



Workshop  
Chicago  
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Cinch Fiber Center  
of Excellence

**At Cinch our philosophy is that anything is possible.**

With over 90 years' experience as a global supplier we offer simple, effective solutions to our customers' interconnect and integration needs. From basic interconnect to complex integration requiring bespoke design, we focus primarily on quality, ingenuity and reliability, meeting the high performance demands of industries such as Defence, Aerospace, Space, Telecom, High Speed Data Servers and Industrial Transportation.

**TOGETHER  
WE STIMULATE.  
WE INNOVATE.  
WE CREATE.**

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Cinch has manufacturing and sales sites located globally approved to AS9100.

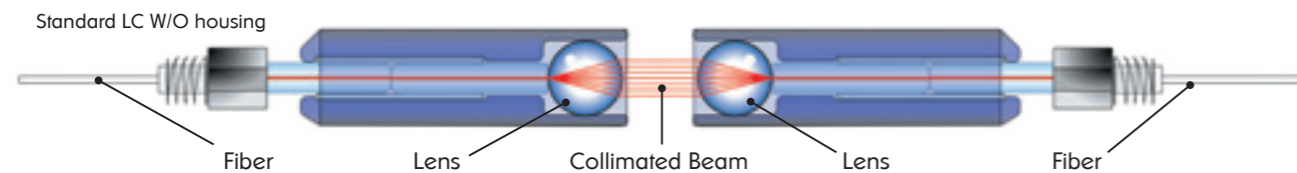






## The principle of EBOSA Expanded Beam

- The Cinch expanded beam product range uses EBOSA technology which expands and collimates transmission light into an optical beam. This has a cross-sectional area that increases by over 200 times for multimode optical fiber.
- Disconnect and reconnect without cleaning the fiber optics.
- The EBOSA termini are actively aligned and laser-welded expanded beams that can provide class-leading performance with an insertion loss below 1 dB.
- Hyperion Expanded Beam technology uses auto-machined ceramic sleeving for pin-to-pin alignment.



## HYPERION® Hybrid Innovation

- **HYPERION®** hybrid the new mixed contact connector range from Cinch featuring EBOSA fiber optic technology.
- This exciting new development offers the ability to provide optical, power and electrical transmission in a range of connectors.
- It adds high-reliability optical expanded beam performance for harsh environments in multiple connector and application solutions.
- Easily repairable, with the ability to extract and fit new contacts without re-terminating the cable.
- Standard LC ferrule for easy field install and field termination.
- The EBOSA concept and process is patented.

### Optical Performance

- Temperature Range -55°C to +125°C
- Insertion loss in multi mode down to 1.0dB
- Insertion loss in single mode down to 1.5dB
- Return loss greater than -30dB to 40dB
- Sinus vibration 60g from 10Hz – 2,000Hz
- Insertion loss variation <±0.1 dB
- No lost bits in BER analyzer with PB 0.5dB
- Random vibration 44.5g from 25Hz – 2,000Hz
- Insertion loss variation <±0.1 dB
- No lost bits in BER analyser with PB 0.5dB
- Performance complies to the Mil-DTL-83526

### Features

- Withstands the most extreme environmental conditions
- Superior optical performance
- Requires no maintenance
- Utilizes a cost effective design
- Use of LC standard connector makes it easy to field install and field terminate
- RoHS Compliant
- Reduced sensitivity to dust, vibrations and temperature changes
- Small size
- Quick and easy installation
- Rear release/rear removable with standard extraction tool
- Reduces maintenance and cleaning associated with optical communication in rough environments

## HYPERION®

Cinch Connectors have developed a new range of Mil-DTL-83526 contact technology in conjunction with its highly respected fiber optic development Center of Excellence. Using the experienced engineering departments at Cinch's global facilities, the new product, an ARINC 801 precision aligned Expanded Beam contact, will be the first in the newly launched **HYPERION®** fiber optic connector range. The **HYPERION®** range of products will use the precision aligned expanded beam technology housed in connector form factors to suit the harsh environments of aerospace, defence, medical and OPG.



### Applications

- Daisy-chaining of tactical fiber cables
- HD live broadcasting equipment
- Military tactical communications systems
- Mining control and communication systems
- Petrochemical plant installations
- Seismic exploration systems
- Measurement equipment
- Backplane connection
- Board to board connection
- Free air communication

### Main Markets

- Aviation
- Marine
- Chemical/petrochemical processing
- Medical devices
- Food processing
- Automotive
- Heavy industrial equipment
- Measurement equipment
- Broadcasting
- Military





# EBOSA® Standard Compliant Termini Mil 38999 Series 3

## Description

- For Mil 38999 Series 3.
- EBOSA-29504 high-reliability expanded beam technology upgrades the Mil-C-38999 to the highest optical performance and it reduces maintenance and cleaning efforts that is usually a big problem in optical communication in harsh environments.
- The Mil-C-38999 with EBOSA™ insert will be less sensitive to dust, vibrations and temperature changes.
- Available in single mode 9/125µm and Multimode 50/125µm, 62.5/125µm versions, other fiber versions will be available upon request.
- Size 16, outside diameter f. Other sizes available on request.

## Specification

Test	SM	MM
Max Insertion Loss*	Typical 0.8dB Max 1.5dB	Typical 0.4dB Max 1.0dB
Temperature (storage)	-55 to +85°C	-55 to +85°C
Temperature (operation)	-40 to +125°C**	-40 to +125°C**

\* Against reference. \*\* Cable dependent.



## Product List

Part No.	Description
<b>EBOSA® Mil-DTL-38999, Mil-PRF-29504 Size 12</b>	
EBC12M-U09053CB	Pin EB29504/4 size 12 Metal, SM/UPC, Wavelength 1310nm
EBC12F-U09053CB	Socket EB29504/5 size 12 Metal, SM/UPC, Wavelength 1310nm
EBC12M-05009ACB	Pin EB29504/4 size 12 Metal, MM50/125, Wavelength 850nm & 1310nm
EBC12F-05009ACB	Socket EB29504/5 size 12 Metal, MM50/125µm, Wavelength 850nm & 1310nm
EBC12M-06209ACB	Pin EB29504/4 size 12 Metal, MM62.5/125, Wavelength 850nm & 1310nm
EBC12F-06209ACB	Socket EB29504/5 size 16 Metal, MM62.5/125µm, Wavelength 850nm & 1310nm
<b>EBOSA® Mil-DTL-38999, Mil-PRF-29504 Size 16</b>	
EBC16M-U09053CB	Pin EB29504/4 size 16 Ceramic, SM/UPC, Wavelength 1310nm
EBC16F-U09053CB	Socket EB29504/5 size 16 Ceramic, SM/UPC, Wavelength 1310nm
EBC16M-05009ACB	Pin EB29504/4 size 16 Ceramic, MM50/125, Wavelength 850nm & 1310nm
EBC16F-05009ACB	Socket EB29504/5 size 16 Ceramic, MM50/125µm, Wavelength 850nm & 1310nm
EBC16M-06209ACB	Pin EB29504/4 size 16 Ceramic, MM62.5/125, Wavelength 850nm & 1310nm
EBC16F-06209ACB	Socket EB29504/5 size 16 Ceramic, MM62.5/125µm, Wavelength 850nm & 1310nm

Other wavelengths available.

# EBOSA® Ruggedized Fiber Optic D-sub

## Description

- An interchangeable optical pin that fits in standard D-Sub as easy as power or coax pins.
- The interchangeable optical pin is removable with standard D-sub removal tool.
- It utilizes the D-sub industry standard with many manufacturers.
- It connects to a patch cord with a standard low cost LC connector.
- Available in Multimode 50/125µm, 62.5/125µm, (for single mode, consult us).

## Specification

Test	SM	MM (50/125um, 62.5/125um)
Max Insertion Loss*	(for single mode, consult us)	Typical 0.6dB Max 1.5dB
Temperature (storage)	(for single mode, consult us)	-55 to +85°C
Temperature (operation)	(for single mode, consult us)	-40 to +125°C
Size of assembled D-sub EBOSA®	(for single mode, consult us)	Diameter: 5mm Length: 26mm

\* Against reference.



## Product List

Part No.	Description
EBDS3M-05009ACB	Pin D-sub, DIN41652, MM50/125, Wavelength 850nm & 1310nm
EBDS3F-05009ACB	Socket D-sub, DIN41652, MM50/125, Wavelength 850nm & 1310nm
EBDS3M-06209ACB	Pin D-sub, DIN41652, MM62.5/125, Wavelength 850nm & 1310nm
EBDS3F-06209ACB	Socket D-sub, DIN41652, MM62.5/125, Wavelength 850nm & 1310nm

Other wavelengths available.

EBOSA contacts for the D-Sub DIN41652 can also be integrated into a rack-based connector system DIN41612.





# EMM Harsh Environment Fiber Optic Connector

## Engineer's Check List

### Features

- EBOSA™ patented expanded beam technology.
- Mil-DTL-83526 Hermaphroditic interconnection, compatibility with other products on the market.
- True field repairability with standard parts.
- Rugged light weight construction.
- Enhanced market-leading optical performance.
- Ease of cleaning with no special tool.
- Stainless steel used in lens carrier rather than softer nickel based alloys offering greater resistance to surface deformation after repeated dirty matings.

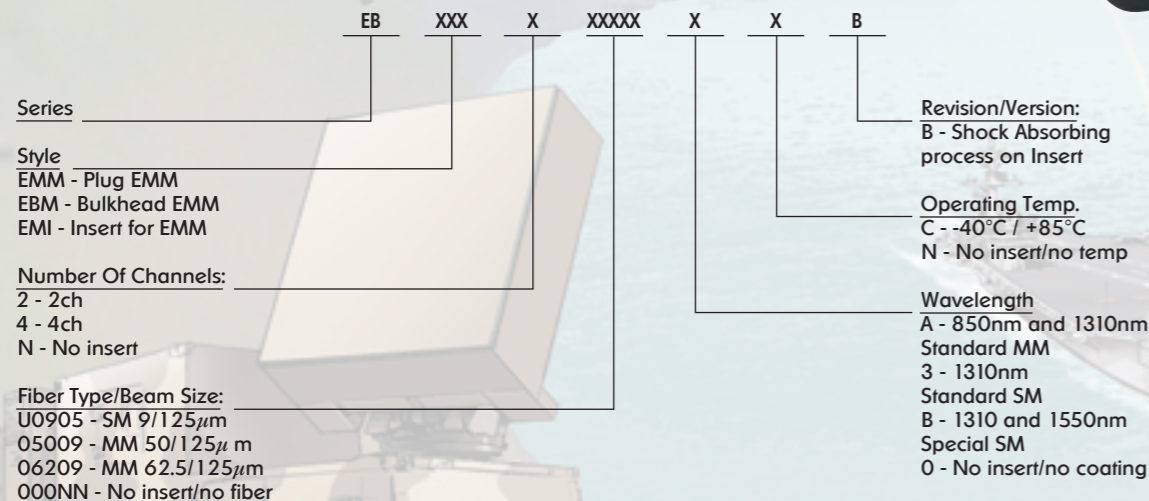
### Applications

- Military Communications.
- Outside Media Broadcast.
- Industrial Communications.

1, 2, 3 and 4 channel SM and MM available  
Other platforms available on request.

In partnership with our cable suppliers Cinch Connectors can offer a full interconnect solution using an Advanced Modular Reel System. Information available upon request.

### Cinch Part Number EMM



### Specification

Optical Loss 50/125 @ 850/1300nm 0.7dB typ
9/125 @ 1310/1550nm 1.0dB typ
Return Loss 9/125 @ 1310/1550nm 25-40dB (dependent on specification)
Operating Temperature -40 to +70°C
Storage Temperature -55 to +85°C
Water Immersion up to 2m depth
Vibration Sinusoidal 10-500Hz, 0.75 amplitude @ 10g acceleration
Free Fall Resistance 500 falls onto concrete from 1.2m height
Bump Resistance 4000 bumps @ 40g acceleration
Tensile Strength Tensile of 1500N, cable dependent
Cable Variations Compatible with tactical cable: Plug ≤6mm o/d
Bulkhead ≤3mm o/d
Other cable sizes available on request
Performance to reference sample



### Sector

- Sea
- Aerospace
- Sub-Terrain
- Ground Support
- Armored Vehicle
- Rail
- Space
- Radar
- Avionics
- Munitions / Missile

### Connector Style

- Rectangular
- Circular
- Z Axis Compression
- No/reduced mating force
- Power, Signal, Optic
- Hermetic
- IPC Rated
- Filtered
- Edge Connector
- Multipole
- High Speed
- Rugged Enclosure

### Wire Type

- Stranded
- Solid
- Twisted pairs
- Co-Axial
- Color Code Single / Multi
- Multi Core
- Shielded
- Wire AWG
- Custom Cable

### Environment

- Dust
- Moisture Resistant
- Full Water Immersion
- Chemical Compatibility
- RoHS
- Low Smoke / Zero Halogen
- Extreme Temperature Tolerance
- Flame Retardant

### Market Segment

- Oil Petroleum Gas (OPG).
- Renewable Energy (Energy sector)
- Military & Defence
- Commercial
- Computer
- Industrial
- Telecommunications
- Medical
- Transportation
- Broadcast

### Construction

- Male
- Female
- Hermaphroditic
- Crimp
- Solder
- PC Tail  90°  180°
- RF Signals
- Number Contact Points
- Contact Pitch
- Housing Material
- Plastic  Metal

### Custom Interconnect

- Single Ended
- Double Ended
- Multi Limb Cable Assembly
- Strain Relief Backshell
- Environmental Backshell / Boot
- 3600 Screened Backshell
- Moulded Strain Relief
- Woven
- Flexible Circuit

### Specification

- Operating Temperature Range
- Mating Cycles
- Electrical
- Voltage Rating
- Current Rating
- Filtration Rating
- Materials / Finish
- Contact Plating
- Housing Plating
- Single Mode
- Multi mode, 50/125, 62, 5/125 or other
- Insertion loss requirements
- Return loss requirements
- Form factor required