are genderless and offer singlemode or multimode performance.

**0204-7105**

# Ground Tactical Support Tools

**0700-4620**

## TFOCA II® Spanner Wrench

**Part# 0700-4620**

**NSN# 5120-01-564-3558**

The 0700-4620 TFOCA II® Spanner Wrench is used to insert and remove the insert nut from the TFOCA II® connector receptacle.

# Ground Tactical Support Tools

## TFOCA II® Spring Compression Insertion and Removal Tool (SCIRT)

**Part# 0731-1132**
**NSN# 5120-01-564-3546**

0731-1132

The 0731-1132 Spring Compression Install and Removal Tool (SCIRT) is used to insert and remove the termini from the retaining plate for TFOCA II® connectors.

## TFOCA II® Plate Insertion and Removal Tool (PIRT)

**Part# 0700-4625**
**NSN# 5120-01-564-3562**

The 0700-4625 Plate Insertion and Removal Tool (PIRT) is used to insert and remove the insert from the TFOCA II® connector receptacle.

0700-4625

## TFOCA II® Flare Nut Wrench

**Part# 0700-4610**
**NSN# 5120-01-428-8291**

0700-4610

The 0700-4610 Flare Nut Wrench is used to remove the strength member wedge pack from the strain relief housing inside the TFOCA II® connector.

## Lanyard Crimp Sleeve Tool

**Part# 0731-1160**
**NSN# 5120-00-170-7938**

0731-1160


The 0731-1160 Lanyard Crimp Sleeve Tool is used to crimp the lanyard crimp sleeve onto the lanyard for the TFOCA II® dust cap.

## TFOCA Splice Enclosure (JPS-400)

**NSN# 6070-01-527-2509** **Part# 0731-1170**

The 0731-1170 TFOCA II® TFOCA Splice Enclosure (JPS-400) was designed by KITCO Fiber Optics and the U.S. Marine Corps to allow the Warfighter to properly protect the M85045 Tactical Fiber Optic Cable after it has been spliced. This extremely rugged yet completely flexible jacket protection sleeve assumes the contour of the diameter of the fiber reel.

The JPS-400 can be easily disassembled and reused if a mistake is made during the initial protection process or if rework is required, making this splice protector perfect for the battlefield environment.

This product should be used in conjunction with the 0831-1119 Splice Kit.

0731-1170

# Ground Tactical Support Tools

## TFOCA II® Splice Enclosure Nut Wrench
**Part# 0731-1210**
**NSN# 1240-01-540-3763**

0731-1210

The 0731-1210 TFOCA II® Splice Enclosure Nut Wrench allows the end cap to thread completely onto the connection fitting on the TFOCA II® Jacket Protection Sleeve (JPS-400).

## TFOCA II® Jacket Strip Tool
**Part# 0700-3055**
**NSN# 5110-01-564-3559**

0700-3055

The 0700-3055 Jacket Strip Tool was designed from input by the Warfighters to enable them to easily strip and remove the outer jacket of the M85045/8A TFOCA II® ruggedized cable. Two opposing razor-sharp blades sink just deep enough to split the tough jacket without damaging the buffer, tangling the Kevlar, or harming the fiber.

## Dual Hot Melt Epoxy Oven w/Automatic Shutdown
**Part# 0700-9151**
**NSN# 7310-01-646-2784**

0700-9151

The 0700-9151 Dual Hot Melt Epoxy Oven was specifically designed for the U.S. Marines. The oven has a shut off feature that will turn off the oven after two hours. The oven has a warning indicator light built into the cover to warn the Warfighter that the oven chassis is too hot to touch or to put the oven into the termination kit. The oven also features indicator lights to let the Warfighter know which oven section is turned on.

# Ground Tactical Consumables

## Fusion Splice Sleeves

These fusion splice sleeves are designed specifically to work with TFOCA® style cables, both two and four channel. The dual fusion splice sleeve will allow the Warfighter to protect TFOCA® style cables (2 channel) using just one dual splice sleeve. The quad fusion splice sleeve will allow the Warfighter to protect TFOCA TFOCA II® style cables (four channel) using just one quad splice sleeve.

**Dual Fusion Splice Sleeves (25 per pack)** **NSN# 5940-01-540-3857** **Part# 0731-1186**
**Dual Fusion Splice Sleeves (48 per pack)** **NSN# 6060-01-527-2497** **Part# 0731-1187**
**Quad Fusion Splice Sleeve (25 per pack)** **Part# 0731-1188**


## Lanyard Crimp Sleeves
**Part# 0204-5060**
**NSN# 4030-01-562-0478**

0204-5060


The 0204-5060 Lanyard Crimp Sleeves are used to attach the wire lanyard for the TFOCA II® dust cap to the body of the TFOCA II® connector.

## Threadlocker Adhesive
**Part# 0700-5020**
**NSN# 8030-01-055-6126**

0700-5020


Use the 0700-5020 Threadlocker Adhesive to lock the threads of the backnut for TFOCA II® connectors.

# Ground Tactical Consumables

0700-5420


## Super Lube®

**Part# 0700-5420**

**NSN# 9150-01-562-0513**

*Super Lube® is a trademark of Super Lube*

Use the 0700-5420 Super Lube to lubricate the O-Ring on both TFOCA II® termini and the TFOCA II® connectors.

## Instant Adhesive

**Part# 0700-5045**

**NSN# 8040-01-216-7508**

0700-5045

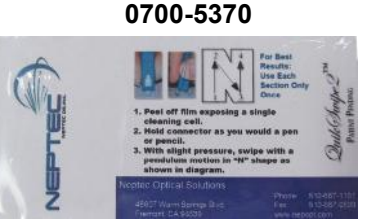

Use the 0700-5045 Instant Adhesive to secure the TFOCA II® Tygon tubing to the fiber optic buffer to allow the termini to stay properly seated while curing in the epoxy oven.

0700-5370

## Card Cleaner

**Part# 0700-5370**

**NSN# 6070-01-564-8364**




The 0700-5370 Card Cleaner is used to clean the TFOCA II® termini endfaces and other COTS connectors.

## Needle Tip 20AWG, 1.0”

**Part# 0700-5144**

**NSN# 5120-01-645-7417**

0700-5144

Used with the 0700-5121 Syringes, the 0700-5144 Needle Tip is used for all other COTS connectors and TFOCA II® termini.

## TFOCA II® Consumables Kit

**Part# 0831-9010**

**NSN# 6080-01-527-6994**

The 0831-9010 contains replenishment supplies for the consumables items found in KITCO Fiber Optics’ Military/Commercial Termination Kits.

**This kit contains the following items:**

- **Polishing Papers**
- **Epoxy**
- **Syringes w/Needle Tips**
- **Cleaning Wire**
- **Anaerobic Adhesive and Primer**
- **Fiber Optic Connector Cleaner Spray**
- **Lint Free Wipes**
- **Alcohol Pads**
- **Wooden Cleaning Swabs**
- **Permanent Marker**

# Ground Tactical Consumables

## Monster Cleaning Kit

**Part# 0831-9050**

A master cleaning consumables kit, the 0831-9050 contains plenty of materials to allow the Warfighter easy access to replace cleaning materials.

**This kit contains the following items:**

- **Cleaning Sticks**
- **Fiber Preparation Fluid**
- **Dry Wipes**
- **IBC™ Cleaning Tools**

# Ground Tactical Pigtail Assemblies

## TFOCA II® Pigtail Cable Assembly Kit

**Part# 0831-3PTSG**

The 0831-3PTSG, TFOCA II®, Pigtail Cable Assembly Kit includes the JPS-400 Jacket Protection Sleeve and Dual Splice Sleeves. Using the 0831-1119 Fusion Splice Kit allows the Warfighter to quickly repair the TFOCA II® cable reels.

## MFOCA™ Pigtail Cable Assembly Kit

**Part# 0831-3PTM**

The 0831-3PTM MFOCA (Mixed Mode Fiber Optics/Expanded Beam) Pigtail Cable Assembly Kit includes the JPS-400 Jacket Protection Sleeve and Dual Splice Sleeves. Using the 0831-1119 Fusion Splice Kit allows the Warfighter to quickly repair the MFOCA (Mixed Mode Fiber Optics/Expanded Beam) cable reels.

# Ground Tactical Test Equipment

## TFOCA II® Optical Loss Test Set Kit

**Part# 0831-8240**

The #0831-8240 Optical Loss Test Set (OLTS) Kit is designed for testing the M83526/16, TFOCA II® cable reels for link loss. This kit comes with all the required High Quality Reference Cables (HQRCs) and an approved stabilized multimode Light Source and Power Meter for testing. The unit can be operated using battery or AC power.

# High Quality Jumpers (HQJs)

## What are High Quality Jumpers (HQJs)?

**HQJs are reference cables that are manufactured and tested to meet the highest levels of optical performance while allowing repeatability in testing fiber optic cable assemblies.**

**An HQJ is designed to identify a sub-standard fiber optic component, fiber optic link or cable reel. HQJs can be interfaced with an Optical Time Domain Reflectometer (OTDR), an Optical Light Source (OLS), or an Optical Power Meter (OPM). HQJs come in two (2) categories: High Quality Reference Cables (HRQC) or High Quality Launch Cables (HQLC).**

**HQRCs** are used to accurately determine link or component loss and to evaluate the quality of a connector's endface polish.

- If an OTDR is used to determine the quality of a mated pair, only an inferred loss based on "back-scatter" will be obtained.

**HQLCs** are launch cables that eliminate OTDR (Optical Time Domain Reflectometer) "dead zones" resulting from the optical light pulse launched into the fiber.

- After extensive research, KITCO has determined that the optimum "correct" lengths for multimode HQLCs are 15 meters and 18 meters for singlemode.
- If these lengths are utilized, no matter what OTDR is used, the "dead zone" will be accounted for and the machine's accuracy will be maximized.
- OTDRs operate on the premise of timing the backscattering of the light as it is reflected back to the source and timed in nanoseconds to locate breaks or excessive bends in the fiber.

- OTDRs should not be relied upon to measure the dB loss of mated pair connectors.
- Using one HQLC is an acceptable method for finding breaks or excessive bends. If two HQLCs are used (with one attached at both ends) a more explicit "picture" of the "boxed-in" fiber run or cable reel can be obtained.

**For a complete listing of the various configurations, see the HQJ matrix chart on the following page.**

# High Quality Jumper (HQJ) Matrix

| Part Number | Description | | Length (m) |
|---|---|---|---|
| | **High Quality Launch Cables (HQLC)** | | |
| KFO 80050 | TFOCA II® Termini to ST, 62.5/125µm multimode | NSN# 6020-01-602-1518 | 15 |
| KFO 80055 | TFOCA II® Termini to ST, 9.0/125µm singlemode | | 18 |
| KFO 80065 | Expanded Beam Hybrid to ST, 50µm Multimode/9.0µm singlemode NSN# 6020-01-602-1514 | | 18 |
| KFO 80071 | ST to ST, 62.5/125µm multimode | NSN# 6020-01-602-1515 | 15 |
| KFO 80072 | ST to SC, 62.5/125µm multimode | NSN# 6020-01-602-1516 | 15 |
| KFO 80073 | ST to LC, 62.5/125µm multimode | NSN# 6020-01-602-1517 | 18 |
| KFO 80075 | ST to ST, 9.0/125µm singlemode | NSN# 6020-01-602-1519 | 18 |
| KFO 80076 | ST to SC, 9.0/125µm singlemode | NSN# 6020-01-602-1520 | 18 |
| KFO 80077 | ST to LC, 9.0/125µm singlemode | NSN# 6020-01-602-1521 | 18 |
| KFO 80095 | TFOCA II® Plug to ST, 62.5/125µm multimode | | 15 |
| KFO 80097 | TFOCA II® Plug to ST, 9.0/125m singlemode | | 18 |
| | **High Quality Reference Cables (HQRC)** | | |
| KFO 80040 | TFOCA II® Plug to ST, 62.5/125µm multimode NSN# 6020-01-602-1512 | | 1 |
| KFO 80045 | TFOCA II® Plug to ST, 9.0/125m singlemode | | 1 |
| KFO 80060 | Expanded Beam Hybrid to ST, 50µm Multimode/9.0µm singlemode | | 1 |
| KFO 80070 | ST to ST, 9.0/125µm singlemode | | 1 |
| KFO 80080 | ST to SC, 62.5/125µm multimode | NSN# 6020-01-602-1523 | 1 |
| KFO 80081 | ST to LC, 62.5/125µm multimode | NSN# 6020-01-602-1522 | 1 |
| KFO 80082 | ST to ST, 50/125µm multimode | NSN# 6020-01-602-1524 | 1 |
| KFO 80086 | ST to SC, 9.0/125µm singlemode | | 1 |
| KFO 80087 | ST to LC, 9.0/125µm singlemode | | 1 |
| KFO 80088 | ST to ST, 62.5/125µm multimode | NSN# 6020-01-602-1525 | 1 |

**HRLC** Launch Cable used with an Optical Time Domain Reflectometer (OTDR)
**HQRC** Reference Cable used with a Optical Light Source (OLS) and Optical Power Meter (OPM)

or

# Pierside Connectivity Connectors

Aptiv's (formerly Delphi Connection Systems) hermaphroditic connectors provide superior, consistent optical performances when deployed in the harshest environments. The connectors allow concatenations of cable assemblies to extend equipment separation without concern for connector male/female interface compatibility. Additionally, these connectors have "blind mating" and "scoop proofing" features to provide easy-to-mate interconnects.

Hermaphroditic connectors are "genderless" and designed to allow intermating of "like connectors" used on cable assemblies. This is achieved by converting one of the cable plug connectors to a male connector configuration by backing off the coupling nut to expose its male threaded end and bringing the other connector's (female configuration) coupling nut forward to thread onto the exposed receptacle threads. This allows the cable assemblies to be deployed without concern for having a male or female connector at the end of the cable.

Another benefit of the hermaphroditic connector design is that it allows identical cable assemblies to be concatenated as many times as needed (to be limited only by the system's optical loss budget). This provides flexibility in the placement of the end terminals. A simple but unique wiring arrangement must be observed when cable concatenation is used.

**12-Channel Receptacle** **Part# 1123770H**

1123770H

**12-Channel Plug**

1123760H

**Cable Diameter Range .50" - .63"** **Part# 1123760H**
**Cable Diameter Range .35" - .50"** **Part# 1123760-1H**
**Cable Diameter Range .28" - .47"** **Part# 1123760-2H**

**For related termini and crimp sleeves, see pages 77 and 79

# Pierside Connectivity Dust Caps

1143808-4H 1123789H

**12-Channel Receptacle Dust Cap** **Part# 1143808-4H**
**12-Channel Plug Dust Cap** **Part# 1123789H**

# Pierside Connectivity Accessories

**Removable 6-Pack Socket Endface** **Part# 1123796H**

1123796H

Aptiv's 12-Channel Hermaphroditic connector is equipped with a removable, self captivating (non-removable alignment sleeves) socket endface. The endface allows the installer to easily replace the socket termini without the need of buying a completed connector.

**If the alignment sleeve is damaged, the entire 6-Pack must be replaced**

**12-Channel O'Ring Install Tool** **Part# 0702-3500**

Our 0702-3500 allows the technician to install the O'Ring onto the 12-Channel Hermaphroditic connector with ease; minimizing the risk of breakage.

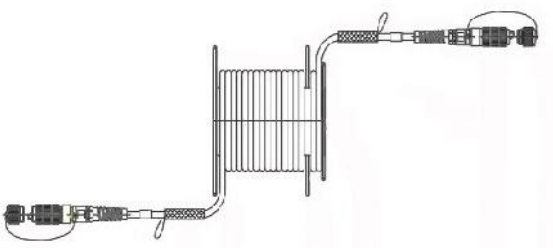
# Pierside Connectivity Umbilical Reel Assembly

## Umbilical Assembly Wooden Spool — Part# KFO 11565

Built IAW NAVSEA Drawing 7327579, Rev D spec, this assembly is used to provide a fiber optic connection between the pier and the ship. This umbilical assembly consists of a 12-fiber, 500 foot cable with a hermaphroditic plug on each end. **Because this assembly is not made with low smoke/zero halogen fiber, it must be stored on the exterior of the ship or external to the ship. It is not suited for shipboard interior storage/use.**

## Alternative Umbilical Assembly Wooden Spool — Part# KFO 35847

Built as a substitute to NAVSEA same Drawing 7327579, Rev D spec, this assembly is made with flexible flame-retardant polyurethane outer jacket and low-smoke/zero halogen strands that are suitable for shipboard interior storage/use.



**Metal Umbilical Reel (empty)** — **Part# 0900-3010**
**Metal Umbilical Stand (empty)** — **Part# 0900-3005**

Using the same flame-retardant polyurethane material as in KFO 35847, we now offer 2 options for the Pierside Umbilical Reels. They can be ordered on a composite reel with or without a stand.

**Umbilical Assembly w/Composite Reel and Stand** — **Part# KFO 15847**
**Umbilical Assembly w/Composite w/Reel** — **Part# KFO 25847**

**Composite Umbilical Reel (empty)** — **Part# 0900-3025**
**Composite Umbilical Stand (empty)** — **Part# 0900-3028**

# Pierside Connectivity Kits

## Pierside Connectivity Termination Kit
## (Light Duty Connector ST, COTS SC and M29504 Termini)
## NAVSEA Drawing# 7325763
## NSN# 5180-01-523-6083
## Part# 4000-1010

The 4000-1010 Pierside Connectivity Termination Kit contains all the proper tools and consumables needed to connectorize the (M29504/14 and M29504/15) installed in the 12-channel Hermaphroditic connector, Single Terminus, (ST) M83522/16 Light Duty, and (SC) TIA 604-3 connectors onto the end of fiber optic, single fiber cable strands. A 70 durometer resilient pad, and polishing papers (5µm AO, 1µm AO, 0.1µm diamond) are included to allow the installer to accomplish a multimode or "enhanced" singlemode polish.

**This kit contains the following items:**

- **Kevlar Shears**
- **Cleaning Wire**
- **Insertion Tools**
- **Removal Tool**
- **Alignment Sleeve Insertion and Removal Tool (ASIRT)**
- **Flashlight**
- **Curing Oven**
- **Microscope**
- **Polishing Tools**
- **Ruler**
- **Scribe**
- **Allen Wrench**
- **Boot Ring Tool**
- **Templates**
- **Marking Pen**
- **Tweezers**

**… and much more**

**This kit does not include the additional tools needed to affix the strain relief onto the 12-Channel Hermaphroditic plug. For tools that are needed to assemble the strain relief, please see our 4000-1015 Upgrade Kit listed below.**

## Pierside Connectivity Upgrade Kit
## Part# 4000-1015

The 4000-1015 Upgrade Kit, when used with the 0400-1010 kit, contains the additional tools needed to install a 12-channel backshell onto a hermaphroditic connector plug.

**This kit contains the following items:**

- **Torque Wrench**
- **Allen Wrenches**
- **Socket Adapter**
- **O-Ring Installation Tool**
- **Crow's Foot Attachments**
- **Template**

# Pierside Connectivity Kits

## Pierside Connectivity Light Source/Power Meter Kit
**Part# 4000-1020** **NAVSEA Drawing# 7325763**

This kit is to be used in conjunction with the MQJs (listed in MQJ Sets **KFO 10022**, **4000-1060**, and **4000-1065** below), to test cable links for loss. All appropriate adapter caps are included on each unit.

**This kit contains the following items:**

- **Multimode LED Source**
- **Singlemode Laser Source**
- **Quad Power Meter**

## ST to ST MQJ Set
## Containing SC to ST Adapters
**Part# KFO 10022** **NAVSEA Drawing# 7325763**

MQJs (Measurement Quality Jumpers) must be used to test optical link loss. By interfacing the correct jumpers with a Light Source and Power Meter accurate loss measurements can be obtained.

**This kit contains the following items:**

- **MQJ, ST-to-ST, multimode**
- **MQJ, ST-to-ST, singlemode enhanced**
- **ST-to-ST Adapter, singlemode**
- **SC-to-ST singlemode/multimode adapter**

## Hermaphroditic Connector MQJ Set
**Part# 4000-1060** **NAVSEA Drawing# 7325763**

MQJs (Measurement Quality Jumpers) must be used to test optical link loss. By interfacing the correct jumpers with a Light Source and Power Meter accurate loss measurements can be obtained.

**This kit contains the following items:**

- **MQJ, 12-Channel Hermaphroditic Connector Cable Plug to ST , 1 Meter (Qty 2)**

***4000-1060 is sold in a set of 2 however the single MQJ, KFO 11347-M01, is sold individually.**

## Hermaphroditic Connector Pigtail Assemblies
**NAVSEA Drawing# 7325760**

**Part# KFO 11347** This assembly is a 1.5 meter, 12-channel Hermaphroditic Receptacle to ST and id used inside the box on the pier to which the umbilical assembly hooks up.

**Part# KFO 15368** This assembly is a 1 meter, 12-channel Hermaphroditic Receptacle to ST and id used inside the box on the pier to which the umbilical assembly hooks up.

***See page 38 for umbilical assembly information.**

## ST to Termini MQJ Set
## Singlemode Enhanced and Multimode
**Part# 4000-1065** **NAVSEA Drawing# 7325763**

**This kit contains the following items:**

- **Singlemode Enhanced and Multimode Single Strand MQJs**
- **Snap Lock Plugs**
- **Snap Lock Receptacles**
- **Insertion/Extraction/ASIRT Tools**
- **Termini Alignment Sleeves**

# Pierside Connectivity Kits

## Cleaning Kit
**Part# 4000-1030** **NAVSEA Drawing# 7325763**

This Cleaning Kit consists of the tools necessary to clean the 12-Channel Hermaphroditic connector.

**This kit contains the following items:**

- **Solvent**
- **Canned Air**
- **Lint Free Wipes**
- **Eye Loupe**
- **Allen Wrench**
- **Alcohol Pads**
- **Swabs**
- **Custom Case**

## Consumables Kit
**Part# 4000-1050** **NAVSEA Drawing# 7325763**

This Consumables Kit has enough polishing paper, epoxy, syringes, tips, and wipes to terminate 100 ST Connectors or Termini.

**This kit contains the following items:**

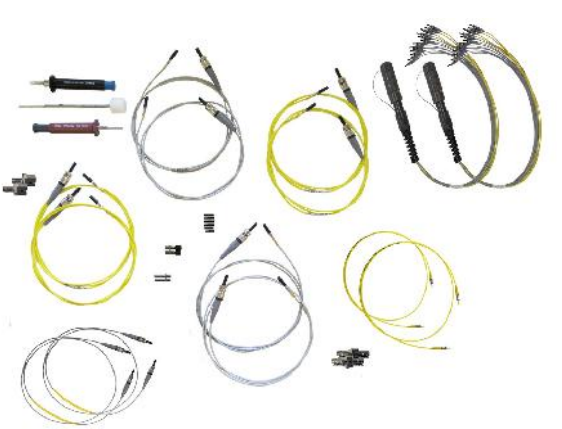
- **Epoxy**
- **Polishing Papers**
- **Syringes**
- **Needle Tips**
- **Lint Free Wipes**

## OLTS/MQJ Test Cable Kit
**Part# 4000-1025** **NAVSEA Drawing# 7325763**

The OLTS/MQJ Test Cable Kit contains all the necessary reference and cables tools needed to test single and multi-channel, multimode or singlemode cables.

**This kit contains the following items:**

- **Hard Carrying Case (not pictured)**
- **ST-ST MQJ Set**
- **Hermaphroditic MQJ Set**
- **ST-Termini - MQJ Set**
- **Termini Insertion/Removal Tools**
- **Coupling Adapters**
- **Snap Lock Plugs and Receptacles**
- **Replacement Alignment Sleeves**



# Shipboard Termination Kits

## Navy Submarine Fiber Optic Kit
## (Light Duty Connector, Heavy Duty Multiple Termini)
**Part# 0801-8030  NAVSEA Drawing# 7085185**
**NSN#: 5180-01-494-7433**

The 0801-8030 Navy Submarine Fiber Optic Kit contains all the proper tools and consumables that are needed to connectorize the M83522/16 (ST), Light Duty, Single Terminus Connector, and M28876 (MT), Heavy Duty, M29504, Multiple Termini Connectors. This tool kit also supports the 31 channel M28876 connector (singlemode and multimode), as well as the TIA 604-3 (SC) Connector. A 70 durometer resilient pad, 0.1µm diamond paper, and ultrafine final polishing papers are included to allow the installer to accomplish a multimode or singlemode "enhanced" polish.

**This kit contains the following items:**

- **Torque Wrench**
- **Torque Wrench Adapters**
- **Insertion Tools**
- **Extraction Tool**
- **ASIRT (Alignment Sleeve Insertion/Removal Tool)**
- **Microscope**
- **Curing Oven**
- **Cure Adapters**
- **O-Ring Adapters**
- **Polishing Papers**
- **Epoxy**
- **Needle Tips/Syringes**
- **Crimp Tool**
- **Crimp Tool Dies**
- **Polishing Tools**
- **Microclips**
- **Safety Glasses**
- **Jacket/Buffer Strippers**
- **Tweezers**

**… and many more**


This kit now contains tools to terminate the LC connector!!

# Shipboard Termination Kits

## Combination Kit
## Navy Shipboard Fiber Optic Kit, Deluxe Contractor's Version (Light Duty Connector, Heavy Duty Multiple Termini)
## Part# 0701-7030

The 0701-7030 Combination Connector Kit contains all the proper tools and consumables that are needed to connectorize the M28876 (MT), Heavy Duty, Multiple Termini Connectors and the M83522/16 (ST), Light Duty, Single Terminus. This tool kit also supports the TIA 604-3 (SC) Connector. A 70 durometer resilient pad, 0.1µm diamond paper, and ultrafine final polishing papers are included to allow the installer to accomplish a multimode or singlemode "enhanced" polish.

****Please verify NAVSEA Drawing requirements before ordering this kit****

**This kit contains the following items:**

- **Torque Wrench**
- **Torque Wrench Adapters**
- **Insertion Tools**
- **Extraction Tool**
- **ASIRT (Alignment Sleeve Insertion/Removal Tool)**
- **Microscope**
- **Curing Oven**
- **Cure Adapters**
- **O-Ring Adapters**
- **Polishing Papers**
- **Epoxy**
- **Needle Tips/Syringes**
- **Crimp Tool**
- **Crimp Tool Dies**
- **Polishing Tools**
- **Microclips**
- **Safety Glasses**
- **Jacket/Buffer Strippers**
- **Tweezers**

**… and many more**

# Shipboard Termination Kits

## MIL-PRF-28876 Multi Terminus Kit
**Part # 0801-8000 NAVSEA Drawing# 6872813**
**NSN: 5180-01-416-0567**

The 0801-8000 MIL-C-28876 Multiple Termini Kit contains all the proper tools and consumables that are needed to connectorize the M28876 Heavy Duty Multiple Terminus connector. Tools and consumables are included to support connectorization of the M29504/14 and M29504/15 termini. A 70 durometer resilient pad and 0.1µm diamond paper are included to allow the installer to accomplish a multimode or "enhanced" singlemode polish. This deluxe contractor's version meets NAVSEA Drawing# 6872813 requirements, and also includes many other tools and components.

**This kit contains the following items:**

- **Torque Wrench**
- **Torque Wrench Adapters**
- **Insertion Tool**
- **Extraction Tool**
- **ASIRT (Alignment Sleeve Insertion/Removal Tool)**
- **Microscope**
- **Curing Oven**
- **Cure Adapters**
- **O-Ring Adapters**
- **Polishing Papers**
- **Epoxy**
- **Needle Tips/Syringes**
- **Crimp Tool**
- **Crimp Tool Dies**
- **Polishing Tool**
- **Microclips**
- **Safety Glasses**
- **Jacket/Buffer Stripper**
- **Tweezers**

**… and many more**

# Shipboard Termination Kits

## MIL-C-83522 Single Terminus Termination Kit

**Part# 0801-8010 NAVSEA Drawing# 6872811 Rev. D**

**NSN: 5180-01-416-0565**

The 0801-8010 ST Termination Kit contains all the proper tools and consumables that are needed to connectorize the M83522/16 (ST), Light Duty Single Terminus. This tool kit also supports the TIA 604-3 (SC) Connector A 70 durometer resilient pad and 0.10µm diamond paper are included to allow the installer to accomplish a multimode or "enhanced" singlemode polish.

**This kit contains the following items:**

- **Microscope**
- **Curing Oven**
- **Cure Adapters**
- **Boot Ring Tool**
- **Ruler**
- **Kevlar Shears**
- **Polishing Papers**
- **Epoxy**
- **Dry Wipes**
- **Needle Tips/Syringes**
- **Crimp Tool**
- **Crimp Tool Dies**
- **Microclips**
- **Safety Glasses**
- **Jacket/Buffer Strippers**
- **Tweezers**

**… and many more**


This kit now contains tools to terminate the LC connector!!

Full details of NAVSEA kits 6872811, 6872813 and 7085185 can be found at the following: https://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Dahlgren/What-We-Do/Navy-Shipboard-Fiberoptics/Drawings/

# Shipboard Add-on Modules

## Upgrade a NAVSEA Drawing# 6872811 Kit to a Combo Kit
## Part# 0801-8060

This Module allows the installer to upgrade an existing NAVSEA Drawing# 6872811 Kit to a combination kit that will support the light duty, ST (Single Termini) and MT (Multi Terminus) connectorization process. The tools are contained in a handy roll-up tool pouch.

**This kit contains the following items:**

- **Torque Wrench**
- **Insertion Tools**
- **Alignment Sleeve Insertion and Removal Tool**
- **Removal Tool**
- **Tweezers**
- **Crimp Tool**
- **Polishing Tool**
- **Socket Wrench Adapter**
- **Backshell Wrench**
- **Torque Wrench Adapters**
- **O-Ring Installation Tools**
- **Cure Adapters**
- **Strap Wrench**

## Upgrade a NAVSEA Drawing #6872813 Kit to a NAVSEA Drawing #6872813/#6872811 Kit
## Part# 0801-8065

The 0801-8065 Add-On Module contains all of the tools proprietary to ST connectorization, SC connectorization and singlemode polishing.

**This kit contains the following items:**

- **Crimp Tool w/ Die Set**
- **SC-ST Coupler**
- **Strip Templates**
- **Cure Adapters**
- **Polishing Tool**
- **Boot Installation Tool**
- **ST/SC Templates**

## TIA 604-3 (SC) Upgrade Kit
## Part# 0801-8080

The TIA (Telecommunications Industry Association) has accepted the SC (Subscriber Connector) as the standard for the telecommunications industry. Consequently, electronics with the SC interface often appear aboard naval vessels. The 0801-8080 SC Upgrade Kit allows the installer to upgrade the existing #6872811 or #6872813 Termination Kits to support the SC procedure as well as the ST (Single Terminus) or MT (Multiple Termini) connectors.

**This kit contains the following items:**

- **Crimp Tool w/Die**
- **Cure Adapters**
- **ST-SC Adapter**
- **Strip Template**
- **Polishing Tool**

# Shipboard Fusion Splice BackPack

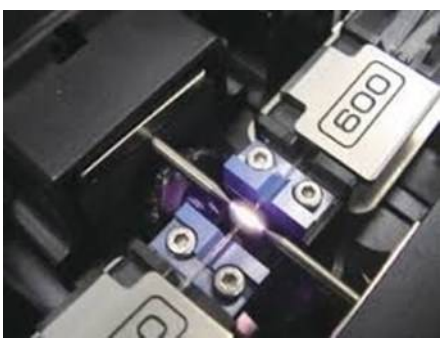
**Part# 0731-8010**

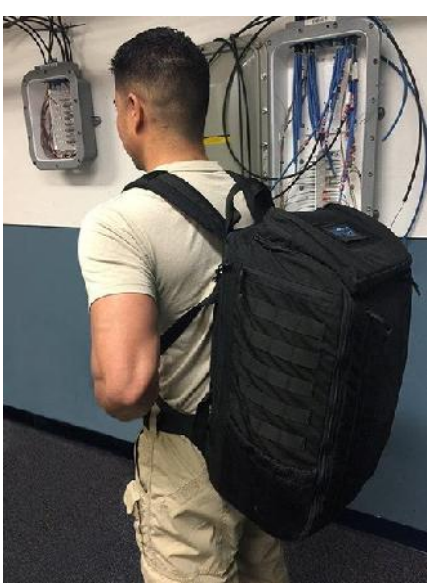
**KITCO proudly introduces a shipboard fusion BackPack Kit that is specifically designed to protect and transport all the tools and equipment necessary to splice Blown Optical Fiber (BOF), as well as standard shipboard fiber within the Fiber Optic Interconnection Box. An easy to attach Clutch Tray provides the technician a sturdy and convenient area to place the Fujikura (AFL) FSM-90S, Core Alignment Fusion Splicer, Cleaver, and other tools so hands-on operation of the entire process can take place. This splicer is one of the only fusion splicer to be approved by NAVSEA Systems Command (CID A-A-59799). The BackPack allows for easy set up and break down as the technician moves from job to job.**

**This kit contains the following items:**

- **Fusion Splicer w/Accessories**
- **Precision Cleaver**
- **WidgCo Clutch Tray**
- **Utility Belt**
- **Kevlar Shears**
- **Fusion Splice Sleeves**
- **FiberSure™ Strippers**
- **Cloth Measuring Tape**
- **5mm and 8mm Tube Cutter**
- **VFL (Visual Fault Locator)**
- **Spadelock Tool**
- **Cable Ties**
- **Splice Trays**
- **5mm-8mm Transition Kit**
- **4-fiber and 8-fiber Furcation Units**
- **5mm and 8mm Brass Eyelets**

**...and many more**




# Shipboard Fusion Splicer and Accessories

## Core Alignment Fusion Splicer

**Part# 0703-4030**

Featured in our new Shipboard Fusion BackPack Kit, 0731-8010, the AFL FSM-90S is the world's fastest and most robust core alignment fusion splicer and meets all the requirements in accordance to CID A-A-59799.

The FSM-90S is the latest core alignment splicer. It's designed to give you high quality splices and to stay in the field. The 90S kit solves common problems seen in the field today, from splicing poor quality legacy fiber to automated equipment maintenance and upkeep. The speed and accuracy of the 90S even make it suitable for certain production and specialty environments, where high output, tight packaging, and low loss requirements are needed. The 90S is designed to keep you going with an extended battery life of 300 splice and heat cycles, and by alleviating the need for traditional operation tasks such as; frequent arc calibrations, cleaver blade rotations, cleaver usage tracking, and manual splicing operations with its multiple automated and ease-of-use features. If you are splicing loose buffer fiber, there is no longer a need to purchase and swap out with an additional sheath clamp. Now, a universal sheath clamp that handles both loose and tight buffer fiber is standard.

**** Please note that this configuration**


The FSM-90S comes standard with the following:

- Precision Cleaver
- Battery w/Charger
- AC Adapter w/Power Cord
- Spare Electrodes
- Sheath Clamp(s)
- Alcohol Dispenser
- Screwdriver
- Transit case
- Quick Reference Guide

## WidgCo Clutch Tray

**Part# 0745-7010**

Th Universal Clutch Tray is designed to safely and securely attach to any fiber optic interconnection box that houses the M24728 splice trays and holders. This tray affords the technician a convenient area to place the 90S fusion splicer, precision cleaver and other tools to simplify the fusion splice process.

## WidgCo Shipboard Fusion Splice BackPack

**Part# 0745-2230**


The Shipboard Fusion Splice Backpack is a well-padded, sturdy, yet lightweight backpack designed to easily maneuver around the ship or submarine to complete fusion splicing with the fiber optic interconnection boxes and M24728 splice trays and holders. Every tool has a place, and every place has a tool for easy retrieval and transport.

## 8mm-5mm Transition Kit

**Part# 0732-1120**

Transitioning from an 8-millimeter to 5-millimeter tube is necessary to improve routing inside the fiber optic interconnection box. KITCO has designed a transition that contains all the materials need to perform this transition in accordance with MIL-STD-2042C, method 2L1.

# Inspection and Cleaning Kit

## Fiber Optic Handheld Inspection and Cleaning Kit
## Part# 0700-8634

The 0700-8634 Fiber Optic Handheld Cleaning and Inspection Kit features the EXFO MAX Tester with ConnectorMax2 Software and the FIP-430B probe needed to inspect the fiber end-face for contamination. The fiber optic kit includes, lint free wipes, alcohol pads, STICKLERS™ cleaning sticks and an ASIRT (Alignment Sleeve Insertion and Removal Tool) which allows the technician to remove the alignment sleeves from the termini before cleaning/inspecting.

The 0700-8634 comes in a water-resistant hard case.

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**This kit will allow the technician to inspect and clean the following connectors/termini:**

- **M28876 Connectors**
- **M29504/14 and M29504/15 Termini**
- **ST Connectors**
- **SC Connectors**
- **LC Connectors**

The FIP-430B is an intelligent and automated test tool that transforms fiber inspection into a faster and simplified one-step process providing accurate and consistent test results, and preventing the reporting of false-positive results.

**The key features are:**

- **Fully automated, one-step process: Automatic fiber-connection detection, Automatic image centering, Automatic focus**
- **On-board connector endface analysis (IEC, IPC or custom standards) via ConnectorMax2 Software**
- **Pass/fail LED indicator**

*Always INSPECT (and clean) before you CONNECT!!*

# Curing Products

0701-4000

## Curing Oven Assembly — Part# 0701-4000

KITCO Fiber Optics was tasked by NAVSEA Combat Systems in 1992 to produce an oven that would allow the shipboard installer to accomplish a vertical cure for the MIL-C-83522/16 Light Duty ST Connector, the M29504/14 and M29504/15 Heavy Duty Termini and the COTS FDDI Connector. A higher curing temperature of 248° Fahrenheit assures a higher glass transition temperature needed for high vibration and harsh shipboard environments. A special heater block accepts termini when in one position and when flipped over the same heater block accepts ST, SC, and/or FDDI Connectors. A solid post, a ring and cable clips allow the installer to precisely position the fiber into the block for a straight, vertical cure. Special side panels are affixed to the oven housing to hold the 16 termini cure adapters, 0701-4050, that come with this assembly. See below for replacement parts.

0701-4010

| | | |
|---|---|---|
| **Curing Oven** | NSN# 4430-01-419-6384 | Part# 0701-4010 |
| **Heater Block** | NSN# 6070-01-420-7682 | Part# 0701-4020 |
| **Cable Stand Post** | NSN# 6070-01-430-4607 | Part# 0701-4030 |
| **Cable Stand Ring** | NSN# 5365-01-420-3692 | Part# 0701-4040 |
| **Cable Stand Clip** | NSN# 5430-01-422-2168 | Part# 0701-4060 |

0701-4040

0701-4060

0701-4030



0701-4020

## Cure Adapters

Cure adapters protect the connector and fiber during the epoxy cure process. **The ST and SC adapters are NAVSEA listed and approved for MIL-STD-2042C applications and will work only with KITCO's approved shipboard oven.**

0700-1430

| | | |
|---|---|---|
| **LC Cure Adapter** | | Part# 0700-1430 |
| **ST Cure Adapter** | NSN: 6070-01-420-0551 | Part# 0700-1450 |
| **SC Cure Adapter** | NSN: 6060-01-478-9450 | Part# 0700-1455 |
| **Universal 2.50mm Cure Adapter** | | Part# 0700-1470 |
| NSN: 5935-01-646-6514 | | |
| **Universal 1.25mm Cure Adapter** | | Part# 0700-1456 |
| NSN: 5935-01-646-6508 | | |
| **M29504/14 and /15 Termini Cure Adapter** | | Part# 0701-4050 |
| NSN: 6070-01-420-0522 | | |

0700-1450

0700-1455

0700-1456

0700-1470

0701-4050

0300-4500

**Micro Clip** NSN: 5340-01-534-2682 Part# 0300-4500

Use the 0300-4500 Micro Clip to hold connector pieces in place during the curing process.

## Backplane Video Fiber Inspection Probe Kit Part# 0700-8640

KITCO's Backplane Video Fiber Inspection Probe Kit contains a portable, handheld microscope and the appropriate probe tips to inspect installed connectors located within patch panels, eliminating the need to access the backside of the patch panel. This kit will also allow an installer to inspect MQJs (Measurement Quality Jumpers) or any M28876 cable assemblies without disassembling them; the alignment sleeve in the socket (receptacle side) does not need to be removed to view the endface. All products are packaged in a customized hard shelled case for protection, convenience and portability.

This display and probe can be sold separately as part number FBP-SD4i. See page 13 for details.

**This kit contains the following:**

- **Video Probe (200x/400x)**
- **Handheld LCD Video Display w/Power Supply**
- **LC Probe Tip**
- **ST Probe Tip**
- **SC Probe Tip**
- **Universal 2.5mm Probe Tip**
- **Universal 1.25mm Probe Tip**
- **M28876 Pin Tip (for viewing pin endface)**
- **M28876 Socket Tip (for viewing socket endface)**


VIAVI Network and Service Enablement
Optical Security and Performance Products

**0700-8626**

## Benchtop 200X/400X Microscope Part# 0700-8626

Simply plug the connector into the universal "slip-grip" adapter and the monitor will display the ferrule endface at a crystal clear 200Xor 400X (about the size of a tennis ball)! This microscope allows the installer to quickly examine ferrule endfaces to detect epoxy residue, cracks, scratches and other irregularities in either the core or cladding glass.

The 0700-8626 comes standard with an 2.5mm universal adapter.

**See page 52 for a list of additional adapters.**

## FiberChek2™ Probe w/Software Part# 0700-8625

The 0700-8625 is a digital handheld microscope that automatically inspects and certifies the end faces of fiber connectors according to industry standards and specifications. This digital microscope provides instant pass/fail results at the push of a button, eliminating subjective and time-consuming guesswork.

Compatible with multiple platforms, including T-BERD 2000/4000/6000A, laptops, PCs and Android mobile devises, the 0700-8625 provides fast, repeatable analysis that easily integrates into existing test procedures.

The 0700-8625 comes standard with 2.5mm, 1.25mm, LC, and SC/FC tips.

**See page 13 for a list of additional tips.**

**0700-8625**

# Inspection Tools

EXFO | Telecom Test and Service Assurance

## Videoscope 200X/400X Part# TK-FIP-430B-6M1

The TK-FIP-430B-6M1 is an intelligent and automated test tool that transforms fiber inspection into a faster and simplified one-step process providing accurate and consistent test results, and preventing the reporting of false-positive results.


The key features are:

- Fully automated, one-step process: Automatic fiber-connection detection, Automatic image centering, Automatic focus
- On-board connector endface analysis (IEC, IPC or custom standards) via Connector / Max2 Software
- Pass/fail LED indicator

The TK-FIP-430B-6M1 comes standard with 2.5mm, 1.25mm, LC, FC/SC, ST Bulkhead, M29504/14 and M29504/15 tip.

## Video Probe Tips

Interchangeable precision inspection tips enable inspection of every connector type located in bulkheads, patch cords, and multi-terminus connectors.

**The following tips are to be used with our 0700-8634 Cleaning and Inspection Kit and TK-FIP-430B-6M1 Fiber Inspection Probe Kit:**

**EXFO Barrel Adapter to Allow the use of JDSU Video Tips**
**EXFO 1.25mm Universal Video Probe Tip** Part# 0700-8223
**EXFO 2.50mm Universal Video Probe Tip** Part# 0700-8226
**EXFO ST Bulkhead Video Probe Tip** Part# 0700-8227
**EXFO FC/SC Bulkhead Video Probe Tip** Part# 0700-8228
**EXFO LC Bulkhead Video Probe Tip** Part# 0700-8229
**EXFO 2.00mm Pin Video Probe Tip** Part# 0700-8230
**EXFO 2.00mm Socket Video Probe Tip** Part# 0700-8231
**EXFO 1.60mm Pin Video Probe Tip** Part# 0700-8232
Part# 0700-8233

0700-8223

0700-8226

0700-8227

0700-8228

0700-8229

0700-8230

0700-8231

0700-8232

0700-8233

## 400X Microscope NSN: 6080-01-536-7147 Part# 0700-8601 Part# 0700-8602

0700-8601


0700-8602


These 400X scopes are ruggedized and made of tempered steel. The 0700-8601 has a built-in infrared filter and the 0700-8602 has a convenient rubber eyepiece. This microscope come with a universal 2.5mm adapter which is perect for viewing the ST, SC, or FC connector.

**0701-8601 is NAVSEA listed and approved for MIL-STD-2042C applications and is used for final inspection of the connector/termini endface**

**See page 52 for a list of additional adapters.**

## Dual 200X Microscope NSN: 6035-01-542-1931 Part# 0700-7950

This microscope provides dual-illumination, both coaxial and oblique, views. The coaxial illumination provides the most critical view of the fiber endface while the oblique illumination causes the light to hit the fiber endface at an angle, making the core clearly visible for an easy and ready view of surface debris and contamination. Universal 1.25mm, SC, and FC connector adapters and LC, ST bulkhead adapters are available. This microscope come with a universal 2.5mm adapter. Call for more information.

0700-7950

# Inspection Tools

## 400X Microscope Adapters

**Coupling Adapter - Allows you to use 400X adapters w/200X microscope** NSN: 6650-01-586-5006 — Part# 0700-7980

**Universal 1.25mm Adapter** NSN: 6060-01-643-9065 — Part# 0700-8722

**ST Adapter** NSN: 6060-01-643-9080 — Part# 0700-8723

**SC Adapter** NSN: 6060-01-643-9072 — Part# 0700-8724

**FC Adapter** NSN: 6060-01-643-9072 — Part# 0700-8725

**LC Adapter** NSN: 6060-01-643-9207 — Part# 0700-8731

**M29504/4 and M2904/5 Adapter** NSN: 6650-01-865-5010 — Part# 0700-8735

**M29504/14 and M2904/15 Adapter** — Part# 0700-8736

0700-7980 0700-8722 0700-8723 0700-8724 0700-8725 0700-8731 0700-8735 0700-8736

**Fibersure™ Light Source (FOLS)** NSN: 6035-01-509-2511 — Part# 0700-8500

This universal light source is a sturdy Mini Maglite® with a universal interface. It is perfect for providing a steady, strong light source at one end of a fiber optic cable for visual inspections of continuity. Two AA alkaline batteries are included. The light source comes standard with a universal 2.50mm adapter. Universal 1.25mm and 1.60mm adapters are also available.

0700-8500

**Universal 2.50mm adapter** — Part# 0799-2090

**Universal 1.25mm adapter** — Part# 0799-2091

**Universal 1.60mm adapter** — Part# 0799-2092

0799-2090 0799-2091 0799-2092

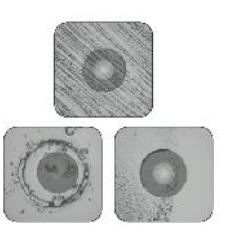
**Eye Loupe** NSN: 6650-01-586-6297 — Part# 0700-8710

This 10X eye loupe allows the installer to inspect connector and termini endfaces to determine proper bead size and to examine cleaves. This loupe will fit most eye sockets allowing the installer a “hands-free” view. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-8710

Dirty Fiber Optic Connectors?

**If you think you have problems now, take a look at this!!!**



**NAVSEA states in MIL-STD-2042-C, Method 6M1 that all fiber optic endfaces are to be cleaned and inspected before you connect them to their respective mated pair. Our cleaning and inspection products are the solution to fix the problem of what to do with dirty connectors!**

# Termination Tools

## Crimp Tool w/Dies

| | |
|---|---|
| *Crimp Tool for Tight Structured LC (NAVSEA approved) | Part# 0700-1825 |
| Crimp Tool w/Universal Hex Profile (call for size specifications) | Part# 0700-1845 |
| NSN: 5120-01-645-8087 | |
| Crimp Tool for Mil-Spec and Commercial ST | Part# 0700-1855 |
| Crimp Tool for TIA 604-3 (SC) NSN: 5120-01-563-6447 | Part# 0700-1875 |
| Crimp Tool for OFS Fitel LC (NAVSEA approved) | Part# 0700-1885 |
| Crimp Tool for MIL-PRF-29504/14 and M29504/15 | Part# 0700-1895 |
| NSN: 5120-01-419-3730 | |

0700-1825

0700-1855

0700-1885

0700-1845

0700-1875

0700-1895

## Crimp Frame and Dies

| | | |
|---|---|---|
| Universal Frame (fits all crimp dies) | NSN: 5120-01-563-6451 | Part# 0700-1830 |
| Universal Hex Profile (call for size specifications) | | Part# 0700-1840 |
| Mil-Spec and Commercial ST | NSN: 5120-01-563-6450 | Part# 0700-1850 |
| *LC Tight Structured Connectors NAVSEA approved) | | Part# 0700-1861 |
| COTS/SC – TIA 604-3 (SC) | NSN: 5120-01-563-6449 | Part# 0700-1870 |
| OFS Fitel LC (NAVSEA approved) | NSN: 5120-01-645-7414 | Part# 0700-1880 |
| MIL-PRF-29504/14 and M29504/15 | NSN: 5120-01-563-6448 | Part# 0700-1890 |

0700-1840

0700-1850

0700-1861

0700-1870

0700-1880

0700-1890

0700-1830

*Denotes preferred crimp die/tool

## Torque Wrench

Part# 0701-3050

0701-3050

The 0701-3050 torque wrench is used in conjunction with the C-type backshell spanner wrench and backshell grips to torque the M28876 strain relief and backshell backnut to the appropriate torque as outlined in MIL-STD-2042C. NAVSEA listed and approved for MIL-STD-2042C applications. Three sizes of adapters are available.

| | | |
|---|---|---|
| Size 11 Adapter | NSN: 5120-01-420-2445 | Part# 0701-3530 |
| Size 13 Adapter | NSN: 5120-01-420-2444 | Part# 0701-3540 |
| Size 15 Adapter | NSN: 5120-01-420-2446 | Part# 0701-3550 |

0701-3530

0701-3540

0701-3550

# M28876 Termination Tools

## Strap Wrench NSN: 5120-01-037-1395 Part# 0701-3060

0701-3060

The 0701-3060 strap wrench is used to torque the M28876 backshell to the proper level as outlined in the MIL-STD-2042C. Used in conjunction with the 0701-3050 torque wrench and/or the 0701-3520 spanner wrench.

***Note*: Two 0701-3060 strap wrenches are required for backshell size 23 applications. NAVSEA listed and approved for MIL-STD-2042C applications.**

0701-3520

## Backshell Spanner Wrench

Use this C-type backshell spanner wrench to torque the backshell and secure the 4, 8, and 31-channel connectors. A properly torqued backshell will ensure lower dB loss in multichannel connectors. NAVSEA listed and approved for MIL-STD-2042C applications.

## 4-Channel/8-Channel (1239109H) NSN: 5120-01-419-3283 Part# 0701-3520
## 31-Channel Part# 0701-3525

## Micro Torque Tool Part# 0701-3055

0701-3055


Use the 0701-3055 tool for the installation of the Aptiv split backshell onto an M28876 connector. This tool is set to 4 inch pounds to ensure proper torque.

## 90° Insertion Tool Part# 0701-3810
## NSN: 5120-01-145-5172

0701-3810

Use the 0701-3810 for installation of M29504/14 and M29504/15 termini into straight, 45°, and 90° backshell connectors. NAVSEA listed and approved for MIL-STD-2042C applications.

## Straight Insertion Tool Part# 0701-3820
## NSN: 5120-01-144-5338

0701-3820

Use the 0701-3820 for installation of M29504/14 and M29504/15 termini into straight, 45°, and 90° backshell connectors. NAVSEA listed and approved for MIL-STD-2042C applications.

## Terminus Removal Tool Part# 0701-3850
## NSN: 5998-01-147-0198

0701-3850

Use the 0701-3850 for extraction of M29504/14 and M29504/15 termini from the nest without damaging the termini and endface. This tool is also used to remove the ceramic termini from the 0701-4100 polishing fixture. NAVSEA listed and approved for MIL-STD-2042C applications.

## ASIRT (Alignment Sleeve Insertion and Removal Tool) Part# 0701-3901
## NSN: 5120-01-419-2942

0701-3901

This precision tool will allow the careful removal or installation of M29504/15 alignment sleeves from M28876 multichannel connector nests. The extraction mechanism will remove the alignment sleeve, yet leaves the termini and fiber undamaged. NAVSEA listed and approved for MIL-STD-2042C applications.

## Trinity Insertion/Extraction/ASIRT Kit Part# 0701-3910

By bundling these 3 tools, the 0701-3820 Straight Insertion Tool, 0701-3850 Extraction Tool and 0701-3901 ASIRT (Alignment Sleeve Insertion/Extraction Tool), a cost savings can be realized.

0701-3820

0701-3850

0701-3901

# M28876 Termination Tools

## O-Rings

Use these O-Rings to hold Kevlar™ (aramid yarn) in place during straight backshell installations.

**O-Ring, 2 and 4-channel** **Part# 0799-2010**
**O-Ring, 8-channel** **Part# 0799-2012**
**O-Ring, 31-channel** **Part# 0799-2015**

0799-2010

0799-2015

0799-2012

## O-Ring Installation Tools

Install O-Rings without breaking by using the O-Ring installation tools. Select the appropriate tool to secure the correct sized O-Ring. NAVSEA listed and approved for MIL-STD-2042C applications.

**O-Ring Installation Tool, size 11 (2-channel)** **Part# 0701-3560**
**NSN: 5120-01-424-7866**
**O-Ring Installation Tool, size 13 (4-channel)** **Part# 0701-3570**
**NSN: 5120-01-424-7867**
**O-Ring Installation Tool, size 15 (6/8-channel)** **Part# 0701-3580**
**NSN: 5120-01-424-7868**
**O-Ring Installation Tool, size 23 (31-channel)** **Part# 0701-3590**
**NSN: 5120-01-424-7866**
**O-Ring Lube , 0.28 grams** **Part# 0701-3710**

0701-3570

0701-3560

0701-3580

0701-3590

0701-3710


# Rotary Mechanical Splice Tools

0700-8915

## UV Curing Lamp w/Base NSN: 6250-01-420-6491 Part# 0700-8915

A UV curable adhesive is required by the rotary mechanical splice which is cured by an ultra violet light. The 0700-8915 assembly includes the UV Lamp and a custom designed base that holds the splices a specified distance from the light source to assure accurate curing of the adhesive.

0700-3020

## Alignment Clip Tool NSN: 5120-01-306-1967 Part# 0700-3020

The 0700-3020 alignment clip tool allows the installer to open the rotary mechanical splice's alignment clip and insert the ferrules so that they touch and align.

0700-3030

## Splice Compression Tool NSN: 5120-01-376-7721 Part# 0700-3030

The 0700-3030 splice compression tool allows the installer to compress the springs that are part of the rotary mechanical splice and to install and remove the splice from the custom tray.

0700-4100

## Rotary Mechanical Splice Polishing Tool Part# 0700-4100
**NSN: 5120-01-328-1227**

The 0700-4100 Rotary Mechanical Splice Polishing Tool will polish the glass ferrules to allow placement into the alignment mechanism. This unique design will allow water from the polishing procedure to be channeled away from the fixture, eliminating fixture "sticking" and allowing for a smoother polishing motion.

# Rotary Mechanical Splice Tools

0700-1590

## UV Adhesive *NAVSEA Listed and approved/MIL-STD-2042C* Part# 0700-1590

Used with Rotary Mechanical Splices and our 0700-8915 oven, this adhesive (MIL-A-24793) comes in a 10 gram bottle.

## Index Matching Gel Part# 0700-1595

This 1cc syringe of Index Matching Gel is used when installing the MIL-PRF-24623/4-1 rotary mechanical splice. This gel has an index of refraction amazingly similar to the glass used in fiber optic applications. When smeared between the endfaces of rotary mechanical splices or between connector endfaces, much less attenuation occurs due to index of refraction mismatch. NAVSEA listed and approved for MIL-STD-2042C and MIL-PRF-24623 applications.

0700-1595

# Preparation Tools

0700-3130

## 900mm Buffer Stripper Part# 0700-3130
**NSN: 5110-01-493-2210**

The most popular buffer stripper on the market for 900mm tight buffered cable. This tool mechanically strips fiber coating with no nicks, cuts or scratches.

## 250mm/900mm Buffer Stripper Part# 0700-3150

This durable .0055" (.14mm) factory set precision tool makes quick work of stripping even the toughest acrylate coated fibers from both 250mm and 900mm cables. The cutting surface is machine hardened, ensuring a smooth, clean stripping action.

0700-3150

0700-3065

## Jacket Strip Tool Part# 0700-3065

This economical Jacket Strip Tool is perfect for cutting outer jackets of a variety of cables. Adjustable from 10 to 30 AWG.

## OFCC Jacket Strip Tool Part# 0700-3061
**NSN: 5110-00-246-0975**

Perfect for stripping 10 to 18 AWG (.75 to 4.0mm) cable. This jacket stripper has a spring-release handle and a cushioned grip. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-3061

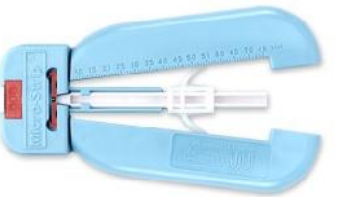
## Outer Jacket Strip Tool Part# 0700-1240
**NSN: 5110-01-419-3137**

Strip the outer jacket of a fiber optic cable accurately and quickly without damaging the inside components. The outer jacket strip tool has an adjustable blade to cut a cable longitudinally as well as vertically. It is capable of handling cable diameters up to 1.0 inch. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-1240

# Preparation Tools

0700-3070



## Micro Buffer Stripper NSN: 5110-01-612-4650 Part# 0700-3070

This precision tool is designed to strip 900mm fiber optic buffers. A cleaning brush and an extra replacement blade are included. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-3072

## Thermal Buffer Stripper Part# 0700-3072

The 0700-3072 Thermal Buffer Stripper uses heat to soften plastic buffers and acrylate coatings to easily strip tough cables.

## Micro/Thermal Buffer Stripper Accessories

0700-3080 0700-3085

**125µm Blade Set** Part# 0700-3080
**900µm Guide** Part# 0700-3085
**Insertion/Removal Tool** Part# 0700-3090
**Cleaning Brush** Part# 0700-3092

0700-3090 0700-3092



## Spring Lock Kevlar™ Shears Part# 0700-3321
## NSN: 5110-01-612-4651

0700-3321

These high leverage Kevlar™ shears have a non-slip, serrated blade specifically designed to cut Kevlar™. They are made of hot-forged carbon steel and feature a safety device, a quick action spring release and a comfortable rubber-coated handle. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-3315

## Industrial Kevlar™ Shears Part# 0700-3315
## NSN: 5110-01-541-8746

Our new and improved Industrial Kevlar™ Shears, with hardened edge steel blades, are perfect for high volume terminations.

NEW DESIGN

0700-3125

## Fibersure™ Multipurpose Stripping Tool Part# 0700-3125
## NSN: 5110-01-559-9272

KITCO Fiber Optics introduces our new Fibersure™ Multipurpose Stripping Tool. This is truly a one of a kind stripping tool! The Fibersure™ Stripping Tool is designed to remove 2.0mm to 3.0mm jacketed cable and 250µm and 900µm coated fibers.

## Fibersure™ Scribe NSN: 5120-01-563-9273 Part# 0700-3750

0700-3750

This unique scribe is a KITCO innovation. Made of proprietary carbide tungsten and sharpened on both ends to a fine razor-sharp edge, the Fibersure™ Scribe's blade has twice the life of ordinary scribes. When the blade gets dull, simply remove and turn the blade around to continue scribing with precision. NAVSEA listed and approved for MIL-STD-2042C applications.

Replacement blades sold separately.

0700-3740

## Dual Sided Replacement Blade Part# 0700-3740

# Preparation Tools

0700-9977

**Debris Bottle** **NSN: 8125-01-563-1725** **Part# 0700-9977**

Disposing of Fiber Shards is of the utmost safety concern. These shards are very dangerous to health if swallowed, got in your eyes, or drawn into the lungs. They may have the same adverse effect as asbestos fibers - can cause cancerous changes. Our debris bottle will dispose of them properly.


# Safety Materials

0700-8810

**Safety Glasses** **NSN: 4240-01-561-7694** **Part# 0700-8810**

These “one size fits all” Safety Glasses are designed for installer comfort as well as safety. Each ear piece has a sliding handle to allow the installer to adjust the glasses for ultimate comfort and vision. The perfectly clear lenses with side shields protect the installers’ eyes from UV (ultra violet) light and from flying glass debris. NAVSEA listed and approved for MIL-STD-2042C applications.

0700-1570

**UV “Over Your Glasses” Safety Glasses** **Part# 0700-1570**

Our UV (ultra violet) blocking glasses serve the same function as the 0700-8810 glasses with one exception; these amber colored glasses will fit over the installers regular eye glasses.

**Microtip Tweezers** **Part# 0700-8911**
**NSN: 5120-00-247-0867**

These extra sharp tweezers come in handy for untangling acrylate coated fibers in crowded communication boxes. Tweezers may also be used to remove tiny shards of glass that may have been inadvertently embedded in your skin.

0700-8911

# Safety Kit

0700-8850

**Fiber Optic Safety Kit** **Part# 0700-8850**

This safety kit contains all of the equipment necessary to ensure a safe working area when terminating, splicing, and polishing fiber optic cables.

**This kit contains the following:**

- **Eye Loupe, 10X**
- **Safety Glasses**
- **Microtip Tweezers**
- **Alcohol Pads**
- **Debris Bottle**
- **Safety Mat**

safety matters
SAFETY FIRST

# Polishing Tools

0701-4100


## M29504/14 and M29504/15 Polishing Tool — Part# 0701-4100
**NSN: 5120-01-419-3142**

The 0701-4100 Precision Polishing Tool is designed to polish the M29504/14 and M29504/15 (ceramic pin and socket termini). Manufactured to hold the termini perpendicular to the polishing paper, this fixture minimizes fiber undercut to allow for higher mechanical performance. Specifications dictate that this fixture is to be used in all singlemode and multimode applications involving MIL-STD-2042C.

0700-1740

## The ProFixture — NSN: 6080-01-563-1720 — Part# 0700-1740

The ProFixture is a must have for the professional fiber optic installer. Made of machine hardened tungsten, the ProFixture will not grind away during polishing. Less expensive fixtures leave a residue (actual fixture material) that can scratch and contaminate the fiber endface which can cause increased dB loss and less reliable performance. The ProFixture pays for itself by eliminating costly repairs due to faulty terminations and is designed to be used with ST, SC and FC connectors and most 2.50mm ferruled connectors. The center hole diameter is held to a 2 ten-thousandths of an inch tolerance to maintain the ferrule perpendicular to the polishing surface. The ProFixture is NAVSEA listed and approved for MIL-STD-2042C applications.

0700-1735

## Universal 1.25mm Polishing Tool — Part# 0700-1735

This universal polishing puck can be used to polish any 1.25mm ferruled connector, (LC or MT-RJ) and is made of tempered stainless steel which will last for years. A precision hole will hold the connector ferrule tightly to prevent uneven polishing.

0700-1725

## Economical LC Polishing Tool — Part# 0700-1725

This economical LC polishing puck can be used to polish any LC connector and is made of a copolymer plastic. A precise footprint will hold the connector ferrule tightly to prevent uneven polishing.

# Polishing Plates and Pads

0700-4110

## Glass Polishing Plate — NSN: 6080-01-377-4502 — Part# 0700-4110

The 0700-4110 polishing plate is used in conjunction with the polishing film to accomplish the polish in accordance with MIL-STD-2042C.

0700-2000

## Resilient Polishing Pads

These polishing pads are used in accordance with MIL-STD-2042C to accomplish a domed endface polish.

**Resilient Pad, 70 Durometer w/Acrylic Plate** — Part# 0700-2000
**NSN: 5130-01-540-2937**

**Resilient Pad, 70 Durometer** — Part# 0700-2002
**NSN: 5130-01-563-4837**

**Resilient Pad, *90 Durometer** — Part# 0700-2045
**NSN: 3460-01-646-3863**

***The 90 durometer resilient pad is used for 1.25mm, small form factor (LC, MU, MT-RJ) connectors.**

# Polishing Films

## Polishing Film – Alumina Oxide (AO) and Diamond (5.5” x 5.5” sheets)

| | | |
|---|---|---|
| **0.3um AO Mylar-Backed Film | | Part# 0700-2611 |
| **1.0um AO Mylar-Backed Film | NSN: 5350-01-626-2526 | Part# 0700-2621 |
| **0.3um AO Paper-Backed Film | | Part# 0700-2510 |
| **8.0um AO Mylar-Backed Film | | Part# 0700-2570 |
| 3.0um AO Mylar-Backed Film | | Part# 0700-2710 |
| **5.0um AO Foam-Backed Film | NSN: 5350-01-420-1454 | Part# 0700-2663 |
| **0.1um Diamond Film, 10 per pkg | NSN: 5350-01-545-0206 | Part# 0700-2720 |
| 0.1um Diamond Film, 3 per pkg | NSN: 5350-01-563-5475 | Part# 0700-2803 |
| 0.1um Diamond Film, per sheet | NSN: 5350-01-539-0516 | Part# 0700-2802 |
| 0.5um Diamond Film, 10 per pkg | NSN: 5350-01-552-8188 | Part# 0700-2800 |
| 1.0um Diamond Film, 10 per pkg | | Part# 0700-2805 |
| **Ultrafine Polishing Film (5” round), per sheet | NSN: 5350-01-539-0549 | Part# 0700-2850 |

**Unless otherwise noted, all polishing films are sold in packages of 50**
****NAVSEA listed and approved for MIL-STD-2042C applications**

**Polishing Paper Colors:**

| | | | |
|---|---|---|---|
| 0700-2611 | White | 0700-2720 | Grayish Green |
| 0700-2621 | Purple | 0700-2803 | Grayish Green |
| 0700-2510 | Suede | 0700-2802 | Grayish Green |
| 0700-2570 | Dark Grey | 0700-2800 | Gray/Slate |
| 0700-2710 | Pink | 0700-2805 | Purple |
| 0700-2663 | Gray/Slate | 0700-2850 | Clear |

Alumina Oxide

Diamond Film

# Adhesives

## Epoxy *NAVSEA Listed and approved/MIL-STD-2042C* Part# 0700-5035
**NSN: 8040-01-421-3510**

0700-5035

The epoxy mini 6-pack is a two-part system that uses a resin and a hardener. Conveniently packaged in six 1-gram packages, this epoxy cures in 10 to 30 minutes at 120°C.

## Fibersure Fiber Optic Adhesive Part# 0700-3810
**NSN: 6099-01-563-8571**
## Fibersure Fiber Optic Primer, Non-Hazmat Part# 0700-3815
**NSN: 6099-01-563-8574**

0700-3810 0700-3815


The Fibersure anaerobic adhesive system is a two-part system that uses a non-hazmat primer and adhesive. Specially formulated for fiber optic cable, this system provides strong adhesion within seconds to ceramic, stainless steel and most polymer ferrules. Anaerobic adhesives have many advantages which include: quick adhesion for immediate polishing, long-term reliability and repeatability.

**APPROVED FOR SHIPBOARD COTS USE ONLY!**

SHIPBOARD

# Adhesives

## Fibersure Anaerobic Consumables Kit — Part# 0700-3800

0700-3800

**This kit contains the following items:**

- 1 btl. Primer
- 1 btl. Adhesive
- 10 Alcohol Pads
- 20 Needle Tips

**APPROVED FOR COTS USE ONLY!**

# Syringes and Needle Tips

## Syringes and Needle Tips

**Syringe (3cc)** — Part# 0700-5121
**NSN: 8125-01-562-0534**

0700-5121

**Needle Tip (20 gauge, 1")** — Part# 0700-5111
**NSN: 6515-01-532-2085**

0700-5111

**Syringe w/Needle Tip (24 per pkg)** — Part# 0700-5100
**NSN: 5120-01-539-0526**

0700-5100

**Needle Tip (18 gauge, 1")** — Part# 0700-5144
**NSN: 5120-01-645-7417**

0700-5144

# Cleaning Products

3200-4161

## Canned Air — NSN: 6850-01-517-1506 — Part# 3200-4161

This dispenser of compressed canned air provides a tube that securely fits in the nozzle to remove particles from hard to reach areas. The ingredients are environmentally safe.

0700-5200


## Lint Free Wipes — NSN: 7920-01-321-6791 — Part# 0700-5200

These absorbing wipes are perfect for cleaning fiber and connector endfaces. Each package contains 100 soft lint-free wipes.

## OPTIPOP Connector Cleaner — Part# 0700-5191

0700-5191

The OPTIPOP is a cassette style fiber optic connector cleaner system that can be refilled for reduced cleaning costs. It uses a densely woven micro-fiber cleaning fabric to remove harmful contaminates from the ferrule endface. The OPTIPOP cleaning tool will accommodate single and multi fiber connections. **Replacement reels (0700-5192) can be ordered separately.**

## CleanClicker™ Cassette Cleaner™ — Part# 0700-5196

0700-5196

The MicroCare CleanClicker™ Cassette Cleaner cleans all the usual connectors such as SC duplex, FC, ST, LC duplex and unmated jumper assemblies as well as the female MPO assemblies

## FiberClean Cleaner — Part# 0795-0990

0795-0990


The FiberClean Cleaner, used to clean the fiber optic connector/termini endface, is compact and can be reloaded over and over, making it cost effective to use. The dispenser protects the reel from dirt and moisture before use, extending the life and quality of the cleaner.

SHIPBOARD

# Cleaning Products

0700-5190


## QbE® Lint Free Wipe — Part# 0700-5190

The QbE® Lint Free Wipes are designed with a precision wipe platform built onto the side of the box to provide 100% endface coverage ensuring removal of all debris – even on connector edges. 200 sheets per box.

## Alcohol Pads

0700-9760


These alcohol soaked pads are placed in most of our fiber optic tool kits so that the installer will be able to immediately use the kit. Liquid alcohol is not included in our kits because of the hazardous materials restrictions. These wiping pads are saturated with optically pure 99% anhydrous reagent isopropyl alcohol, perfect for cleaning polishing pads, tools and connector endfaces.

**Single Alcohol Pad** NSN: 6510-01-543-5190 Part# 0700-9760
**Case of 50 Alcohol Pads** NSN: 6850-01-561-8896 Part# 0700-9765

0700-5150

## Isopropyl Alcohol — Part# 0700-5150

This 99% anhydrous reagent isopropyl alcohol contains the same fluid that is in our alcohol pads, 0700-9760. This alcohol comes in a 16 ounce bottle and is used in conjunction with our 0700-9750 pump dispenser.

0700-9750

## Alcohol Pump Dispenser NSN: 4930-01-561-7695 Part# 0700-9750

This pump dispenser allows easy access to alcohol, while protecting its purity. By pressing the top, a small amount of alcohol rises and sits in the reservoir bowl. A one-way valve seals and protects the inside contents from contamination. This dispenser also has a locking spill proof top and a label clearly marked as “ALCOHOL”

0700-3210


## Cleaning Wire NSN: 9505-01-540-1468 Part# 0700-3210

Used to push broken fibers out of fiber optic connectors, the 0700-3210 cleaning wire will salvage connectors by clearing them to allow prepared fiber to be re-inserted.

## Cleaning Kit NSN: 6080-01-651-8502 Part# 0700-5430

The 0700-5430 contains all the materials you need to clean the M29504 termini, and the ST and LC connectors.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# Cleaning Products

## Field Cleaning Kit

**Part# 0700-5387**

The 0700-5387 contains all the materials you need to clean any 2.5mm ferruled connector — ST, SC and FC.


# NAVSEA approved Consumables Kits

## NAVSEA Consumables Kits (for M83522/16 connectors, M29504/14 and M29504/15 termini pins and sockets)

0801-9050


The polishing technique outlined in the latest version MIL-STD-2042C requires three polishing papers instead of the traditional two; using 0.1µm, mylar-backed, diamond paper on a 70 durometer resilient pad. These kits come in a soft reusable storage bag. Our multimode and singlemode consumable kit contain material to perform approximately 100 terminations.

**Multimode** **Part# 0801-9050**
**Singlemode** **NSN: 6080-01-449-9157** **Part# 0801-9060**

# Consumables

(1) (2) (3) (4) (5) (6) (7)

## Dust Caps

Used to protect fiber optic endfaces from dust, dirt, and scratches, dust caps will prolong the life of your fiber optic system.

**(1) 2.50mm Ferrule Dust Cap, Clear** **NSN: 5340-01-499-5899** **Part# 0700-9815**
**(2) ST Coupling Adapter Dust Cap, Yellow** **Part# 0700-9820**
**NSN: 5430-01-657-7958**
**(3) LC Coupling Adapter Dust Cap, White (10 per pkg)** **Part# 0700-9822**
**NSN: 5340-01-608-8055**
**(4) 1.60mm Ferrule Dust Cap, Yellow** **Part# 0700-9827**
**(5) 1.25mm Ferrule Dust Cap, White (100 per pkg)** **Part# 0700-9828**
**(6) 2.50mm Ferrule Dust Cap, Clear** **Part# 0700-9835**
**(7) 2.50mm Ferrule Dust Cap w/Lanyard, White** **Part# 0700-9840**

**Unless otherwise noted, all dust caps are sold individually**

# Consumables

0700-5185


## STICKLERS® Cleanwipes™ Part# 0700-5185

This lint-free fiber connector cleaner is hermetically sealed in a foil pouch and is ideal for use in harsh environments. The cleaning pad can be used to clean connector endfaces whether dry or moistened with fiber preparation fluid. Sold in a package of 50.

0700-5175

## Fiber Optic Connector Cleaner Part# 0700-5175

This specially formulated non-hazardous fiber cleaning fluid eliminates unwanted film residue on fiber optic enfaces after cleaning.

0700-9755

## Fiber Preparation Fluid Part# 0700-9755
**NSN: 6850-01-546-4699**

The 0700-9755 Fiber Preparation Fluid is engineered to provide a non-flammable, non-hazardous cleaner for use on fiber after stripping, prior to termination or fusion splicing, and for cleaning connector endfaces after polishing. The fluid is packaged in a unique spill proof container with a saturator dispenser tip to provide fast and easy hands-free cleaning, and provides over 400 cleanings per container.

0700-5165

## STICKLERS® Benchtop Cleanwipes™ Part# 0700-5165
**NSN: 7620-01-547-6547**


These wipes are made from lint-free polyester fabric to provide a stronger, softer and more absorbent wipe than the traditional cellulose wipe. Each mini-tub contains 90 perforated 4" x 2" wipes. The CleanWipes™ package is rugged and spill proof, and protects the wipes from moisture and dust.

## Cleaning Sticks

These cleaning sticks come in 4 different versions for use with M28876 plugs and receptacles, Hermaphroditic connectors, D38999 connectors, MIL-PRF-29504 termini, and SC, ST, FC and LC connectors and adapters.

**2.50mm Pin Cleaning Stick, 50 per pkg - C, ST, FC connectors** Part# 0700-5390
**NSN: 6070-01-553-2258**

**2.50mm Socket Cleaning Stick, 50 per pkg - SC, ST, FC adapters** Part# 0700-5391
**NSN: 6070-01-553-2263**

**1.60mm Cleaning Stick, 50 per pkg - MIL-PRF-29504, MIL-DTL-38999** Part# 0700-5392
**NSN: 6070-01-553-2262**

**1.25mm Cleaning Stick, 50 per pkg - MT-RJ, LC connectors** Part# 0700-5393
**NSN: 6070-01-553-2267**

**1.25mm Cleaning Stick, 50 per pkg - SMA, MPT, Biconic connectors** Part# 0700-5394
**NSN: 6070-01-602-2363**

**6" Wooden Cotton Tip Stick - 100/package** Part# 0701-5201

0700-5390


0700-5391


0700-5392


0700-5393


0700-5394


0701-5201

# Consumables

## Ferrule Mate™ Cleaner

Specially designed for the field technician, the Ferrule Mate™ Cleaner offers a fast, automated way to clean fiber connectors without having to manually change cleaning tips or use special chemicals or tools. Self-advancing cleaning ribbon speeds up cleaning time while ensuring superior results. Each compact and easy to use cleaner performs over **300 cleaning applications** and cleans both PC and angle PC connectors. Available in the SFM-250 model for 2.50mm SC, ST, and FC connectors and adapters and the SFM-125 model for 1.25mm LC and MU connectors and adapters.

**0795-0995**

**0795-0996**

**Ferrule Mate™ 2.50mm** **Part# 0795-0995**
**Ferrule Mate™ 1.25mm** **Part# 0795-0996**

USCONEC

## IBC™ Cleaner

The IBC™ Cleaners are mechanical cleaning tools designed to clean connector endfaces while installed in adapters. The IBC™ cleaning tools use a novel dry cleaning strand to gently sweep and lift away dust and residues from the connector endface. Each compact and easy to use cleaner performs over **525 cleaning applications** and cleans both PC and angle PC connectors.

**2.50mm Cleaner – SC, ST, FC, connectors and TFOCA termini** **Part# 0700-5396**
**1.25mm Cleaner – MT-RJ, MU, LC connectors** **Part# 0700-5397**
**2.00mm Cleaner – MIL-PRF-29504 termini** **Part# 0700-5398**
**1.60mm Cleaner – MIL-DTL-38999 termini** **Part# 0700-5399**
**2.50mm Cleaner – SC connectors and adapters** **Part# 0700-5450**

**0700-5396**

**0700-5397**

**0700-5398**

**0700-5399**

**0700-5450**

## CleanBeam Mil Kit

**Part# 0700-5425**

The CleanBeam Mil Kit is designed to provide the highest level of cleaning for military, tactical, shipboard and commercial fiber optic plugs and sockets. The CleanBeam wet-to-dry cleaning system provides superior cleaning results while eliminating unwanted film residue on glass surfaces, improving system performance, and preventing damage to expensive equipment and testers.

**This kit contains the following:**

- **STICKLERS™ Fiber Optic connector cleaner**
- **QbE® lint free wipes**
- **2.50mm cleaning stick, 50 per pkg – SC, ST, FC connectors**
- **2.50mm cleaning stick, 50 per pkg – SC, ST, FC adapters**
- **1.60mm cleaning stick, 50 per pkg – MIL-PRF-29504 and MIL-DTL-38999**

**0700-5425**


SHIPBOARD

# Measurement Quality Jumpers

## Why use MQJs?

Consistency, repeatability, flexibility, and accuracy. Even though the power meter is "zeroed-out" before being attached to the cable to be tested, the quality of reference cables can greatly affect your testing results. The use of MQJs minimizes harmful effects. MQJs fall within a testing range that ensures no matter which MQJ you use, your results will be consistent and repeatable. If various tests must be performed at different times, the results will be consistent because MQJs (by definition) yield consistent results.

## What are MQJs?

MQJs (Measurement Quality Jumpers) are reference cables or test jumpers that are manufactured and tested to meet the highest levels of optical performance, while allowing repeatability and flexibility in testing fiber. An MQJ will not pass a sub-standard component or link, nor will it fail a good component or link.

## Why is the one jumper method prescribed?

Many installers use the two (or three) jumper reference method for all of their testing requirements, regardless of the cable plant configuration. The two (or three) jumper reference methods can, however, understate the actual link loss. The one jumper reference method will approximate the installed performance loss more closely and will result in the safest and most conservative test results. In accordance with MIL-STD-2042C, part 6, the one jumper reference method is the correct method for measuring link loss. This procedure is also the accepted method for measuring link loss according to ANSI-TIA 568.C.0-2, Annex E in accordance with TIA 526-7, Annex A, Method A-1 for singlemode applications and TIA 526-14-B, Annex A, Method A-1 for singlemode applications.

## Manufacturing and verifying MQJs

In order to manufacture MQJs, extensive testing verification procedures must be followed. During the test procedure, each connector is mated and de-mated 10 times. Not only must an MQJ fall within the range mentioned in Table 1 on the following page, it must also consistently fall within these prescribed ranges. The mean and standard deviation of these measurements are calculated and verified to fall within these prescribed ranges. The navy requires MQJs to be manufactured using connectors made in accordance with MIL-C-83522/16, MIL-PRF-28876 or MIL-PRF-29504/14 and MIL-PRF-29504/15 specifications. The fiber must meet MIL-PRF-49291 specifications and the jacketed cable must meet MIL-PRF-85045 criteria.

## In conclusion

KITCO has chosen to take the lead and is committed to ensure that fiber optic testing be performed solely with the use of the highest quality test jumpers - MQJs. The benefits of using MQJs are clear; consistency, repeatability, flexibility and accuracy!

## Loss Acceptance Criteria for MQJs

**Multimode 62.5/125µm**

End Connection
MIL-C-83522/16
Acceptable Loss (dB)
0.00 < BST < 0.35
Standard Deviation (dB)
.05 (max)

End Connection
MIL-T-29504/14 Pin
Acceptable Loss (dB)
0.00 < BC < 0.70
Standard Deviation (dB)
.05 (max)

End Connection
MIL-T-29504/15 Socket
Acceptable Loss (dB)
0.00 < BC < 0.70
Standard Deviation (dB)
.05 (max)

End Connection
MIL-S-24623 Splice
Acceptable Loss (dB)
0.00 < BC < 0.30
Standard Deviation (dB)
.05 (max)

End Connection
TIA 604-10/LC
Acceptable Loss (dB)
0.00 < BST < 0.35
Standard Deviation (dB)
.05 (max)

**Multimode 50/125µm**

End Connection
MIL-C-83522/16
Acceptable Loss (dB)
0.00 < BST < 0.35
Standard Deviation (dB)
.05 (max)

End Connection
MIL-T-29504/14 Pin
Acceptable Loss (dB)
0.00 < BC < 0.70
Standard Deviation (dB)
.05 (max)

End Connection
MIL-T-29504/15 Socket
Acceptable Loss (dB)
0.00 < BC < 0.70
Standard Deviation (dB)

***The Navy requires...***

***The use of MQJs (Measurement Quality Jumpers) in accordance with the NAVSEA Drawing #'s 6877804 and 8324329 when testing shipboard based optical fiber cable plants per MIL-STD-2042C. MQJs are available for both multimode (62.5/125 and 50/125) and singlemode enhanced applications.***

**Singlemode 8.3/125µm**

End Connection
MIL-C-83522/16
Acceptable Loss (dB)
0.00 < BST < 0.35
Standard Deviation (dB)
.10 (max)

End Connection
MIL-T-29504/14 Pin
Acceptable Loss (dB)
0.00 < BC< 0.70
Standard Deviation (dB)
.05 (max)

End Connection
MIL-T-29504/15 Socket
Acceptable Loss (dB)
0.00 < BC < 0.70
Standard Deviation (dB)
.05 (max)

End Connection
MIL-S-24623 Splice
Acceptable Loss (dB)
0.00 < BC < 0.30
Standard Deviation (dB)
.05 (max)

End Connection
TIA 604-10/LC
Acceptable Loss (dB)
0.00 < BST < 0.35
Standard Deviation (dB)
.10 (max)

# Measurement Quality Jumpers




## NAVSEA Drawings for Multimode MQJs

| NAVSEA Drawing# | NSN | Description | Length | Part# |
|---|---|---|---|---|
| 6877804-01 | 6020-01-417-1963 | ST-ST, 62.5/125µm | 50 meters | KFO 60110 |
| 6877804-02 | 6020-01-425-9732 | ST-RMS, 62.5/125µm | 50 meters | KFO 60210 |
| 6877804-03 | 6020-01-417-1964 | ST-pin, 62.5/125µm | 50 meters | KFO 60310 |
| 6877804-04 | 6020-01-417-1967 | ST-socket, 62.5/125µm | 50 meters | KFO 60410 |
| 6877804-05 | 6020-01-417-5230 | ST-ST, 62.5/125µm | 1 meter | KFO 60510 |
| 6877804-06 | 6020-01-425-9721 | ST-RMS, 62.5/125µm | 1 meter | KFO 60610 |
| 6877804-07 | 6020-01-417-5244 | ST-4 fiber plug, 62.5/125µm | 1 meter | KFO 60710 |
| 6877804-08 | 6020-01-418-6285 | ST-4 fiber receptacle, 62.5/125µm | 1 meter | KFO 60810 |
| 6877804-09 | 6020-01-425-9727 | ST-8 fiber plug, 62.5/125µm | 1 meter | KFO 60910 |
| 6877804-10 | 6020-01-425-9730 | ST-8 fiber receptacle, 62.5/125µm | 1 meter | KFO 61010 |
| 6877804-12 | 6625-01-495-7550 | ST-31 fiber plug, 62.5/125µm | 1 meter | KFO 61210 |
| 6877804-13 | 6625-01-495-7752 | ST-31 fiber receptacle, 62.5/125µm | 1 meter | KFO 61310 |
| 6877804-14 | N/A | ST-LC, 62.5/125µm | 50 meters | KFO 61410 |
| 6877804-15 | N/A | ST-LC, 62.5/125µm | 1 meter | KFO 61510 |
| 8324329-01 | 6060-01-607-2009 | ST-ST, 50/125µm | 50 meters | KFO 65110 |
| 8324329-02 | N/A | ST-pin, 50/125µm | 50 meters | KFO 65310 |
| 8324329-03 | N/A | ST-socket, 50/125µm | 50 meters | KFO 65410 |
| 8324329-04 | 6060-01-607-2617 | ST-ST, 50/125µm | 1 meter | KFO 65510 |
| 8324329-05 | 6060-01-607-2622 | ST-8 fiber plug, 50/125µm | 1 meter | KFO 65910 |
| 8324329-06 | 6060-01-607-2002 | ST-8 fiber receptacle, 50/125µm | 1 meter | KFO 65010 |

## NAVSEA Drawings for Singlemode Enhanced MQJs

| NAVSEA Drawing# | NSN | Description | Length | Part# |
|---|---|---|---|---|
| 6877804-01SME | 6625-01-498-9987 | ST-ST, 9.0/125µm | 50 meters | KFO 60130 |
| 6877804-03SME | 6625-01-498-9980 | ST-pin, 9.0/125µm | 50 meters | KFO 60330 |
| 6877804-04SME | 6625-01-498-9988 | ST-socket, 9.0/125µm | 50 meters | KFO 60430 |
| 6877804-05SME | 6625-01-498-9998 | ST-ST, 9.0/125µm | 1 meter | KFO 60530 |
| 6877804-07SME | 6625-01-496-9904 | ST-4 fiber plug, 9.0/125µm | 1 meter | KFO 60730 |
| 6877804-08SME | 6625-01-496-9906 | ST-4 fiber receptacle, 9.0/125µm | 1 meter | KFO 60830 |
| 6877804-09SME | 6625-01-496-9913 | ST-8 fiber plug, 9.0/125µm | 1 meter | KFO 60930 |
| 6877804-10SME | 6625-01-496-9910 | ST-8 fiber receptacle, 9.0/125µm | 1 meter | KFO 61030 |
| 6877804-12SME | 6625-01-496-9911 | ST-31 fiber plug, 9.0/125µm | 1 meter | KFO 61230 |
| 6877804-13SME | 6625-01-496-9912 | ST-31 fiber receptacle, 9.0/125µm | 1 meter | KFO 61330 |
| 6877804-14SME | N/A | ST-LC, 9.0/125µm | 50 meter | KFO 61430 |
| 6877804-15SME | N/A | ST-LC, 9.0/125µm | 1 meter | KFO 61530 |

## Multimode Commercial Certified MQJs (CCMQJ)

| Description | Length | Part# |
|---|---|---|
| ST-socket, 62.5/125µm | 1 meter | KFO 10026 |
| ST-pin, 62.5/125µm | 1 meter | KFO 10027 |
| SC-LC, 62.5/125µm | 1 meter | KFO 12127 |
| ST-SC, 50/125µm | 1 meter | KFO 15361 |
| ST-LC, 50/125µm | 1 meter | KFO 13562 |
| LC-LC, 62.5/125µm | 1 meter | KFO 15677 |
| SC-SC, 62.5/125µm | 1 meter | 0705-5320 |
| ST-SC, 62.5/125µm | 1 meter | 0705-5330 |

## Singlemode Enhanced Commercial Certified MQJs (CCMQJ)

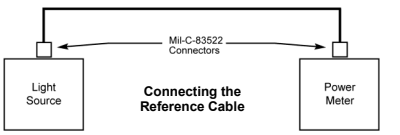
| Description | Length | Part# |
|---|---|---|
| ST-socket, 9.0/125µm | 1 meter | KFO 10024 |
| ST-pin, 9.0125µm | 1 meter | KFO 10025 |
| SC-LC, 9.0/125µm | 1 meter | KFO 12128 |
| LC-LC, 9.0/125µm | 1 meter | KFO 13609 |
| SC-SC, 9.0/125µm | 1 meter | 0705-5325 |
| ST-SC, 9.0/125µm | 1 meter | 0705-5331 |

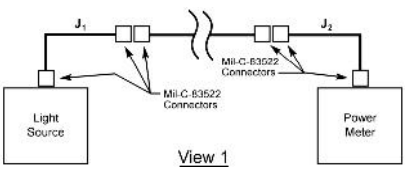
**NOTE: Not all connector types are listed. Any of the CCMQJs can be customized to meet your specific interface and length requirements, please call for details.**

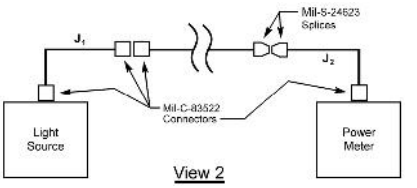
# Measurement Quality Jumpers

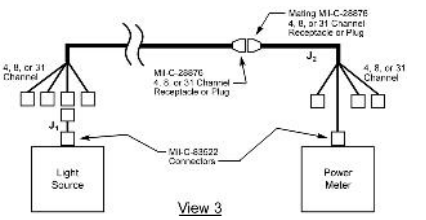
## Reference Cable Set-Up Configuration
## NAVSEA Drawing#'s 6877804 and 8324329

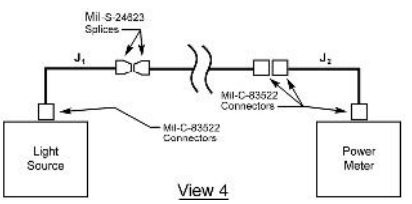
These charts depict how MQJs should be set up in relation to an approved light source and power meter. Refer to these charts to utilize MQJs to check for link loss of fiber plants aboard Navy vessels.

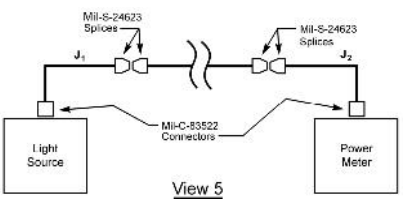


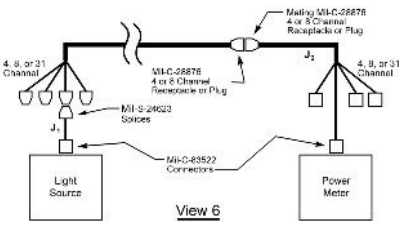



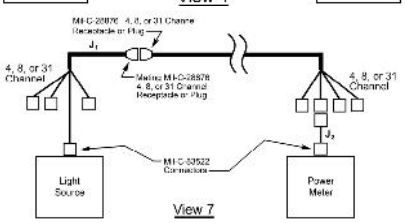



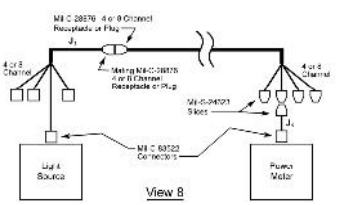



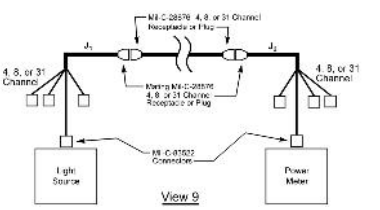




| Termination at Light Source End | Source Jumper $J_1$ Configuration | Termination at Power Meter End | Source Jumper $J_2$ Configuration | View Figure: |
|---|---|---|---|---|
| M83522/16 | A | M83522/16 | A | 1 |
| M83522/16 | A | M24623 | B | 2 |
| M83522/16 | A | M28876 4-Channel Plug (Receptacle)) | C(D) | 3 |
| M83522/16 | A | M28876 8-Channel Plug (Receptacle)) | E(F) | |
| M83522/16 | A | M28876 31-Channel Plug (Receptacle)) | G(H) | |
| M28876 4-Channel Plug (Receptacle) | C(D) | M83522/16 | A | 7 |
| M28876 8-Channel Plug (Receptacle) | E(F) | M83522/16 | A | |
| M28876 31-Channel Plug (Receptacle) | G(H) | M83522/16 | A | |
| M28876 4-Channel Plug (Receptacle) | C(D) | M28876 4-Channel Plug (Receptacle) | C(D) | 9 |
| M28876 8-Channel Plug (Receptacle) | E(F) | M28876 8-Channel Plug (Receptacle) | E(F) | |
| M28876 31-Channel Plug (Receptacle) | G(H) | M28876 31-Channel Plug (Receptacle) | G(H) | |
| M24623 | B | M83522/16 | A | 4 |
| M24623 | B | M24623 | B | 5 |
| M24623 | B | M28876 4-Channel Plug (Receptacle) | C(D) | 6 |
| M24623 | B | M28876 8-Channel Plug (Receptacle) | E(F) | |
| M28876 4-Channel Plug (Receptacle) | C(D) | M24623 | B | 8 |
| M28876 8-Channel Plug (Receptacle) | E(F) | M24623 | B | |

# Measurement Quality Jumper Test Set

| | | |
|---|---|---|
| **Multimode MQJ Test Kit** | | **Part# 0701-7045** |
| **Multimode/Singlemode Test Kit** | | **Part# 0701-8045** |
| **Replacement Multimode MQJ** | **NSN: 6070-01-417-5230** | **Part# KFO 60510** |
| **Replacement Singlemode MQJ** | **NSN: 6625-01-498-9998** | **Part# KFO 60530** |

## Eliminate Costly Rework

Link loss testing is a critical part of ensuring that any fiber optic installation meets the desired performance criteria. Many installers are not aware of the importance of this testing, or of the need to use only Measurement Quality Jumpers to ensure accuracy.

KITCO Fiber Optics developed these test kits for the U.S. Navy. Reference cables used for link loss testing must use the components listed in NAVSEA Drawing# 6877804.

MQJs are manufactured using high quality connectors with ceramic zirconia ferrules. Our strict assembly and testing procedures allow us to certify only cables that fall within a .01dB to .35dB loss range with a consistency of .05dB standard deviation. Because of these tolerances, an MQJ will correctly reject a link that does not meet the prescribed standards.

The 0701-7045 includes three 1-meter 6877804-05 ST-ST multimode MQJs as well as a precision light source and power meter with .01dB resolution. The light source and power meter are high quality devices that not only pass the required Couple Powered Ratio (CPR) value but have also been approved for use by the U.S. Navy.

The 0701-8045 includes three 1-meter 6877804-05 ST-ST multimode MQJs and three 1-meter 6877804-05SME ST-ST singlemode MQJs and the same precision light source and power meter that comes with the 0701-7045 plus a dual laser source which has been approved for use by the U.S. Navy to conform with their Couple Powered Ratio (CPR) value .

**The 0701-7045 kit contains the following:**

- **Multimode LED Source**
- **Quad Power Meter**
- **MQJ Power Loss Manual**
- **ST-ST Adapter**
- **Alcohol Pads**
- ***Micro Swabs (10 ea.)**
- **Multimode ST-ST MQJs**
- **Soft Case**

***When purchased outside of this kit; the micro swabs are packaged only in bags of 100**

**The 0701-8045 kit contains the following:**


- **Multimode LED Source**
- **Singlemode Lase Source**
- **Quad Power Meter**
- **MQJ Power Loss Manual**
- **ST-ST Adapter**
- **Alcohol Pads**
- ***Micro Swabs (10 ea.)**
- **Multimode ST-ST MQJs**
- **Singlemode ST-ST MQJs**
- **Hard Case**

***When purchased outside of this kit; the micro swabs are packaged only in bags of 100**

Use the KITCO MJQ Light Source and Power Meter Test Kits to ensure that your installations meet the required performance criteria.

*Always INSPECT (and clean) before you CONNECT!!*

# Testing Equipment

## Talk Sets

These Voicelink™ Talk Sets provide the installer or test technician with a quick and simple voice communication link over a single optical fiber. Available in a combination singlemode/multimode fiber talk set, options include either a push-to-talk remote speaker/mic. or a VOX unit with a headset and boom mic. Sold as a pair, the talk sets include a hard sided waterproof carrying case, instruction manual, 2 base units and 2 remote speaker/mics or VOX units.

**0705-6020**

**0705-6040**

**Push-to-Talk (remote speaker headset)** **Part# 0705-6020**
**Hands Free (VOX and headset w/boom mic)** **Part# 0705-6040**

## Visual Fault Finder (VFL)

This Visual Fault Finder (VFL) is an ideal tool to aid in identifying broken fiber optic cables and fiber optic cables with excessive bends. The VFL can also be used to perform continuity checks and aid in the successful termination of pre-stub (pre-polished) fiber optic connectors. The universal adapter accepts any 2.50mm ferrule (other adapters available), allowing a 650nm, Class IIIA (<5mW) laser light to be injected into a fiber. This light enables breaks or sharp bends in a cable to be identified 6-7km away on a singlemode fiber and 4-5km away on multimode fiber.

**0705-7080**

**VFL w/Universal 2.50mm Adapter** **Part# 0705-7080**
**NSN: 5120-01-578-3509**
**VFL w/Universal 1.25mm Adapter** **Part# 0705-7075**
**1.25mm Adapter** **Part# 0705-7086**
**NSN: 6060-01-646-2739**
**1.60mm Adapter** **Part# 0705-7087**
**1.25mm/1.60mm Adapter w/lanyard** **Part# 0705-7088**

**0705-7086**

**0705-7087**

NEW

**0705-7088**

## Optical Loss Tester

Characterizing the insertion loss and return loss of your fiber has never been so easy! Testing fiber optic cable in the field is a time consuming and complicated process, but the 0705-5450 and 0705-5455 simplify acceptance testing by automating the measurement process, informing the user of PASS/FAIL condition on the fiber under test based on user thresholds. Each unit is housed in a rugged rubberized protective case that can stand up to the rigors of the shipboard or field environment. The large backlit screen and sealed membrane panel enable the unit to be used in the harshest of environments. The internal rechargeable batteries provide a continuous 8 hours of operation on a full charge.

Each tester comes with a hard carrying case, instruction manual, data transfer cable, Report Writer software, mandrel wrap, AC adapter/charger, and SC, ST, and FC Universal Connector Interface (UCI) and Snap-On Connector (SOC) adapters.

**Multimode 850nm/1300nm Optical Loss Test Set** **Part# 0705-5450**
**NSN: 6650-01-508-2419**
**Singlemode 1310nm/1550nm Optical Loss Test Set** **Part# 0705-5455**
**NSN: 6650-01-508-2438**

# Testing Equipment

## Navy Approved Light Source/Power Meter Set — Part# 0705-5347

### Meets Required CPR Value

TECHLITE™ series of test sets allows technicians to perform precise optical testing in the field. The meter, when operated in absolute power mode, is used to determine the level of optical power being emitted from a transmitter. In relative mode, the meter is used with the included light source to perform fiber loss measurements or splice tuning operations. The meter, in absolute mode, will store the zero reference reading for all four wavelengths independently in non-volatile memory. This allows all zero reference to be taken at one time and also allows the unit to be turned off while moving between locations to preserve battery life. The light source and power meter are high quality devices that not only pass the required Couple Powered Ratio (CPR) value but have been also approved for use by the U.S. Navy.

## Shipboard OTDR/MQJ Test Set — Part# 0701-8900

The 0701-8900 OTDR/MQJ Kit contains the Viavi OTDR T-BERD 4000 Mainframe OTDR system and the appropriate ST-to-ST multimode MQJ's (Measurement Quality Jumpers) launch cables, coupling adapters, and the cleaning supplies to allow the installer to verify cable attenuation in accordance with MIL-STD-2042C. A quad (multimode, 850nM/1300nM and singlemode, 1310nM/1550nM) module and other MQJ-OTDR launch cables may be purchased separately.

**This kit contains the following:**

- **M83522/17-NY Singlemode ST-ST Adapter**
- **SC-ST Hybrid Coupler**
- **MQJ, ST-ST, 50 meters, Multimode**
- **T-BERD 4000 Mainframe OTDR System**
- **Multimode 850nM/1300nM Module**
- **FiberTrace Software**
- **Alcohol Pads**
- **Lint Free Swabs, 100 per pkg**
- **Soft Carrying Case**

Please refer to the MIL-STD-2042C for exact details concerning the use of OTDRs and other test equipment.

## T-BERD 4000 Mainframe OTDR System — Part# 0705-5600

The Viavi T-BERD 4000 Mainframe OTDR System is designed specifically for the U.S. Navy. Optical Time Domain Reflectometers are used aboard United States Naval vessels to verify reels fiber and also to locate fiber breaks and cable attenuation.

**This OTDR contains the following:**

- **T-BERD 4000 Mainframe**
- **Quad Module (850/1300/1310/1500nM)**
- **Soft Carrying Case**
- **Power Supply**

# M28876 Connectors

## MIL-PRF-28876 Fiber Optic Connector

Utilizes the MIL-PRF-29504/14 and MIL-PRF-29504/15 Termini

Developed and produced by the MIL-PRF-28876 fiber optic connector features low optical insertion loss, repeatability, exceptional strain relief and reliability in harsh environments. This connector is used extensively by the United States Navy in shipboard applications and has been on the United States Government's Qualified Products List (QPL) since 1983.

### MIL-SPEC CONNECTOR ORDERING NOMENCLATURE

**M28876/7 B 1 2 P 1 ***

| Connector Type | Strain Relief | MIL-SPEC / Number |
|---|---|---|
| Wall Mount Receptacle | None | M28876/1 |
| Wall Mount Receptacle | Straight | M28876/2 |
| Wall Mount Receptacle | 45° | M28876/3 |
| Wall Mount Receptacle | 90° | M28876/4 |
| In-Line Receptacle | Straight | M28876/5 |
| Plug Connector | None | M28876/6 |
| Plug Connector | Straight | M28876/7 |
| Plug Connector | 45° | M28876/8 |
| Plug Connector | 90° | M28876/9 |
| Jam Nut Receptacle | None | M28876/11 |
| Jam Nut Receptacle | Straight | M28876/12 |
| Jam Nut Receptacle | 45° | M28876/13 |
| Jam Nut Receptacle | 90° | M28876/14 |

When ordering a /1, /6, or /11 connector type that **DOES NOT** require an insert retention nut and pressure sleeve, add N to the end of the part number nomenclature (for example: M28876/1B1S1N)

Keying Position Designator
1 thru 6

Keying Position Designator
P = Pin
S = Socket

| Shell Size | Shell Size Designator |
|---|---|
| 13 | B |
| 15 | C |
| 23 | F |

| # of Cavities | Shell Size | Insert Designator |
|---|---|---|
| 4 | 13 | 1 |
| 6 | 15 | 2 |
| 8 | 15 | 1 |
| 18 | 23 | 2 |
| 31 | 23 | 1 |

*(Omit if No Strain Relief)*

| Backshell # Designator | Maximum Allowable Cable Diameter by Shell Size 13 | 15 | 23 |
|---|---|---|---|
| 1 | .285 (7.24) | .500 (12.70) | .866 (22.00) |
| 2 | .346 (8.79) | .250 (6.35) | 1.00 (25.40) |
| 3 | N/A | .375 (9.53) | .600 (15.24) |

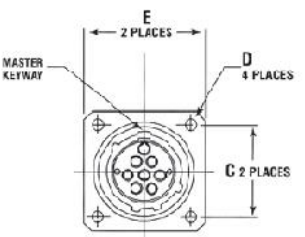
For reference only. Accuracy not guaranteed.
Unless otherwise specified, dimensions are in inches and (millimeters).

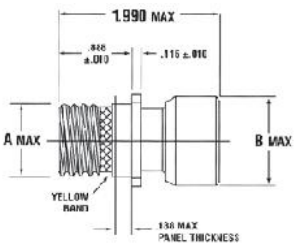
# M28876 Connectors

**MIL-PRF-28876** Fiber Optic Connector

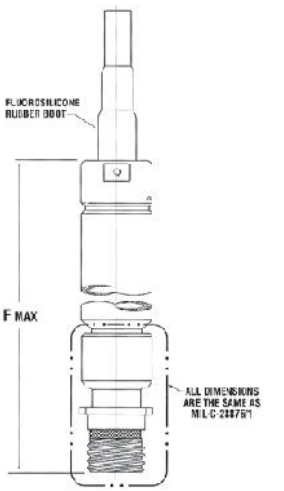
Utilizes the MIL-PRF-29504/14 and MIL-PRF-29504/15 Termini

## Wall Mount Receptacle
*Straight Backshell Configuration*




M28876/1



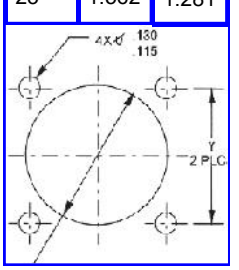

M28876/2

| Shell Size | A Max. | B Max. | C | D | E | F Max. | G Max. | H Max. | J Max. | K Max. |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | .8750 | 1.085 | .8430 | .130<br>.115 | 1.158<br>1.116 | 6.150 | 6.250 | 3.580 | 4.250 | 4.250 |
| 15 | 1.062 | 1.257 | .9680 | .130<br>.115 | 1.278<br>1.236 | 6.150 | 6.500 | 3.850 | 4.500 | 4.500 |
| 23 | 1.500 | 1.703 | 1.281 | .130<br>.115 | 1.738<br>1.698 | 6.150 | 7.500 | 5.000 | 5.000 | 5.000 |

For reference only. Accuracy not guaranteed.
Unless otherwise specified, dimensions are in inches.

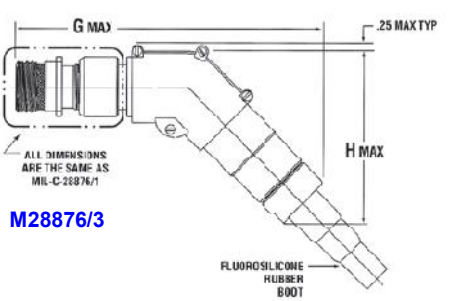
### Panel Cutout Dimensions

| Shell Size | A | B |
|---|---|---|
| 13 | .937 | .843 |
| 15 | 1.125 | .968 |
| 23 | 1.562 | 1.281 |



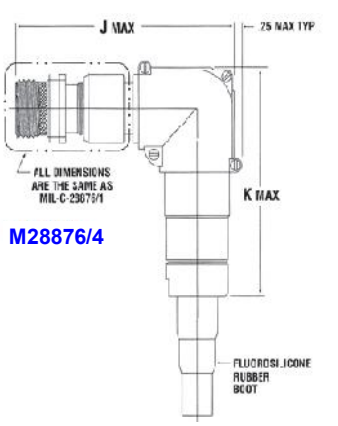

For reference only.
Accuracy not guaranteed.

## Wall Mount Receptacle
*45° Backshell Configuration*




M28876/3

## Wall Mount Receptacle
*90° Backshell Configuration*




M28876/4

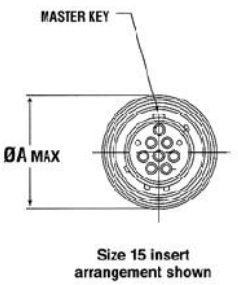
SHIPBOARD

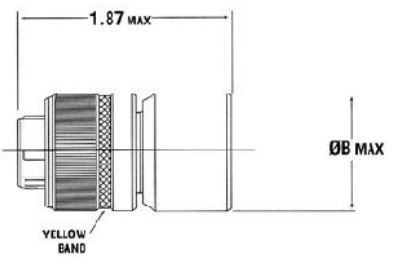
# M28876 Connectors

**MIL-PRF-28876** Fiber Optic Connector

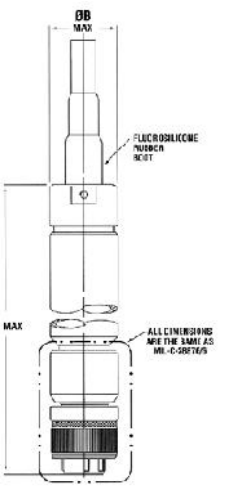
Utilizes the MIL-PRF-29504/14 and MIL-PRF-29504/15 Termini

## Plug Connector
*Straight Backshell Configuration*




M28876/6

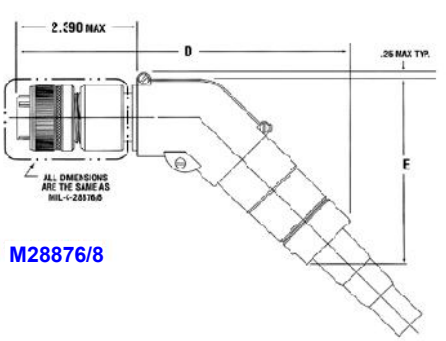



M28876/7

| Shell Size | A Max. | B Max. | C Max. | D Max. | E Max. | F Max. | G Max. |
|---|---|---|---|---|---|---|---|
| 13 | 1.141 | 1.085 | 5.960 | 6.160 | 3.580 | 4.190 | 4.250 |
| 15 | 1.263 | 1.257 | 5.960 | 6.440 | 3.850 | 4.440 | 4.500 |
| 23 | 1.705 | 1.703 | 5.960 | 7.350 | 5.000 | 4.850 | 5.000 |

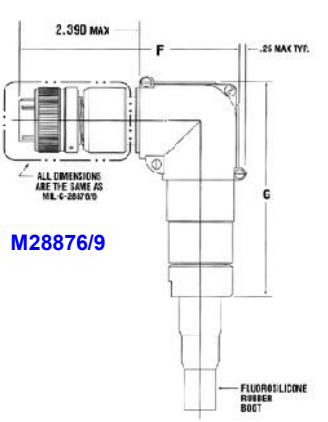
For reference only. Accuracy not guaranteed.
Unless otherwise specified, dimensions are in inches.

## Plug Connector
*45° Backshell Configuration*




M28876/8

## Plug Connector
*90° Backshell Configuration*



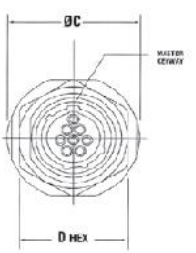

M28876/9

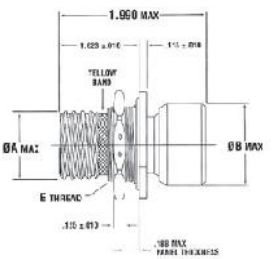
# M28876 Connectors

**MIL-PRF-28876** Fiber Optic Connector

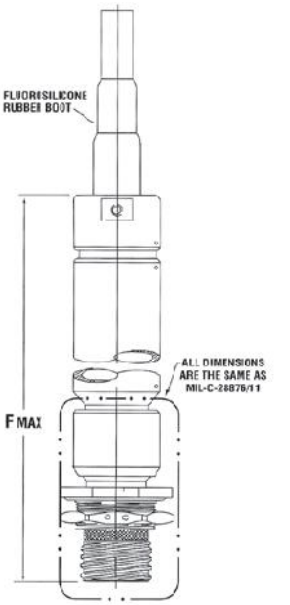
Utilizes the MIL-PRF-29504/14 and MIL-PRF-29504/15 Termini

## Jam Nut Receptacle
*Straight Backshell Configuration*




M28876/11



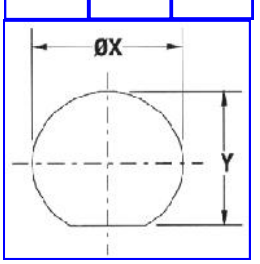

M28876/12

| Shell Size | A Max. | B Max. | C | D Hex | E Thread | F Max. | G Max. | H Max. | J Max. | K Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | .8750 | 1.085 | 1.508<br>1.485 | 1.205<br>1.117 | 1.000-20 | 6.150 | 6.250 | 3.580 | 4.250 | 4.250 |
| 15 | 1.062 | 1.257 | 1.680<br>1.600 | 1.392<br>1.358 | 1.187-18 | 6.150 | 6.500 | 3.850 | 4.500 | 4.500 |
| 23 | 1.500 | 1.703 | 2.118<br>2.095 | 1.829<br>1.795 | 1.625-18 | 6.150 | 7.500 | 5.000 | 5.000 | 5.000 |

For reference only. Accuracy not guaranteed.
Unless otherwise specified, dimensions are in inches.

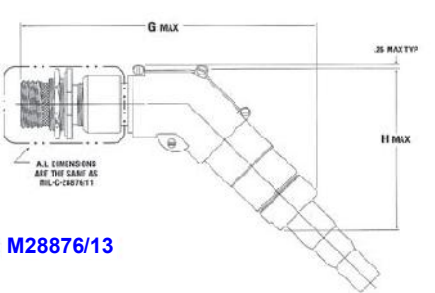
**Panel Cutout Dimensions**

| Shell Size | X +.005 | Y +.005 |
|---|---|---|
| 13 | 1.010 | .973 |
| 15 | 1.198 | 1.160 |
| 23 | 1.635 | 1.598 |



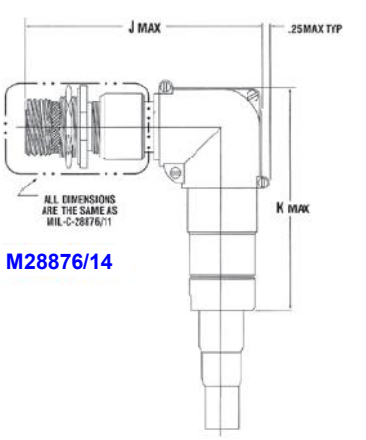

For reference only.
Accuracy not guaranteed.

## Jam Nut Receptacle
*45° Backshell Configuration*




M28876/13

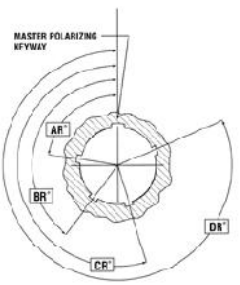
## Jam Nut Receptacle
*90° Backshell Configuration*

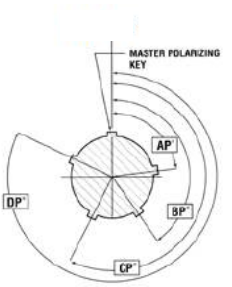



M28876/14

SHIPBOARD

## MIL-PRF-28876 Keyway Positions




| Shell Size | Key and Keyway Arrangement | AR° or AP° | BR° or BP° | CR° or CP° | DR° or DP° |
|---|---|---|---|---|---|
| 13 | 0* | - | - | - | - |
| | 1 | 95 | 141 | 208 | 236 |
| | 2 | 113 | 156 | 182 | 292 |
| | 3 | 90 | 145 | 195 | 252 |
| | 4 | 53 | 156 | 220 | 255 |
| | 5 | 119 | 146 | 176 | 298 |
| | 6 | 51 | 141 | 184 | 242 |
| 15 and 23 | 0* | - | - | - | - |
| | 1 | 80 | 142 | 196 | 293 |
| | 2 | 135 | 170 | 200 | 310 |
| | 3 | 49 | 169 | 200 | 244 |
| | 4 | 66 | 140 | 200 | 257 |
| | 5 | 62 | 145 | 180 | 280 |
| | 6 | 79 | 153 | 197 | 272 |

*0 indicates universal keying position and is available on commercial equivalent connector only.

## MIL-PRF-28876 MIL-SPEC Dust Cover Ordering Nomenclature

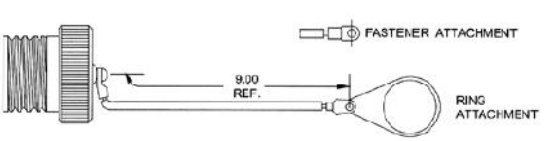
| Assembly Configuration | Shell Size Designator | Attachment Designator |
|---|---|---|
| 10- | C | C |

| Connector Type | Slash Sheet Designator |
|---|---|
| Plug | /10 |
| Receptacle | /15 |

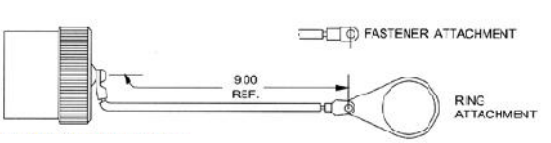
| Shell Size | Shell Size Designator |
|---|---|
| 13 | B |
| 15 | C |
| 23 | F |

| Attachment Designator | Type of Attachment |
|---|---|
| C | Wire Rope w/Fastener |
| D | Wire Rope w/Ring |
| E | Without Wire Rope |

**/10**




**/15**




For reference only. Accuracy not guaranteed.

# M29504/14 and M29504/15 Termini

**MIL-PRF-29504** Fiber Optic Termini

M29504/14-4131C

M29504/15-4171C

M29504/14-4141C

M29504/15-4181C

### Ceramic Termini MIL-SPEC Ordering Nomenclature

| MIL-SPEC Termini | Terminus Type 14= Pin, 15= Socket | TICC Dash# | Crimp Sleeve Option* |
|---|---|---|---|
| M29504/ | YY- | XXXX | C |

| TICC Dash# | | TICC Dash# | | Maximum Fiber Diameter |
|---|---|---|---|---|
| M29504/14 (Pin) | | M29504/15 (Socket) | | |
| Multimode 4131C | Singlemode 4141C | Multimode 4171C | Singlemode 4181C | 126.00 |

For reference only. Accuracy not guaranteed.

*The "C" indicates that a crimp sleeve for 2.4mm maximum single channel cable is supplied with the terminus. To terminate other size cables, the crimp sleeve must be ordered separately.

## Pressure Seal Termini

4567438-126F000H

Extreme pressure differentials actually enhance sealing effectiveness, rather than adversely affect it as in conventional connectors. Increasing pressure forces the sealing cup against the contact cavity wall, resulting in superior sealing. The front wiping land, a part of each seal, forms a static seal when inserted into the connector body.

**Pressure Seal Pin** Part# 4567438-126F000H
**Pressure Seal Socket** Part# 4567439-126F000H

4567439-126F000H

## Alignment Sleeve (Sold Separately) Part# 4569989H

4569989H

The alignment sleeve is used to hold the mating ferrule inside the M28876 connector to ensure proper alignment and is the proper sleeve to use with M29504/15 applications.

## 2.00mm Crimp Sleeve (Sold Separately) Part# 1127696-6S

1127696-6S

The 1127696-6S is the proper crimp sleeve to use with the 0700-1895 crimp tool on 2.00mm jacketed cable for M29504 and hermaphroditic applications.

## Dummy Terminus Part# M29504/03-4038

M29504/03-4038

The M29504/03-4038 dummy terminus is used to provide a seal if all cavities of an M28876 connector are not being utilized. The M29504/03-4038 is the proper alignment sleeve to use with M29504 applications.

## Pressure Seal Dummy Terminus Part# 1020626H

1020626H

The 1020626H dummy terminus is used is to provide a watertight seal if all cavities of an M28876 connector are not being utilized in connections where fluid sealing is necessary.

## Snap Lock Adapters

4568515H

Aptiv's innovative Snap Lock miniature, single channel, fiber optic connectors will meet your rugged, space limited, cost efficient design requirements without sacrificing performance. Snap Lock's push/pull coupling design provides an efficient mate/demate feature while maintaining the same high optical performance associated with any multi-channel connector.

**In-Line Plug** Part# 4568515H
**In-Line Receptacle** Part# 4568516H

4568516H

SHIPBOARD

# Mil-Spec ST Connectors and Adapters, and Dust Caps

The U.S. Navy specifies (for shipboard applications) that QPL (Qualified Products List) ST connectors are to be used on fiber optic cable plant backbones and all cable drops for tactical applications. KITCO Fiber Optics stocks the QPL **MIL-DTL-83522/16-DNX (multimode)** and **MIL-DTL-83522/16-DNY (singlemode)** connectors as well as **MIL-DTL-83522/17-NY (multimode/singlemode)** coupling adapter.

| | |
|---|---|
| **Multimode ST (Non-Locking boot)** | **Part# 0204-4210** |
| **Singlemode ST (Non-Locking boot)** | **Part# 0204-4220** |
| **Multimode ST (Locking boot)** | **Part# 0204-4190** |
| **Singlemode ST (Locking boot)** | **Part# M83522/16-ANY** |
| **Singlemode/Multimode ST Adapter** | **Part# 0204-4170** |
| **M83522/16-EN ST Connector Dust Cap** | **Part# 0705-9825** |

**0204-4210**

**0204-4220**

**0204-4170**

**0705-9825**

# Navy Approved COTS ST Connectors and Adapters

## COTS (Commercial Off-the-Shelf) ST Specifications

*While the Navy specifies that the QPL'd M83522/16 ST connector should be used on all fiber optic cable plant backbones and cable drops, there are some situations where the Navy has approved the use of the following commercial connectors and adapters. See the chart below for details.

| | |
|---|---|
| **Multimode ST** | **Part# 0204-4120** |
| **NSN: 6060-01-485-6592** | |
| **Singlemode ST** | **Part# 0204-4110** |
| **NSN: 6060-01-618-4816** | |
| **Singlemode/Multimode ST Adapter** | **Part# 0204-4070** |
| **NSN: 6060-01-569-5341** | |
| **ST Bare Fiber Adapter** | **Part# 0200-2640** |
| **NSN: 6060-01-561-4181** | |
| **Singlemode ST-LC Adapter** | **Part# 0200-2637** |
| **NSN: 6060-01-602-8675** | |
| **Singlemode SC-ST Adapter** | **Part# 0204-1060** |
| **NSN: 6060-01-539-3529** | |

**0204-4110**

**0200-2637**

**0204-4120**

**0204-1060**

**0200-2640**

**0204-4070**

# QPL vs. Navy Approved Commercial ST Connectors

1. **QPL ST connectors are to be used on all fiber cable plant backbones.**
2. **QPL ST connectors are to be used on all cable drops for tactical applications.**
3. **Navy approved COTS, Commercial ST connectors may be used on cable drops for non-tactical applications.**
4. **Navy approved COTS, Commercial ST connectors may not be mated to the QPL ST connectors with the stiffer spring constant (such as at the shock mounted rack patch panel).**
5. **Navy approved COTS, Commercial ST connectors may be used to mate with adapters on commercial interface cards which includes Network Interface Cards (NIC).**
6. **ST connectors are not to be used on the cabinet exterior and for other external connectors on tactical applications. MIL-PRF -2876 multiple termini connectors are to be used for this application.**
7. **Since the QPL ST has been know to break off or shear the adapter tabs (pins) on plastic or softer metal ST adapters, they should not be used on these types of commercial interfaces. The Navy approved COTS commercial ST should be used instead.**
8. **Navy approved COTS commercial ST connectors may be used to mate with equipment and patch panels mounted to the interior of internal or "shock isolated" cabinets for tactical applications.**
9. **Navy approved COTS commercial ST connectors are not to be used to mate with equipment and patch panels mounted to the interior of in "non-shock isolated" cabinets for tactical applications.**

# COTS Termini and Crimp Sleeves

Commercial termini can be used for multimode or singlemode applications and have the same fit, form and function as the MIL-PRF-29504 termini with the exception that the commercial pins and sockets can only be used in non-tactical applications such as those found in NAVSEA's Pierside Connectivity drawings 7325759, 7325760, 7325762 and 7325763. Termini are not supplied with crimp sleeves.

**Please specify desired crimp sleeve.**

| | |
|---|---|
| **COTS Ceramic Pin Termini** | **Part# 4569994-126F000H** |
| **COTS Ceramic Socket Termini** | **Part# 4569995-126F000H** |
| **3.0mm Crimp Sleeve** | **Part# 4567761H** |
| **3.0mm Crimp Sleeve** | **Part# 4569486H** |

**4569994-126F000H**

**4569995-126F000H**

**4567761H**

**4569486H**

# Navy Approved COTS SC and LC Connectors

## PULL PROOF VS NON-PULL PROOF SC AND LC CONNECTORS

**•Pull Proof SC and LC connectors are designed for loose structured cables that do not allow the ferrule to move (create an optical disconnect) if the cable/fiber is pulled. This is accomplished by crimping the crimp sleeve to the connector housing and cable. The SC and LC connectors are usually found at electronic ports.**

**•Non-Pull Proof SC and LC connectors are designed for tight structured cable (mil-spec fiber) to allow the ferrule to move with the cable under spring tension. The crimp sleeve is crimped to the barrel of the connector that is attached to the ferrule within a spring (similar to the ST connector design). The SC and LC connectors are usually found at the passive connection points in the cable plant.**

### COTS (Commercial Off-the-Shelf) SC and LC Specifications

The TIA (Telecommunications Industry Association) has accepted the SC (Subscriber Connector) and the LC (Lucent Connector) as the standards for the telecommunications industry. Consequently, electronics that have the SC and LC interface can be found aboard naval vessels. The SC (TIA 604-3) and LC connectors below have been chosen by the Navy as the approved connector to connect to this commercial adapter interface.

| | |
|---|---|
| **Multimode SC (Non-Pull Proof), 2.00mm boot** | **Part# 0204-6350** |
| **Singlemode SC (Non-Pull Proof), 2.00mm boot** | **Part# 0204-6355** |
| **Multimode SC (Pull Proof), 3.00mm boot** | **Part# 0204-1070** |
| **Singlemode SC (Pull Proof), 3.00mm boot** | **Part# 0204-1100** |
| **Multimode LC Gen II (Non-Pull Proof), 2.00mm boot** | **Part# 0200-2481** |
| **Singlemode LC Gen II (Non-Pull Proof), 2.00mm boot** | **Part# 0204-6341** |
| **Multimode LC (Pull Proof), 2.00mm boot** | **Part# 0204-6330** |
| **Singlemode LC (Pull Proof), 2.00mm boot** | **Part# 0204-6335** |
| **Multimode Duplex LC Gen II (Non-Pull Proof) 2.00mm boot** | **Part# 0204-6348** |
| **Singlemode Duplex LC Gen II (Non-Pull Proof) 2.00mm boot** | **Part# 0204-6343** |

**0204-6350**

**0204-6355**

**0204-1070**

**0204-1100**

**0200-2481**

**0204-6341**

**0204-6330**

**0204-6335**

**0204-6348**

**0204-6343**

# COTS SC and LC Adapters

**Simplex Singlemode/Multimode LC-LC Coupling Adapter** **Part# 0204-6320**
**Duplex Singlemode/Multimode LC-LC Coupling Adapter** **Part# 0204-6345**
**Simplex Singlemode/Singlemode SC-SC Coupling Adapter** **Part# 0200-2460**
**Simplex Singlemode/Multimode SC-LC Coupling Adapter** **Part# 0204-1225**

**0204-6320**

**0204-6345**

**0200-2460**

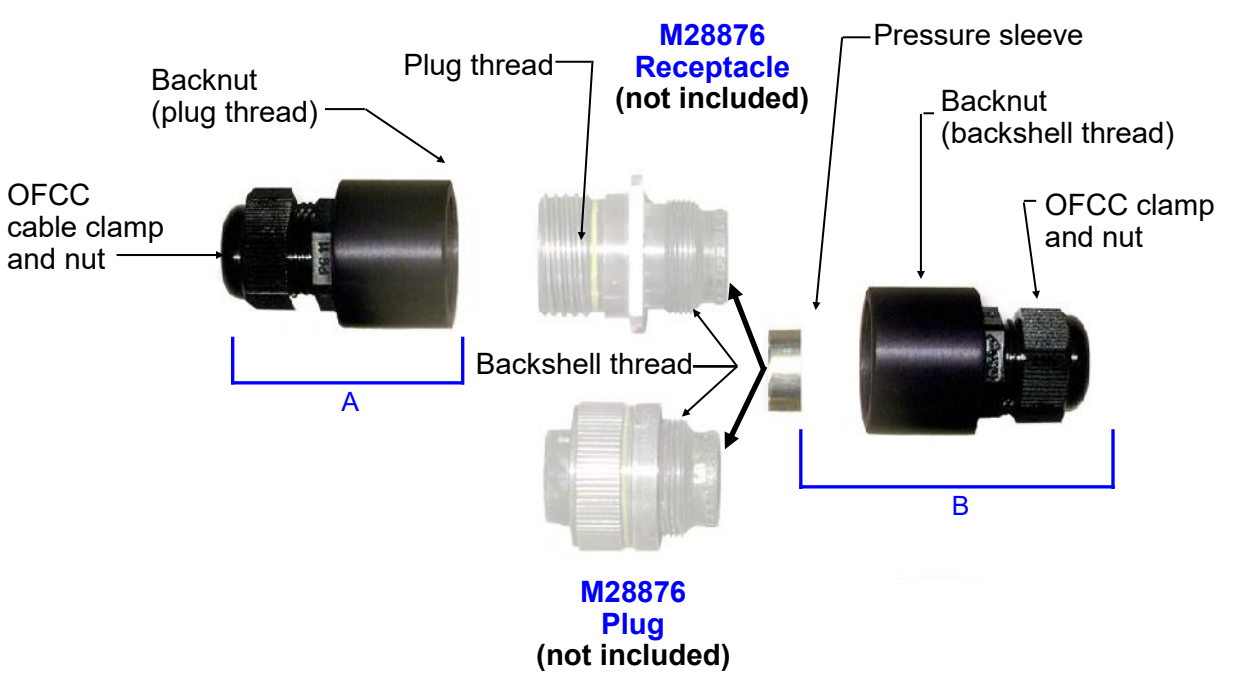
**0204-1225**

# WidgCo Feedthru Strain Relief

KITCO Fiber Optics has designed a complete line of WidgCo Feedthru Strain Relief (WFSR) devices that are compatible with M28876 (4, 6 or 8, and 31 channel) plugs and receptacles. These devices are available in two configurations. Configuration A is compatible with the plug-thread side of the M28876 connector. Configuration B is compatible with the backshell-thread side of the M28876 receptacle and the backshell-thread side of the M28876 plug. This concept allows flexibility for the installer who may be faced with space restrictions.

Care was taken in the design of the WFSR to make sure the pressure sleeve (which is included) makes contact with the nest inside the connector to prevent slippage on the backshell side. If the plug side of the M28876 is the side that is strain relieved, the installer should make sure the backnut of the M28876 connector (not pictured) is installed with the pressure sleeve to assure that slippage is strain relieved. The OFCCs (Optical Fiber Cable Component or individual fiber optic strands) will not move if the special gland is activated by tight-

| Description | Part # | Description | Part # | Description | Part # |
|---|---|---|---|---|---|
| 31 channel, screws onto receptacle threads<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3100** | 6 or 8 channel, screws onto receptacle threads<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3180** | 4 channel, screws onto receptacle threads<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3260** |
| 31 channel, screws onto plug or receptacle backshell threads<br>• Pressure Sleeve<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3160** | 6 or 8 channel, screws onto plug or receptacle backshell threads<br>• Pressure Sleeve<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3240** | 4 channel, screws onto plug or receptacle backshell threads<br>• Pressure Sleeve<br>• Backnut<br>• OFCC cable clamp w/gland and nut | **0900-3320** |



# Technical Services

KITCO's Technical Services Team was a logical outgrowth to our industry training expertise and sets the standard for fiber optic connectivity support. We have extensive experience with fusion and mechanical splicing, shipboard cable termination and Blown Optical Fiber (BOF) installation. Our ETA certified technicians can provide expert on-site assistance for a wide variety of circumstances, ranging from an after-hours emergency to a scheduled SHIPALT upgrade or installation. We have performed installation, repair, alteration and testing support for: CVNs, DDGs, LPDs, LCCs, CGs, SSNs, SSG (2nd Generation), and LCSs. In addition to the various classes of ships, we have performed repairs, alterations, terminations, splicing and testing on the following systems: ACDS, ADMACS/ISIS, ADS, APS, ARCI, ASW (VC-TSC), ATWCS, BEWT, BFTT, BGPHES, CASS/OMS, CCS. CDL-N, CEC, CSTS, DCQ, ECS, FODMS, GCCS-M, GCS, GEDMS, GPS, IBS, ICAS, IPDS, ISNS, IVN, JSIPS-N, NATO, NAVMACS, NAVSSI, NITES, NSFS, NSSMS,NTCSS, RAIDS, RAM, SASWCS, SIPS, SSDS, SSTD, TAMPS, TESS, TIDS, TMS, TSMS, TSS and VLS. Our technicians have responded to CASREPs, most recently to Jebal Ali, UAE, and performed installation support, troubleshooting, and system inspections for SPAWAR, NAVSEA and local TYCOMS.

As of March 2016, our technicians have completed all eight modules of the NAVSEA 8477552A, Navy Shipboard Fiber Optic Training Certification Program. KITCO's Technical Service Team is prepared to respond to your fiber optic requirements anytime, anywhere.

KITCO Technical Service teams also have experience in shore based installation support. We have performed termination, fusion splicing and testing for the U.S. Senate building, Fort Story Army base, Dam Neck Naval Station, Little Creek Amphibious Base, Norfolk Operational Base, Naval Base Pearl Harbor and Dam Neck Naval Station. Our technicians are familiar with civilian fusion splicing requirements and test in accordance with best industry standards.

Our significant experience in the field allows us to perform scheduled jobs under contract as well as to respond to any emergency situations that may arise. We offer a wealth of knowledge and state-of-the-art termination and test equipment to go along with our technical service project managers and technicians. We believe doing the job correctly the first time will not only reinforce our excellent reputation but augment the value offered to our customer by consistently meeting both time and budget constraints.

## Installation Services

- **Project Management**
- **Logistics Support**
  - **Material Control**
- **Scheduling**
  - **Resources**
  - **Coordination with Other Trades**
- **Budget Constraints**
  - **On Time Under Budget**
- **Reporting**
  - **Daily Report**
    - **General Reporting**
    - **Condition Found**
    - **Completion Report**
    - **Objective Quality Evidence**
    - **Test Results**
    - **Cable Mapping**
    - **Image Capturing**
    - **Failure Mode Analysis**
    - **Archiving**
- **BOF Fiber Installation (Certified Technicians)**
  - **General Cable**
  - **Sumitomo Cable**
  - **Furcation to Splice Trays or Connectors**
- **Terminations Exceeding Specifications set forth in (Certified Technicians)**
  - **2042C**
  - **NSI-009-123**
  - **Industry (TIA EIA)**
- **Field Testing**
  - **LS/PM (Light Source/Power Meter)**
  - **OTDR (Optical Time Domain Reflectometer)**
  - **Image Capturing (via FO Probes)**
  - **Cable Mapping**
  - **Custom Testing as Required**
- **Cable Repair**
  - **Fusion Splicing**
  - **Re-Terminations**
  - **Trouble Shooting**

## Design Services

- **Complete Interconnect Solutions**
  - **Conventional and BOF (Blown Optical Fiber)**
- **Connectivity Design Services**
  - **Connectors**
  - **Cable Assemblies (Internal to Rack)**
  - **Installation Planning**
- **Consultation of both Material and Component Selections**
- **Design of custom components**
  - **Strain reliefs**
  - **Packaging**
  - **Backshells**
  - **Connectors**
  - **Assemblies**
- **Certifications**
  - **DCAA Compliant Accounting**
  - **AS9100D and ISO 9001:2015 Certified (Virginia Beach only)**
  - **Seaport-e**

# Certified Fiber Optic Training

Our training division was created to share our broad industry knowledge, and our hands-on training and advanced certification programs have become the hallmarks of our superior reputation. Our trainers have strong credentials including advanced industry certifications and substantial field experience. We have trained thousands of students worldwide on terminating, splicing and testing fiber systems. Our main training facility is located at our headquarters in Virginia Beach, Virginia, and a west coast presence serves San Diego and the surrounding area. Additionally, with our established mobile training services, we have the ability to train at your desired location - anywhere in the world - customizing and tailoring our courses to meet your training requirements.

## NAVSEA and Military

NAVSEA training is mandatory for any person that currently is or has the potential to perform Navy Shipboard fiber optic installations. These personnel include (but not limited to) supervisors, fiber optic QA inspectors, installers/technicians employed by: Ship Builders, SUPSHIP, and Government/Contracted Installation/Repair Teams, AIT's, Ship/Planning Yards, OSR's, RMC's, FMA's, ISEA'S, and Industrial Activities. All personnel that currently are or have the potential of performing Navy shipboard fiber optic installations in any form (e.g., pulling fiber, installing connectors, installing fiber optic interconnection boxes, testing fiber optic links, etc.) shall obtain Navy shipboard fiber optic training from a training organization included on the Certified Fiber Optics Trainers List (CFOTL).

These modules are created and provided by the Certified Organization and are in accordance with the training curriculum requirements, as specified in Section 5 of NAVSEA Drawing 8477552. Any organization responsible for performing fiber optic installations on new construction, alterations, or repairs of ships, whether public or private are required to attend certified training from a Certified Fiber Optic Trainer company maintained by the NSWCDD Fiber Optics Section. KITCO Fiber Optics is pleased to announce we are the first approved Certified Fiber Optic Training Company to offer this training.

In order to more effectively offer this training, KITCO has bundled certain complimentary modules such that multiple modules are presented in a course format

KITCO develops curriculum and provides training world-wide for the U.S. Armed Forces. KITCO is the only company certified by NETC (Naval Education Training Command) to meet the requirements to train Sailors. Over the last decade our KITCO instructors have worked closely with shipyard and Navy personnel terminating and testing fiber optic topologies aboard U.S. Navy ships and submarines. In addition, our instructors collaborated on the design of termination and testing equipment currently specified in MIL-STD-2042B and MIL-STD-2042C sections 5 and 6 (the standard governing the use of fiber on U.S. Navy ships). Using this experience, we provide the only commercially available shipboard training course that teaches fiber principles in strict adherence to Navy standards, and we are working closely with the U.S. Army and Marine Corps to develop battlefield maintenance and fiber optic support training.

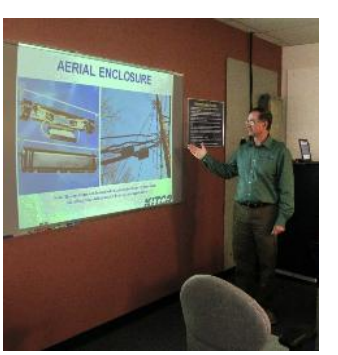
- **NAVSEA Fiber Optic Installer Training**
- **NAVSEA Fiber Optic Termination Training**
- **NAVSEA Fiber Optic Cable Installer Training**
- **NAVSEA Fiber Optic Installer and BOF Training**
- **NAVSEA Supervisor and Quality Assurance (QA) Training**
- **Certified Military Shipboard Training**
- **Shipboard 38999 Connector Training**
- **Hermaphroditic Connector Training**
- **BOF (Blown Optic Fiber) Installation Training**
- **Military Aviation Technician's Training**
- **Tactical Fiber Optic Training**

## Commercial

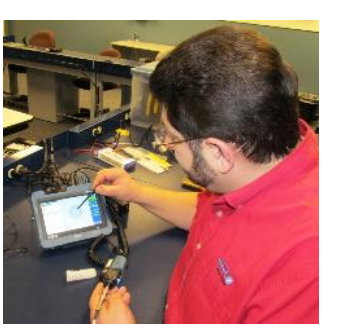
We are proud to be one of the nation's premier providers of certified commercial fiber optic training. Our courses are industry recognized and approved for certifications by 3M and KITCO. Industry standards including those of the Telecommunications Industry Association (TIA) and the National Electrical Code (NEC) are incorporated into KITCO's courses. Students are offered the option of taking the Electronics Technicians Association (ETA) Certified Fiber Optic Installer (CFOI) and the Certified Fiber Optics Technician (CFOT) exams.

- **Certified Technician Training**
- **ETA Re-Certification/Refresher Training**
- **ETA Certification Training**

At KITCO we will meet your custom training needs by tailoring any of our courses to meet your training requirements for delivery at your place or ours. While we normally conduct our courses using KITCO provided tools and test equipment, we can also train using your equipment if so desired.




**Train with the Most Advanced Equipment**



KITCO™
fiber optics

# Supporting our Warfighters by providing premier fiber optic systems and equipment for the harshest and most critical strategic military initiatives


- Tools & Tool Kits
- Test Cables (MQJs)
- Custom Cable Assemblies
- Connectors
- Certified Training
- Technical Services
- And More

KITCO™
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