FIBRECO®

Expanded Beam

Product Catalogue

cinch
CONNECTIVITY SOLUTIONS
a bel group

belfuse.com/cinch

About Bel

Bel is a publicly traded company that has been operated by the same family for over 65 years. Our history of organic growth and acquisitions have broadened our product portfolio. This has established Bel as a world leader with a diverse offering of power, protection and interconnect products. We design and manufacture these products which are primarily used in the networking, telecommunications, computing, military, aerospace, transportation and broadcasting industries. Bel's portfolio of products also finds application in the automotive, medical and consumer electronics markets.

About Cinch Connectivity Solutions

For over 100 years, Cinch Connectivity Solutions has manufactured high quality and reliable high performance connectors and cable assemblies. Cinch is recognized as a world class connectivity supplier of RF, fiber optic, hybrid, microwave components, circular, d-subminiatures, modular rectangular, electronic enclosures and cable assemblies. Cinch provides innovative solutions to the military, commercial aerospace, networking, telecommunication, test and measurement, oil and gas and other harsh environment industries. We aim to exceed our customers' expectations and continually offer innovative solutions to the rapidly changing needs of the markets and customers we serve.

Along with our parent company, Bel Fuse Inc., our mission is to provide products and services using established quality standards and to meet our customer expectations. To fulfill this objective, we strive to produce components and assemblies that embody optimum levels of reliability and performance in their design, manufacture, and delivery. Cinch Connectivity Solutions has consistently proven to be a valuable supplier to the foremost companies in its chosen industries by developing cost effective solutions for the challenges of new product development.

Table of Contents

MIL-DTL-83526

Features

- MIL-DTL-83526/20 /21 QPL
- German Defence Standard VG 95319-100 & 102
- Singlemode & multimode options
- 2 & 4 channel plugs and bulkhead receptacles
- Cage Code - 71785

Specifications

- Field terminable using standard termination tools & equipment
- Field repairable: EB insert & shell parts replaceable / re-useable

Description

Our military certified expanded beam connectors have been designed for use in the most demanding harsh environment applications including military tactical communications, outside broadcast, petrochemical plant, mining, and offshore systems.

In the event of the connector suffering severe damage in use, the connector design enables replacement of the expanded beam insert, connector front body and grip ring without the need to re-terminate the fibers. Typically, an expanded beam insert can be replaced within 30 minutes in field conditions.

The MIL-DTL-83526 Certified expanded beam connectors offer high performance, flexibility and cost effectiveness, combined with a simple termination process allowing rapid in-field termination and repair.

Technical Specification

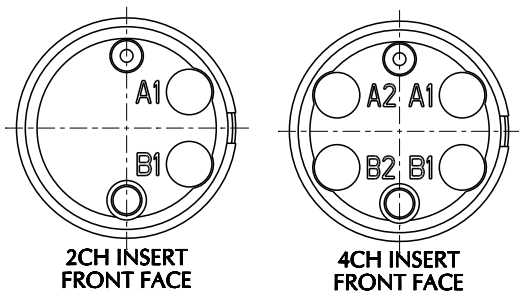
Insertion Loss	**Singlemode**	-2.5dB (typical -1.5dB)*
	Multimode	-2.0dB (typical -1.0dB)*
Return Loss		≥35dB (typical 40dB) singlemode
Durability		3000 matings minimum
Operating Temperature		-46°C to +71°C
Storage Temperature		-57°C to +85°C
Water Immersion		15m for 24 hours (Plug & Bulkhead; mated & open-face)
Free Fall Resistance		500 falls from 1.2m height
Vibration/Shock		As per MIL-DTL-83526/20 /21
Crush Resistance		6.7kN
Corrosion Resistance		500 hours salt spray
Cable Retention		1800N (cable dependant)
Weight (approx)		Plug: 120g Bulkhead: 110g
Connector Shell Material / Color		Aluminium, Plug: black anodised Bulkhead: zinc cobalt Grip & boot: black, fluorosilicone

*Measurements against reference—random mate performance in line with MIL-DTL-83526

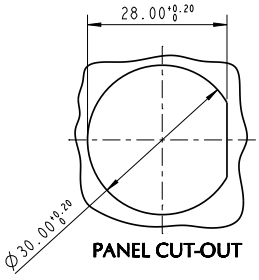
Ordering Information

Cinch DLA Listed Part Number	MIL Designation	Channels	Wavelength	Mode	Description	Finish	Colour
JP462A55A-MIL	M83526/20-01	4	850/1300nm	Multi	M83526 Plug 4CH 62.5/125 850/1300nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JP409C55A-MIL	M83526/20-02	4	1310nm	Single	M83526 Plug 4CH 9/125 1310nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JP409D55A-MIL	M83526/20-03	4	1550nm	Single	M83526 Plug 4CH 9/125 1550nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JP262A50A-MIL	M83526/20-04	2	850/1300nm	Multi	M83526 Plug 2CH 62.5/125 850/1300nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JP209C50A-MIL	M83526/20-05	2	1310nm	Single	M83526 Plug 2CH 9/125 1310nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JP209D50A-MIL	M83526/20-06	2	1550nm	Single	M83526 Plug 2CH 9/125 1550nm (cable: 5.8mm MIL-TAC)	Anodise	Black
JBDL462ABFAZ-OL-MIL	M83526/21-01	4	850/1300nm	Multi	M83526 BH D Low Profile 4CH 62.5/125 850/1300nm (fibre: 900um buffered)	Zinc Cobalt	Olive
JBDL409CBFAZ-OL-MIL	M83526/21-02	4	1310nm	Single	M83526 BH D Low Profile 4CH 9/125 1310nm (fibre: 900um buffered)	Zinc Cobalt	Olive
JBDL409DBFAZ-OL-MIL	M83526/21-03	4	1550nm	Single	M83526 BH D Low Profile 4CH 9/125 1550nm (fibre: 900um buffered)	Zinc Cobalt	Olive
JBDL262ABFAZ-OL-MIL	M83526/21-04	2	850/1300nm	Multi	M83526 BH D Low Profile 2CH 62.5/125 850/1300nm (fibre: 900um buffered)	Zinc Cobalt	Olive
JBDL209CBFAZ-OL-MIL	M83526/21-05	2	1310nm	Single	M83526 BH D Low Profile 2CH 9/125 1310nm (fibre: 900um buffered)	Zinc Cobalt	Olive
JBDL209DBFAZ-OL-MIL	M83526/21-06	2	1550nm	Single	M83526 BH D Low Profile 2CH 9/125 1550nm (fibre: 900um buffered)	Zinc Cobalt	Olive

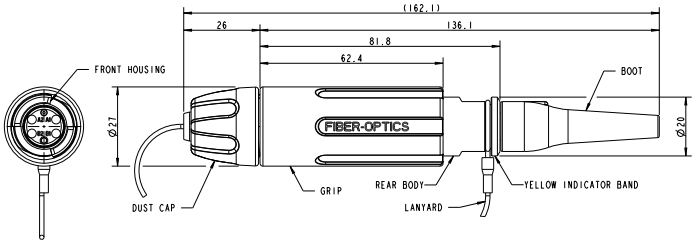
Insert Arrangements



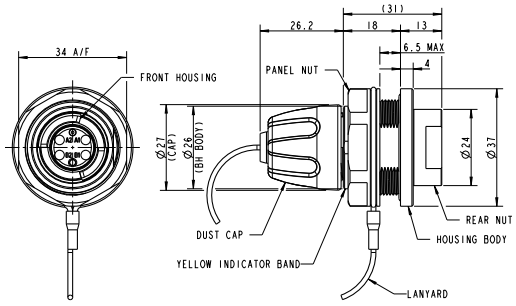
Bulkhead Panel Cutout



Plug Connector



Bulkhead Connector



Junior

Features

- 1, 2 & 4 channel plugs and bulkheads
- 90° Backshell options for plug and bulkhead
- Low profile
- XLR

Specifications

- Singlemode and Multimode Options
- Field terminable using standard termination tools & equipment
- Field repairable: EB insert & shell parts replaceable / re-useable

Description

Junior expanded beam fiber optic connectors have been designed for use in the most demanding harsh environment applications including military tactical communications, outside broadcast, petrochemical plant, mining, and offshore systems. The connectors are terminated using an epoxy-polish ferrule termination process with standard fiber optic termination tools and equipment. The terminated ferrules are simply placed into the expanded beam insert and fixed in place via a spring and cover-plate. Ferrule alignment to the lenses is achieved automatically by the unique optical arrangement developed and patented by Cinch-Fibreco.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: -1.5dB maximum (typical –1.0dB)* 50/125 Fiber at 850nm / 1300nm: -1.0dB maximum (typical –0.7dB)*
Return Loss	> 32dB (typical 40dB) Singlemode / >20dB Multimode*
Durability	3000 matings minimum
High Temperature Storage	+85°C for 16 hours
Low Temperature Storage	-55°C for 16 hours
Thermal Shock	-55°C to +85°C
Water Immersion	15m for 24 hours (plug & bulkhead, mated & open face)
Free Fall Resistance	500 falls from 1.2m height
Vibration	20-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration
Stock	50g 11ms half size
Crush Resistance	6.7kN
Corrosion Resistance	500 hours salt spray
Cable Retention	1500N (cable dependant)
Weight (approx)	Aluminum: Plug: 120g Bulkhead: 110g / Stainless Steel: Plug: 180g Bulkhead: 200g
Connector Shell Material / Color	Black anodised Aluminum or Stainless Steel Grip & boot: Black or Olive Green

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

J P 4 09 B 55 A -OL

Connector Family
- **J** = Junior
- **J90** = Junior with 90 degree backshell

Connector Type
- **P** = Plug
- **BD** = Bulkhead D-Hole Mount
- **BS** = Bulkhead SQ-Flange Mount
- **BX** = Bulkhead XLR-Flange Mount Low Profile
- **BDL** = Bulkhead D-Hole Mount Low Profile
- **BSL** = Bulkhead SQ-Flange Mount Low Profile

Number of Channels
- **1** = 1 Optical Channel
- **2** = 2 Optical Channels
- **4** = 4 Optical Channels

Fiber Type
- **09** = 09/125
- **50** = 50/125
- **62** = 62.5/125

Connector Grip/Boot Colour
- **-OL** = Olive

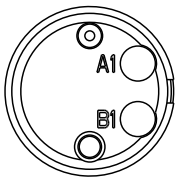
If black, leave line blank

Connector Shell Material
- **A** = Aluminium Hard Anodise
- **AZ-BK** = Aluminium Zinc Cobalt Black
- **AZ-OL** = Aluminium Zinc Cobalt Olive
- **S** = Stainless Steel
- **N** = Nickel Aluminium Bronze

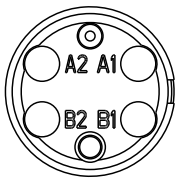
Cable Diameter
- **50** = MIL-TAC 5.0mm
- **55** = MIL-TAC 5.5mm
- **SZ** = Standard Zipcord 2x2.8mm (up to 4CH)
- **BF** = Buffered Fiber 0.9mm (Low Profile ONLY)

Wavelength of Operation
- **A** = 850 / 1300nm
- **B** = 1310 / 1550nm

Optical Insert Arrangements

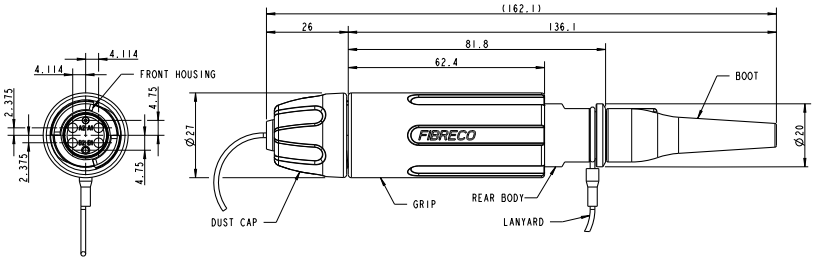


2410 - 2CH OPTICAL

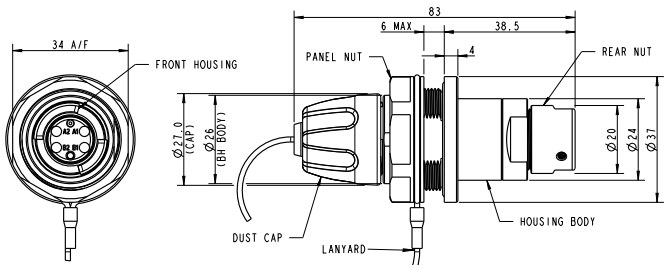


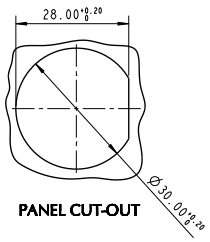
2411 - 4CH OPTICAL

Plug Connector

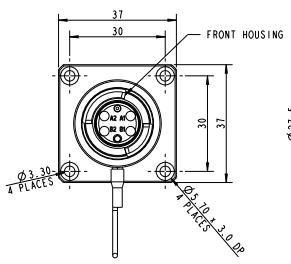


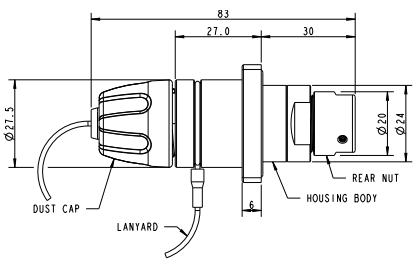
Bulkhead Connector D-Hole Mount

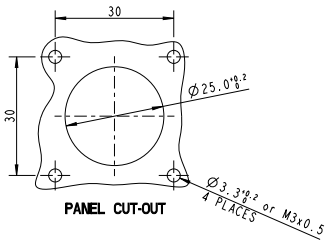




Bulkhead Connector Square Flange Mount







J-Lite™

Features

- Singlemode and multimode options
- Field terminable using standard termination tools & equipment
- Field repairable: EB insert & shell parts replaceable / re-useable
- 2 & 4 channel plugs and bulkheads
- Low profile and forward flange options for bulkhead
- Lightweight and cost effective

Description

J-Lite™ expanded beam fiber optic connectors have been designed as an affordable yet reliable solution for use in rugged and harsh environment applications, including outside broadcast, renewable energy and some military applications. The J-Lite™ is a fully hermaphroditic connector providing high performance at a low cost.

The J-Lite™ expanded beam connector is easy to clean, and in the event of the connector suffering damage in use, the design enables replacement of the expanded beam insert, connector front body and grip ring without the need to re-terminate the fibers.

Technical Specification

Insertion Loss	Singlemode: -1.5dB maximum (typical –1.0dB)* Multimode: -1.0dB maximum (typical –0.7dB)*
Return Loss	> 32dB (typical 40dB) Singlemode / >20dB Multimode*
Durability	500 matings minimum
High Temperature Storage	+75°C
Low Temperature Storage	-40°C
IP Rating	IP65
Free Fall Resistance	5 falls from 1.2m height
Vibration	10-55Hz, 3 directions, 1.52mm amplitude @ 20g acceleration
Flexing	5000 cycles at 20N**
Thermal Shock	-55°C to 85°C
Cable Retention	200N (cable dependant)
Weight (approx)	90g
Connector Shell Material / Color	Shell: Black High Performance Composite Thermoplastic

*Measurements against reference—random mate performance in line with MIL-DTL-83526

**Bulkhead connector with strain relief only

Ordering Information

JL P 4 09 B 55

Connector Family

JL	= J-Lite™ Connector

Connector Type

P	= Plug
BX	= Bulkhead XLR-Flange Mount
BXF	= Bulkhead Forward Position XLR-Flange Mount
BXL	= Bulkhead XLR-Flange Mount Low Profile
BXFL	= Bulkhead Forward Position XLR-Flange Mount Low Profile

Number of Channels

2	= 2 Optical Channels
4	= 4 Optical Channels

Cable Diameter (mm)

50	= MIL-TAC 5.0
55	= MIL-TAC 5.5
SZ	= Standard Zipcord 2x2.8mm
BF	= Buffered Fiber 0.9mm (BXL & BXFL Only)

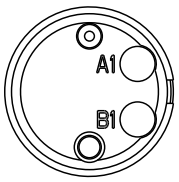
Wavelength of Operation

A	= 850 / 1300nm
B	= 1310 / 1550nm

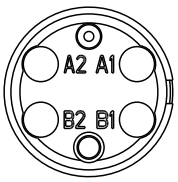
Fiber Type

09	= 9 / 125
50	= 50 / 125
62	= 62.5 / 125

Optical Insert Arrangement

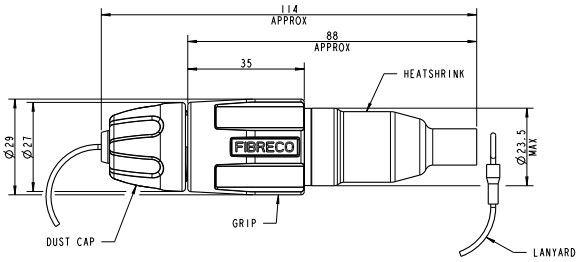


2410 - 2CH OPTICAL

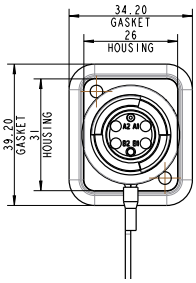


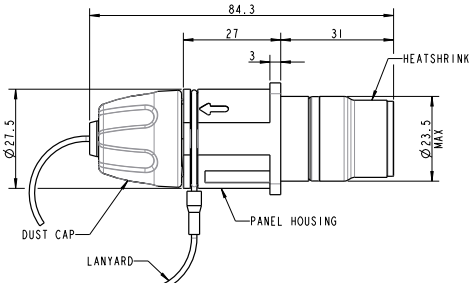
2411 - 4CH OPTICAL

Plug Connector

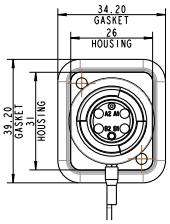


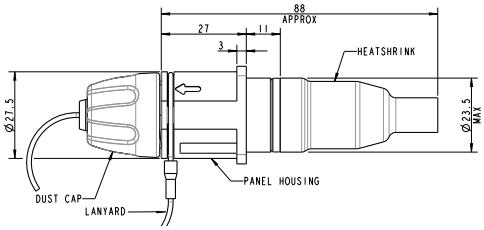
Low Profile Bulkhead Connector



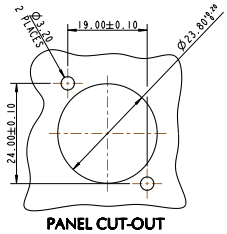


Bulkhead Connector with Strain Relief





Bulkhead Panel Cutout



PANEL CUT-OUT

Mini

Features

- Mini 1 – Stratos HMC singlemode compatible
- Mini 2 – Tyco Pro-Beam Mini & Telecast MX compatible
- Mini 3 – Stratos HMC multimode compatible
- 1, 2 & 4 channel plugs and bulkheads
- Variants: material, finish, bulkhead mount
- Options: XLR, low profile & reversed

Specifications

- Singlemode and multimode options
- Field repairable: EB insert & shell components replaceable / re-useable
- Field terminable using standard termination tools & equipment
- RoHS compliant

Description

The Mini expanded beam plug connector has a diameter of just 21mm making it ideal for applications where size and space requirements are critical. The Mini bulkhead connector is available with D-hole, square flange and XLR mounting options. Low profile versions are also available.

The Fibreco® Mini expanded beam connectors offer high performance, flexibility and cost effectiveness, combined with a simple termination process allowing rapid in-field termination and repair.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: -1.5dB maximum (typical <-1.0dB)* 50/125 Fiber at 850nm / 1300nm: -1.0dB maximum (typical <-0.7dB)*
Return Loss	> 32dB (typical 40dB) singlemode / >20dB multimode*
Durability	3000 matings minimum
Operating Temperature	High Temp: +85°C for 10 hours; Low Temp: -40°C for 10 hours
Storage Temperature	-55°C to +85°C
Water Immersion	15m for 24 hours (Plug & Bulkhead, Mated & Open Face)
Free Fall Resistance	500 falls from 1.2m height
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration
Bump	4000 bumps @ 40g acceleration
Crush Resistance	6.7kN
Corrosion Resistance	500 hours salt spray
Cable Retention	1055N (cable dependant)
Weight (approx)	Plug: 70g Bulkhead: 65g
Connector Shell Material / Color	Black Anodised Aluminum or Stainless Steel Grip & boot: Black

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

M1 P 4 09 B 55 A -OL

Connector Family

M1	= Mini-1 (M16 thread)
M2	= Mini-2 (Tr17 thread)
M3	= Mini-3 (1-piece insert, no alignment pin)

Connector Type

P	= Plug
BD	= Bulkhead D-Hole Mount
BS	= Bulkhead SQ-Flange Mount
BX	= Bulkhead XLR-Flange Mount Low Profile
BDL	= Bulkhead D-Hole Mount Low Profile
BSL	= Bulkhead SQ-Flange Mount Low Profile
BXL	= Bulkhead XLR-Flange Mount Low Profile

Number of Channels

1	= 1 Optical Channel
2	= 2 Optical Channels
4	= 4 Optical Channels

Fiber Type

09	= 09/125
50	= 50/125
62	= 62.5/125

Connector Grip/Boot Colour

-OL	= Olive

If black, leave line blank

Connector Shell Material

A	= Aluminium Hard Anodise
S	= Stainless Steel
N	= Nickel Aluminium Bronze

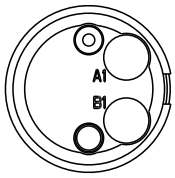
Cable Diameter

50	= MIL-TAC 5.0mm
55	= MIL-TAC 5.5mm
MZ20	= Mini Zipcord 2x2.0mm (6CH & 8CH)
BF	= Buffered Fiber 0.9mm (Low Profile ONLY)

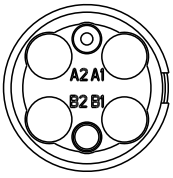
Wavelength of Operation

A	= 850 / 1300nm
B	= 1310 / 1550nm

Optical Insert Arrangements*

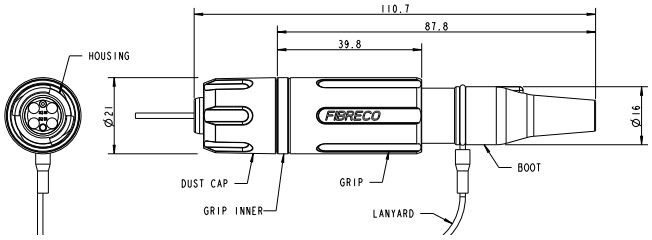


1745 - 2CH OPTICAL

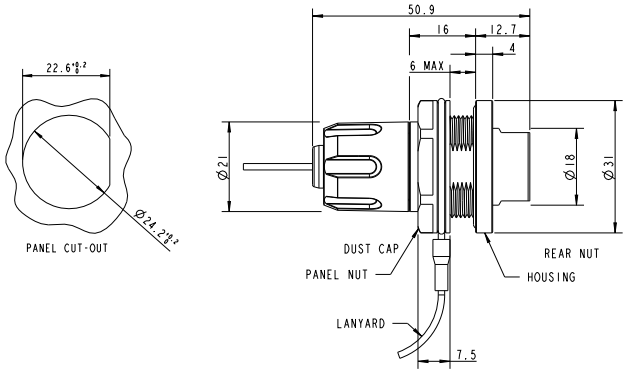


1746 - 4CH OPTICAL

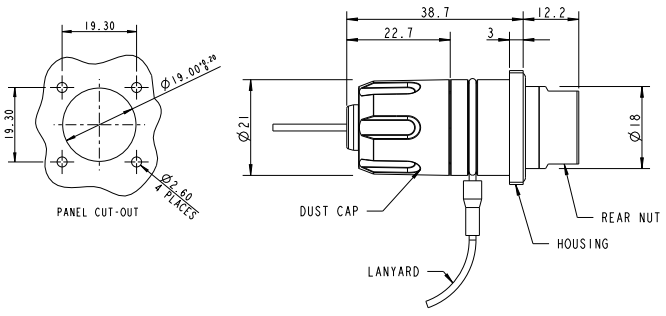
Plug Connector*



Bulkhead Connector D-Hole Mount*



Bulkhead Connector Square Flange Mount*



* Views shown are for Mini 2. For Mini 1 and Mini 3 please contact Customer Services

Senior

Features

- 1 to 8 Optical Channels
- Fiber Optic / Electrical hybrid variants
- Aluminum, Nickel Aluminum, Bronze or Stainless Steel shell options
- RoHS Compliant
- Singlemode and multimode options

Specifications

- Field terminable / repairable
- Hermaphroditic design

Description

Senior expanded beam fiber optic connectors have been designed for use in the most demanding harsh environment applications including military tactical communications, outside broadcast, petrochemical plant, mining, and offshore systems. The Senior connector range includes 1, 2, 4, 6 and 8 optical channel versions and four fiber optic / electrical hybrid variants.

The connectors are terminated using an epoxy-polish ferrule termination process with standard fiber optic termination tools and equipment. The terminated ferrules are simply inserted into the expanded beam housing and fixed in place via a spring and cover-plate. Ferrule alignment to the lenses is achieved automatically by the unique optical arrangement developed and patented by Cinch-Fibreco. In hybrid connectors, electrical connections are made via standard gold plated MIL-C-39029 crimp contacts.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: 1 to 4 channels: -1.5dB max / 6 & 8 channels: -2.0dB max* 50/125 Fiber at 850nm / 1300nm: 1 to 4 channels: -1.0dB max / 6 & 8 channels: -1.5dB max*			
Return Loss	> 32dB (typical 40dB) singlemode / >20dB multimode*			
Electrical: Power Contacts	Size 20 & size 16 MIL-C-39029. Contact resistance <4mΩ. Operating voltage 1000VAC.			
	Operating current 5A (short term 15A)			
Electrical: Test Voltage	Between contacts and contact / housing: 3000V / 50Hz, 1 minute EN61984			
Durability	3000 matings minimum			
Operating Temperature	-40°C to +85°C			
Storage Temperature	-55°C to +85°C			
Water Immersion	IP68			
Free Fall Resistance	500 falls from 1.2m height			
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration			
Bump	4000 bumps @ 40g acceleration			
Crush Resistance	6.7kN			
Corrosion Resistance	500 hours salt spray			
Cable Retention	1500N (cable dependant)			
Weight (approx)		Aluminum	Stainless Steel	Nickel Aluminum Bronze
	Plug:	160g	300g	285g
	Bulkhead:	150g	255g	240g
Connector Shell Material / Color	Black anodised Aluminum, Nickel Aluminum Bronze or Stainless Steel. Grip & boot: Black or Olive Green			

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

S P 4 09 B 0 0 55 A -OL

Connector Family
S = Senior

Connector Type
P = Plug
BD = Bulkhead D-Hole Mount
BS = Bulkhead SQ-Flange Mount
BSL = Bulkhead SQ-Flange Mount Low Profile

Number of Channels
1 = 1 Optical Channel
2 = 2 Optical Channels
4 = 4 Optical Channels
6 = 6 Optical Channels
8 = 8 Optical Channels

Fiber Type
09 = 09/125
50 = 50/125
62 = 62.5/125

Wavelength of Operation
A = 850 / 1300nm
B = 1310 / 1550nm

Connector Grip/Boot Colour
-OL = Olive
If black, leave line blank

Connector Shell Material
A = Aluminium Hard Anodise
AZ-BK = Aluminium Zinc Cobalt Black
AZ-OL = Aluminium Zinc Cobalt Olive
S = Stainless Steel
N = Nickel Aluminium Bronze

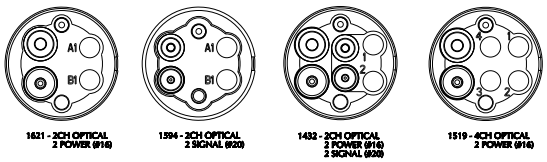
Cable Diameter
50 = MIL-TAC 5.0mm
55 = MIL-TAC 5.5mm
60 = MIL-TAC 6.0mm
65 = MIL-TAC 6.5mm
92 = SMPTE 9.2mm
SZ = Standard Zipcord 2x2.8mm (up to 4CH)
MZ20 = Mini Zipcord 2x2.0mm (6CH & 8CH)
BF = Buffered Fiber 0.9mm (Low Profile ONLY)

Number of Electrical Contacts Size 16
0 = No Electrical Contacts Size 16
2 = 2 Electrical Contacts Size 16

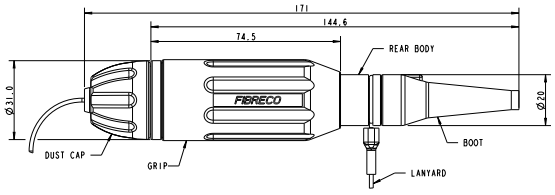
Number of Electrical Contacts Size 20
0 = No Electrical Contacts Size 20
2 = 2 Electrical Contacts Size 20

Optical Insert Arrangements

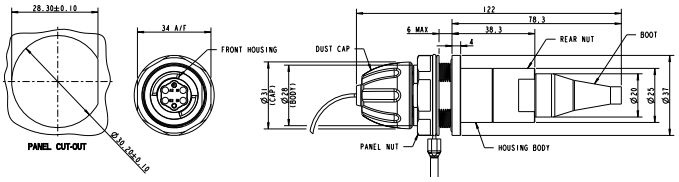
Hybrid Insert Arrangements



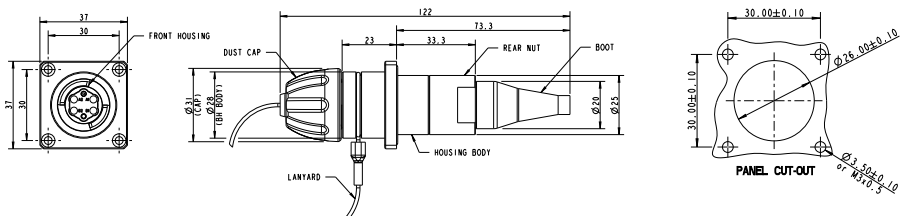
Plug Connector



Bulkhead Connector D-Hole Mount



Bulkhead Connector Square Flange Mount



S-Lite™

Features

- Field repairable: EB insert & shell parts replaceable / re-useable
- Hybrid contains 2 fiber, 2-16AWG contacts, 2-20AWG contacts
- XLR Bulkhead design for easy “drop-in” replacement
- Bulkhead sealing option available

Specifications

- Singlemode and multimode options
- Field terminable using standard termination tools & equipment
- Lightweight and cost effective

Description

The Fibreco S-Lite™ Expanded Beam connector is designed as a cost effective, high performance and reliable expanded beam solution for use in the broadcast industry, as well as other rugged and harsh environments. It is designed specifically to target the outdoor broadcast market, and offers additional versatility as the range also includes a hybrid version, combining electrical with optical to target SMPTE cable specific programs.

Technical Specification

Insertion Loss	Singlemode: -1.5dB maximum (typical –1.0dB)* Multimode: -1.0dB maximum (typical –0.7dB)*
Return Loss	>32dB (typical 40dB) singlemode / >20dB multimode*
Electrical Power Contacts	Size 20 & size 16, MIL-C-39029
	Contact resistance <4mΩ
	Operating voltage 1000VAC
	Operating current 5A (short term 15A)
Electrical Test Voltage	Between contacts and contact / housing: 3000V / 50 Hz, 1 minute EN61984
Durability	500 matings minimum
High Temperature Storage	+75°C
Low Temperature Storage	-40°C
IP Rating	IP65
Free Fall Resistance	5 falls from 1.2m height
Vibration	10-55Hz, 3 directions, 1.52mm amplitude @ 20g acceleration
Flexing	5000 cycles at 20N**
Cable Retention	200N (cable dependant)
Weight (approx)	90g
Connector Shell Material/Color	Shell: Black Valox 420SEO; Insert Arcap AP1D
Thermal Shock	-55°C to 85°C

*Measurements against reference—random mate performance in line with MIL-DTL-83526

**Bulkhead connector with strain relief only

Ordering Information

SL	P	2	09	B	2	2	78

Connector Family

SL = S-Lite™ Connector

Connector Type

P = Plug
BX = Bulkhead XLR-Flange Mount
BXF = Bulkhead Forward Position XLR-Flange Mount
BXL = Bulkhead XLR-Flange Mount Low Profile
BXFL = Bulkhead Forward Position XLR-Flange Mount Low Profile

Number of Channels

1 = 1 Optical Channels
2 = 2 Optical Channels
4 = 4 Optical Channels
6 = 6 Optical Channels
8 = 8 Optical Channels

Fiber Type

09 = 9 / 125
50 = 50 / 125
OM3 = 50 / 125 - OM3
OM4 = 50 / 125 - OM4
62 = 62.5 / 125

Wavelength of Operation

A = 850 / 1300nm
B = 1310 / 1550nm

Number of Electrical Contacts Size 20

0 = No Electrical Contacts Size 20
2 = 2 Electrical Contacts
4 = 4 Electrical Contacts

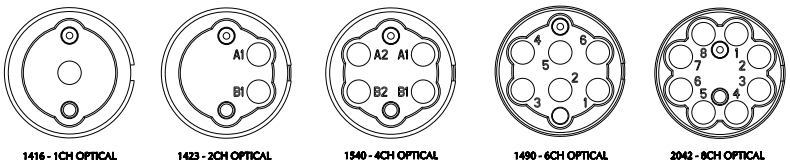
Number of Electrical Contacts Size 16

0 = No Electrical Contacts Size 16
2 = 2 Electrical Contacts
4 = 4 Electrical Contacts

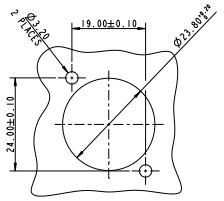
Cable Diameter (mm)

50 = MIL-TAC 5.0
55 = MIL-TAC 5.5
60 = MIL-TAC 6.0
65 = MIL-TAC 6.5
78 = 7.8 (SMPTE)
SZ = Standard Zipcord 2x2.8mm
MZ20 = Mini Zipcord 2x2mm (6CH & 8CH)

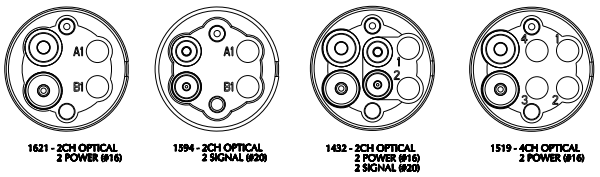
Optical Insert Arrangement



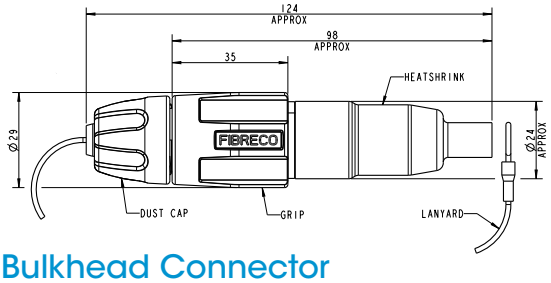
Bulkhead Cutout



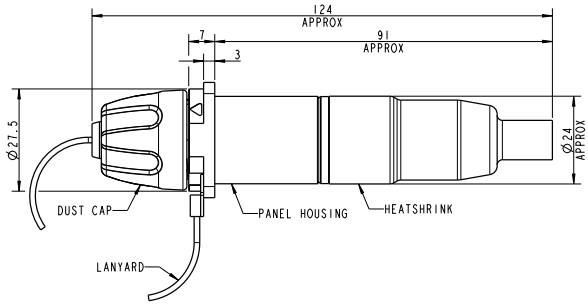
Hybrid Insert Arrangement



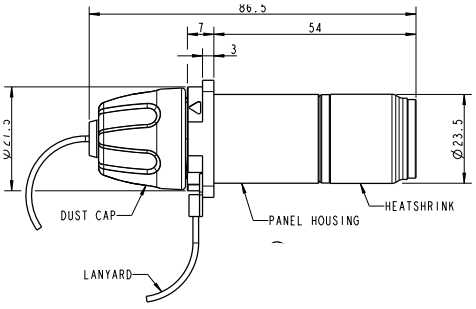
Plug Connector



Bulkhead with Strain Relief Connector



Bulkhead Connector



Senior 1080

Features

- SMPTE compatible HD TV connectors
- Two singlemode expanded beam optical channels
- Two Size 20 low voltage signal contacts
- Two Size 16 auxiliary electrical contacts

Specifications

- Rugged hermaphroditic design - no adaptors
- High reliability / durability

Description

The Senior 1080 hybrid fiber optic connector has been designed to incorporate all of the benefits of expanded beam technology and hermaphroditic coupling into a compact connector package suitable for the rigours of HD & SD TV outside broadcast applications. The connector is compatible with standard SMPTE 311M composite fiber optic camera cable and meets the generic requirements of the SMPTE connector specification.

No routine maintenance is necessary and cleaning is achieved simply by wiping the lenses - there are no moving parts, alignment sleeves or adaptors. Electrical contacts are standard MIL-C-39029 gold plated crimp contacts.

The Senior 1080 connector is available as a connector kit for customer termination or as terminated assemblies using SMPTE 311M camera cable. Assemblies can be supplied in custom lengths on a range of high quality steel AV cable reels.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm : Typical -1.0dB - Maximum -1.5dB*
Return Loss	> 32dB (typical 40dB) singlemode*
Electrical: Auxiliary Power Contacts	Size 16 MIL-C-39029. 600VAC
Electrical: Signal Contacts	Size 20 MIL-C-39029. 42VAC
Electrical: Test Voltage	Between contacts and contact / housing: 3000V / 50Hz, 1 minute EN61984
Durability	3000 matings minimum
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Water Immersion	1m (IP67)
Free Fall Resistance	500 falls from 1.2m height
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration
Bump	4000 bumps @ 40g acceleration
Crush Resistance	3kN
Corrosion Resistance	500 hours salt spray
Cable Retention	1000N (cable dependant)
Weight (approx)	Plug: 150g / Bulkhead: 120g
Connector Shell Material / Color	Aluminum Black Anodised Grip & boot: Black

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

S P 2 09 A 2 2 92 A

Connector Family
S = Senior

Connector Type
P = Plug
BD = Bulkhead D-Hole Mount
BS = Bulkhead SQ-Flange Mount
BSL = Bulkhead SQ-Flange Mount Low Profile

Number of Channels
2 = 2 Optical Channels

Fiber Type
09 = 09/125
50 = 50/125
62 = 62.5/125

Connector Shell Material
A = Aluminium Hard Anodise

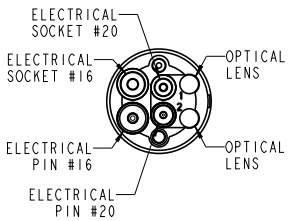
Cable Diameter
92 = SMPTE 9.2mm
SZ = Standard Zipcord 2x2.8mm (up to 4CH)
MZ20 = Mini Zipcord 2x2.0mm (6CH & 8CH)
BF = Buffered Fibre 0.9mm (Low Profile ONLY)

Number of Electrical Contacts Size 16
2 = 2 Electrical Contacts Size 16

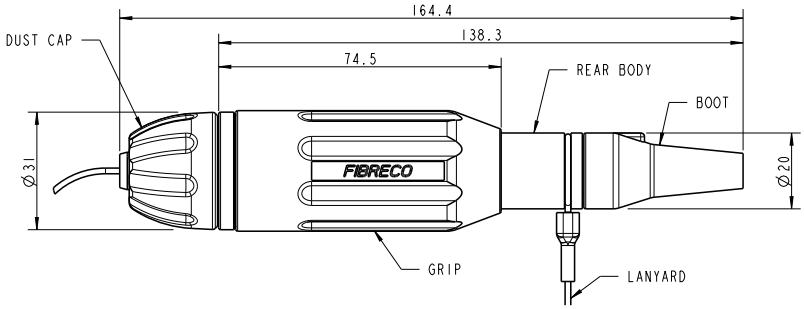
Number of Electrical Contacts Size 20
2 = 2 Electrical Contacts Size 20

Wavelength of Operation
A = 850 / 1300nm
B = 1310 / 1550nm

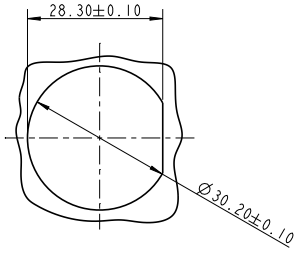
Insert Detail



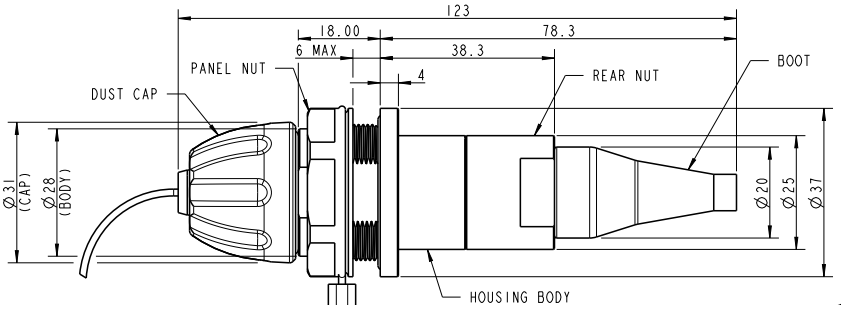
Plug Connector



Bulkhead Panel Cutout



Bulkhead Connector



Maxi

Features

- 12 or 16 Optical Channels
- Aluminum or Stainless Steel shell options
- Fully sealed (IP68)

Specifications

- Singlemode or Multimode
- Field terminable / repairable
- Hermaphroditic design

Description

The Maxi connector features a fully sealed hermaphroditic coupling, high multimode and singlemode optical performance, and a plug shell diameter of just 40mm.

Maxi expanded beam fiber optic connectors have been designed for use in the most demanding harsh environment applications including military tactical communications, outside broadcast, petrochemical plant, mining, and offshore systems where high fiber counts are critical.

In the event of the connector suffering severe damage in use, the connector design enables replacement of the expanded beam insert, connector front body and grip ring without the need to re-terminate the fibers.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: -2.0dB maximum (typical <-1.5dB)* 50/125 Fiber at 850nm / 1300nm: -1.5dB maximum (typical <-1.0dB)*			
Return Loss	> 32dB (typical 40dB) singlemode / >20dB multimode*			
Durability	3000 matings minimum			
Operating Temperature	-40°C to +85°C			
Storage Temperature	-55°C to +85°C			
Water Immersion	15m			
Free Fall Resistance	500 falls from 1.2m height			
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration			
Bump	4000 bumps @ 40g acceleration			
Crush Resistance	6.7kN			
Corrosion Resistance	500 hours salt spray			
Cable Retention	1500N (cable dependant)			
Weight (approx)		Aluminum	Stainless Steel	Nickel Aluminum Bronze
	Plug:	310g	575g	575g
	Bulkhead:	210g	390g	390g
Connector Shell Material / Color	Black Anodised Aluminum or Stainless Steel Grip & boot: Black or Olive Green			

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

MX P 12 09 B 65 A -OL

Connector Family
MX = Maxi

Connector Type
P = Plug
BD = Bulkhead D-Hole Mount
BS = Bulkhead SQ-Flange Mount

Number of Channels
10 = 10 Optical Channels
12 = 12 Optical Channels
16 = 16 Optical Channels

Fiber Type
09 = 09/125
50 = 50/125
62 = 62.5/125

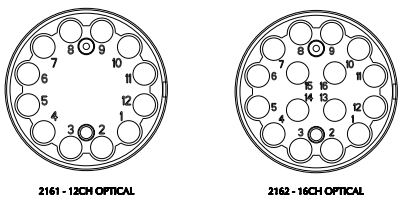
Connector Grip/Boot Colour
-OL = Olive
If black, leave line blank

Connector Shell Material
A = Aluminium Hard Anodise
S = Stainless Steel
N = Nickel Aluminium Bronze

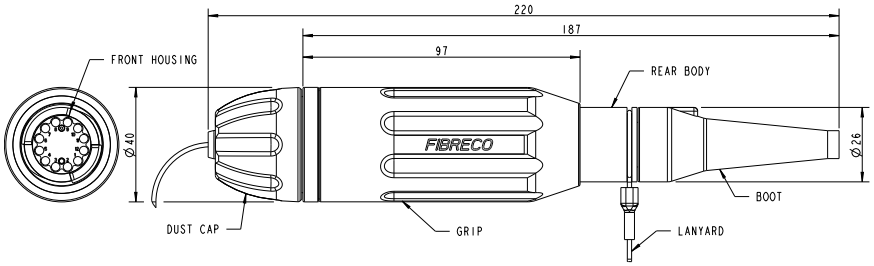
Cable Diameter
65 = MIL-TAC 6.5mm
75 = MIL-TAC 7.5mm
MZ18 = Mini Zipcord 2x1.8mm (16CH)
MZ20 = Mini Zipcord 2x2.0mm (12CH)

Wavelength of Operation
A = 850 / 1300nm
B = 1310 / 1550nm

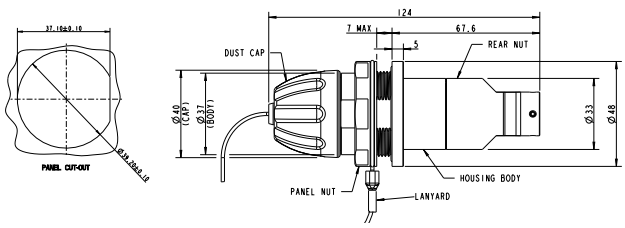
Optical Insert Arrangements



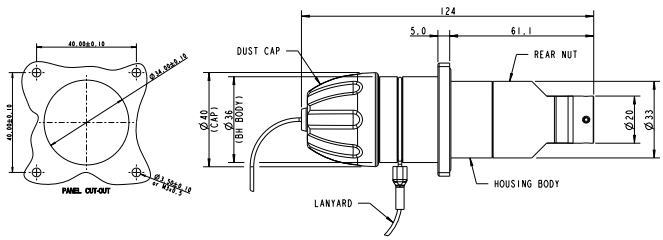
Plug Connector



Bulkhead Connector D-Hole Mount



Bulkhead Connector Square Flange Mount



F900

Features

- 2, 4 or 8 optical channels
- Aluminum or Nickel Aluminum Bronze shell options
- Legacy product compatibility

Specifications

- Singlemode or multimode
- Field terminable / repairable
- Hermaphroditic design

Description

F900 expanded beam fiber optic connectors are fully compatible with Stratos S900 and Tyco Pro-Beam Senior legacy connectors.

Designed specifically for military tactical communications, the F900 connector is available with 2, 4 or 8 multimode or singlemode optical channels and can be supplied with aluminum or nickel aluminum bronze shells.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: 1 to 4 channels: -1.5dB max / 8 channel: -2.0dB max* 50/125 Fiber at 850nm / 1300nm: 1 to 4 channels: -1.0dB max / 8 channel: -1.5dB max*		
Return Loss	>32dB (typical 40dB) singlemode / >20dB multimode*		
Durability	3000 matings minimum		
Operating Temperature	-40°C to +85°C		
Storage Temperature	-55°C to +85°C		
Water Immersion	5m		
Free Fall Resistance	500 falls from 1.2m height		
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration		
Bump	4000 bumps @ 40g acceleration		
Crush Resistance	6.7kN		
Corrosion Resistance	500 hours salt spray		
Cable Retention	1500N (cable dependant)		
Weight (approx)		Aluminum	Nickel Aluminum Bronze
	Plug:	320g	650g
	Bulkhead:	190g	400g
Connector Shell Material / Color	Black Anodised Aluminum or Stainless Steel Grip & Boot: Black or Olive Green		

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

900 P 4 09 B 55 A -OL

Connector Family
900 = F900

Connector Type
P = Plug
BD = Bulkhead D-Hole Mount
BS = Bulkhead SQ-Flange Mount

Number of Channels
2 = 2 Optical Channels
4 = 4 Optical Channels
8 = 8 Optical Channels

Fiber Type
09 = 09/125
50 = 50/125
62 = 62.5/125

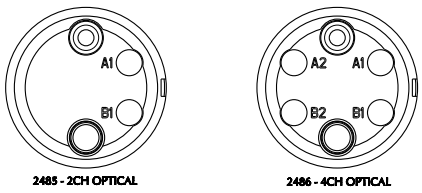
Connector Grip/Boot Colour
-OL = Olive
If black, leave line blank

Connector Shell Material
A = Aluminium Hard Anodise
S = Stainless Steel
N = Nickel Aluminium Bronze

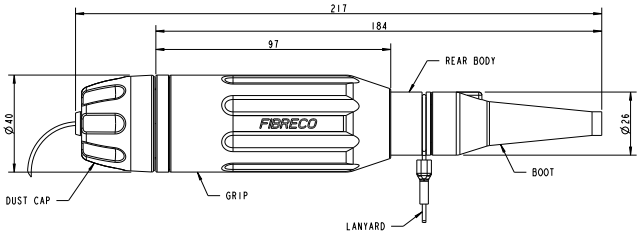
Cable Diameter
50 = MIL-TAC 5.0mm
55 = MIL-TAC 5.5mm
SZ = Standard Zipcord 2x2.8mm
MZ = Mini Zip 4x2.0mm

Wavelength of Operation
A = 850 / 1300nm
B = 1310 / 1550nm

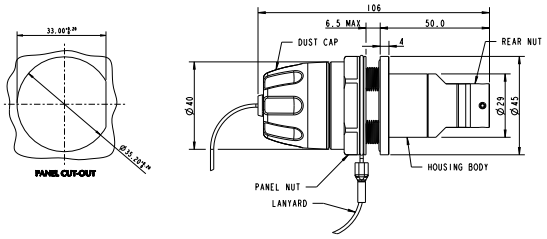
Optical Insert Arrangements



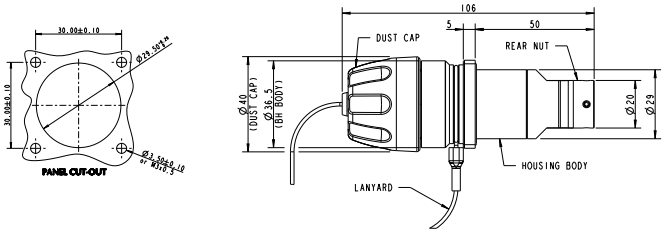
Plug Connector



Bulkhead Connector D-Hole Mount



Bulkhead Connector Square Flange Mount



F960

Features

- Eurocom Type II 2 CH compatibility
- 2, 4, 8 or 12 multimode optical channels
- 90 degree variant

Specifications

- Field terminable / repairable
- Hermaphroditic design
- Fully sealed (IP68)
- Compatible with Stratos S960

Description

F960 expanded beam fiber optic connectors are fully compatible with other Eurocom Type II legacy connectors. Designed specifically for military tactical communications, the F960 connector is available with 2, 4, 8 or 12 multimode optical channels and features a “pinless” alignment technique providing flat, easily cleanable mating surfaces.

Technical Specification

Insertion Loss	Multimode 50/125 Fiber at 850nm : -1.5dB maximum (typical -1.0dB)*
Durability	3000 matings minimum
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Water Immersion	5m
Free Fall Resistance	500 falls from 1.2m height
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration
Bump	4000 bumps @ 40g acceleration
Crush Resistance	6.7kN
Corrosion Resistance	500 hours salt spray (Anodised aluminum shell)
Cable Retention	1500N (cable dependant)
Weight (approx)	Plug: 520g
Connector Shell Material / Color	Bulkhead: 430g, Aluminum, Black Anodised & Stainless Steel Grip & boot: Black

*TL6020 Cable Dependant

Ordering Information

960 P 2 50 A 50 A -OL

Connector Family
960 = F960

Connector Type
P = Plug
BJ = Bulkhead Jam Nut Mount
BF = Bulkhead Flange Mount
BF90 = Bulkhead Flange Mount (90 Degree Backshell)

Number of Channels
2 = 2 Optical Channels
4 = 4 Optical Channels
8 = 8 Optical Channels
12 = 12 Optical Channels

Fiber Type
50 = 50/125
62 = 62.5/125

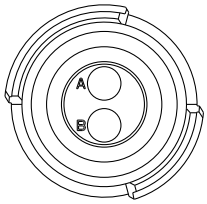
Connector Grip/Boot Colour
-OL = Olive
If black, leave line blank

Connector Shell Material
A = Aluminium Hard Anodise

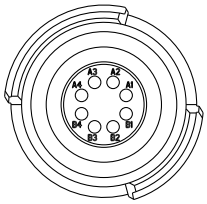
Cable Diameter
50 = MIL-TAC 5.0mm
55 = MIL-TAC 5.5mm
65 = MIL-TAC 6.5mm
SZ = Standard Zipcord 2x2.8mm (2CH)
MZ = Mini Zipcord 2x2.0mm (8CH & 12CH)

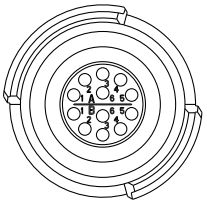
Wavelength of Operation
A = 850 / 1300nm

Optical Insert Arrangements

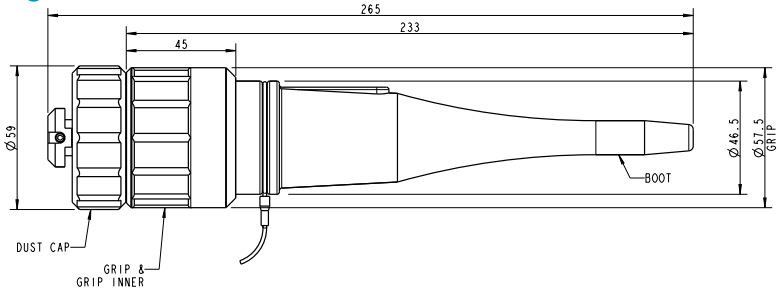


2CH OPTICAL (GLASS WINDOW)

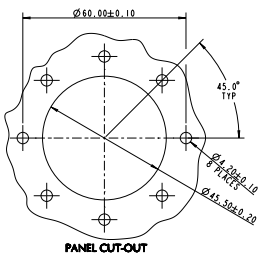

8CH OPTICAL

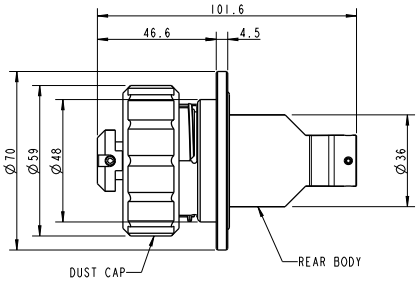

12CH OPTICAL

Plug Connector

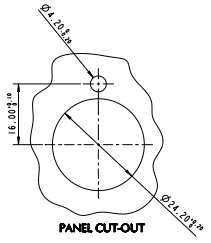


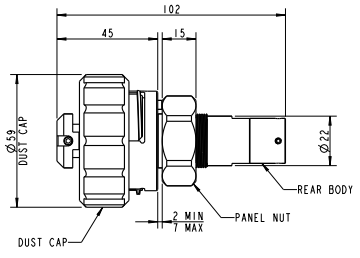
Bulkhead Connector Flange Mount





Bulkhead Connector Jam-Nut Mount





D38999 SERIES III

Features

- Size 11 Shell: 1 to 4 Optical Channels
- Size 13 Shell: 2 or 4 Optical Channels
- Size 15 Shell: 2, 4, 6, or 8 Optical Channels
- Size 17 Shell: 12 or 16 Optical Channels
- Singlemode or Multimode
- Straight or 90° Back-Shell Options

Specifications

- Aluminum, nickel aluminum bronze or stainless steel shell options
- Copper / optical hybrids
- IP67

Description

The D38999 Series III connector features the standard MIL-DTL-38999 Series III tri-start thread and one-turn self locking anti-vibration coupling mechanism making it ideal for use in vehicle, aircraft and naval environments. Plug and receptacle connectors are available with straight or 90° back-shell options and a choice of shell materials and plating finishes. Receptacle connectors are available with jam-nut or square-flange mounting and strain relief for zip-cords or tactical cable.

Technical Specification

Insertion Loss	9/125 Fiber at 1310nm / 1550nm: 1 to 4 channels: -1.5dB max / 6 to 16 channels: -2.0dB max* 50/125 Fiber at 850nm / 1300nm: 1 to 4 channels: -1.0dB max / 6 to 16 channels: -1.5dB max*						
Return Loss	>32dB (typical 40dB) singlemode / >20dB multimode*						
Durability	1000 Matings minimum						
Operating Temperature	-40°C to +85°C						
Storage Temperature	-55°C to +85°C						
Water Immersion	IP67						
Free Fall Resistance	350 falls from 1.2m height						
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration						
Bump	4000 bumps @ 40g acceleration						
Corrosion Resistance	350 hours salt spray						
Cable Retention	1000N (cable dependant)						
Weight (approx)		Aluminum		Stainless Steel		Nickel Aluminum Bronze	
		Size 11	Size 15	Size 11	Size 15	Size 11	Size 15
	Plug:	50g	90g	95g	170g	95g	170g
	Bulkhead:	45g	85g	85g	155g	85g	155g
Connector Shell Material / Color	Aluminum Alloy (Zinc Cobalt, Olive Drab) , Aluminum Alloy (electroless Nickel plated), Nickel Aluminum Bronze (shot blast, non-reflective) or Stainless Steel (passivated)						

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

311 P RN 4 09 B 0 0 55 AZ-OL

Connector Family

311	= 38999 type III shell size 11
313	= 38999 type III shell size 13
315	= 38999 type III shell size 15
317	= 38999 type III shell size 17

Connector Type

P	= Plug (straight backshell)
P90	= Plug (90 degree backshell)
P45	= Plug (45 degree backshell)
BS	= Bulkhead SQ-Flange Mount (straight backshell)
BSL	= Bulkhead SQ-Flange Mount Low Profile
BS90	= Bulkhead SQ-Flange Mount (90 degree backshell)
BS45	= Bulkhead SQ-Flange Mount (45 degree backshell)
BD	= Bulkhead D-Hole Mount (straight backshell)
BDL	= Bulkhead D-Hole Mount Low Profile
BD90	= Bulkhead D-Hole Mount (90 degree backshell)
BD45	= Bulkhead D-Hole Mount (45 degree backshell)
FR	= Free Receptacle (straight backshell)
FR90	= Free Receptacle (90 degree backshell)

Polarizing Keys

RN	= Reversed Normal (standard Fibreco option)
N	= Normal (non-standard Fibreco option)
A	= Arrangement 'A' (non-standard Fibreco option)

Number of Channels

1	= 1 Optical Channel (Shell size 11, 13, 15)
2	= 2 Optical Channels (Shell size 11, 13, 15)
4	= 4 Optical Channels (Shell size 11, 13, 15)
6	= 6 Optical Channels (Shell size 15)
8	= 8 Optical Channels (Shell size 15)
12	= 12 Optical Channels (Shell size 17)
16	= 16 Optical Channels (Shell size 17)

Fiber Type

09	= 09/125
50	= 50/125
62	= 62.5/125
OM3	= 50/125 OM3

Wavelength of Operation

A	= 850 / 1300nm
B	= 1310 / 1550nm

Number of Electrical Contacts Size 20

0	= No Electrical Contacts Size 20
2	= 2 Electrical Contacts Size 20

Number of Electrical Contacts Size 16

0	= No Electrical Contacts Size 16
2	= 2 Electrical Contacts Size 16

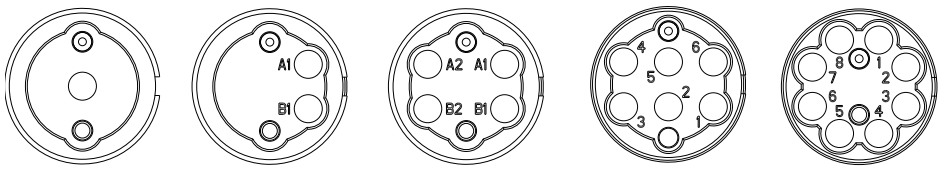
Cable Diameter

50	= MIL-TAC 5.0mm
55	= MIL-TAC 5.5mm
60	= MIL-TAC 6.0mm
65	= MIL-TAC 6.5mm
75	= MIL-TAC 7.5mm
SZ	= Standard Zipcord 2x2.8mm (up to 4CH)
MZ18	= Mini Zipcord 2x1.8mm (16CH)
MZ20	= Mini Zipcord 2x2.0mm (2CH -12CH)
BF	= Buffered Fiber 0.9mm (Low Profile ONLY)

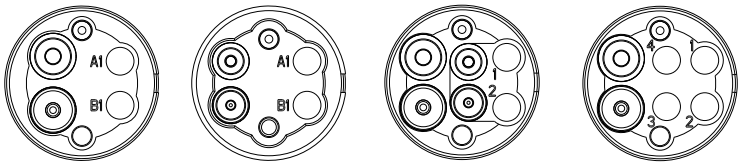
Connector Shell Material

AZ-OL	= Aluminium, Zinc Cobalt, Olive Drab
S	= Stainless Steel, Passivated
N	= NAB, Non-Reflective Shot Blast

Optical Insert Arrangements



Hybrid Insert Arrangements



Dura-Con™ Expanded Beam

Features

- 2, 4 & 6 channel options
- Front and rear mounted flange options
- Hybrid versions available, power and signal contacts can be combined with optical channels

Specifications

- Singlemode and multimode options
- Field terminable using standard termination tools & equipment
- Field repairable: EB insert & shell parts replaceable / re-useable

Description

Dura-Con™ Expanded Beam fiber optic connectors have been designed to combine proven Cinch fiber optic expanded beam technology with the durability of our high-reliability Dura-Con™ connectors, which are capable of meeting extreme mechanical needs in the harshest enviroments, including military/aerospace and industrial applications, such as downhole drilling.

Dura-Con™ Expanded Beam connectors offer reliable performance combined with a simple termination process allowing rapid in-field termination and repair.

Technical Specification

Insertion Loss	Singlemode: -1.5dB maximum (typical –1.0dB)* Multimode: -1.3dB maximum (typical –0.7dB)*
Return Loss	Singlemode: > 34dB Open Face / >31dB Mated Pair
Durability	500 mating cycles
Operating Temperature	-46°C to +71°C
Storage Temperature	-57°C to +85°C
Salt Spray	As per EIA-364-26, condition B
Shock	50 G's per MIL-STD-1344, Method 2004, Condition E (EIA-364-27, Condition E)
Vibration	20 G's per MIL-STD-1344, Method 2005, Condition IV (EIA-364-28, Condition IV)
Weight (approx)	Plug (wide flange) 29.5g; Receptacle (standard flange) 25.45g
Connector Shell Material	Stainless Steel & Brass Nickel plated

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

DCEB P 4 09 B BF S

Connector Family
DCEB = Dura-Con EB

Connector Type
P = Plug
PB = Plug with Backshell
S = Socket
SB = Socket with Backshell

Number of Channels
2 = 2 Optical Channels
4 = 4 Optical Channels
6 = 6 Optical Channels
8 = 8 Optical Channels

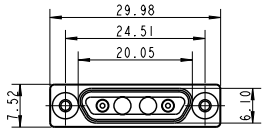
Fiber Type
09 = 09/125
50 = 50/125
62 = 62.5/125
OM3 = 50/125 OM3

Wavelength of Operation
A = 850 / 1300nm
B = 1310 / 1550nm

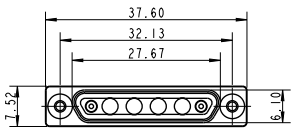
Cable Diameter
50 = MIL-TAC 5.0mm (Backshell Required)
55 = MIL-TAC 5.5mm (Backshell Required)
60 = MIL-TAC 6.0mm (Backshell Required)
65 = MIL-TAC 6.5mm (Backshell Required)
MZ20 = Mini Zipcord 2x2mm (Backshell Required)
BF = Buffered Fibre 0.9mm (Backshell Not Required)

Connector Shell Material
S = Stainless Steel, Passivated

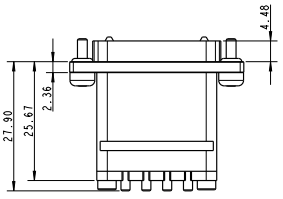
Insert Arrangements Socket (Standard Flange)



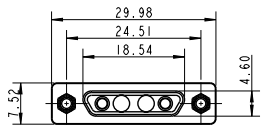
2 Channel



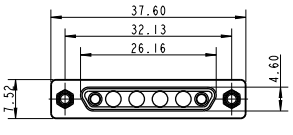
4 Channel



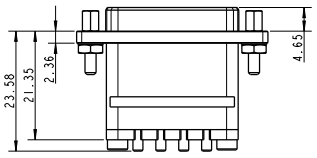
Insert Arrangements Plug (Standard Flange)



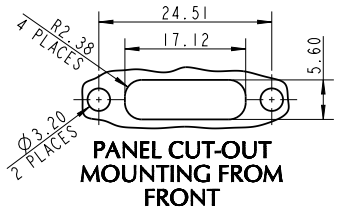
2 Channel



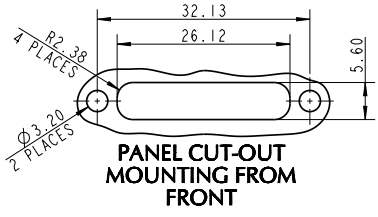
4 Channel



Bulkhead Panel Cutout



2 Channel



4 Channel

Geo-Beam™ Window Protected Connector

Features

- Window protected lenses
- Easy to clean - “wipe and mate”
- Unibody construction gives IP67 certification even while unmated
- Hermaphroditic design - no requirement for male/female adapters
- Stainless steel construction provides corrosion resistance

Description

Cinch Connectivity Solutions designed the Geo-Beam™ connector system to meet the stringent requirements of the oil and gas industries, and other harsh environments. Close cooperation with industry experts made it possible for Cinch to create a multichannel hermaphroditic connector which combines unrivalled optical performance and reliability within a form factor unheard of in the oil & gas field industry. The design of the Geo-Beam™ offers a flat mating surface protected by a hermetically sealed glass window covering the expanded beam lenses. This allows for the easiest cleaning of any of the Fibreco family.

Technical Specification

Insertion Loss	50/125 Fiber at 850nm: -1.5dB maximum (typical –1.0dB)*
Durability	3000 matings minimum
Operating Temperature	-40°F to +185°F / -40°C to +85°C
Storage Temperature	-40°F to +185°F / -40°C to +85°C
Water Immersion	15m maximum
Free Fall Resistance	500 falls from 3.94ft/1.2m height
Vibration	10-500Hz, 3 directions, 0.75mm amplitude @ 10g acceleration
Bump	4000 bumps @ 40 G acceleration
Crush Resistance	6.7kN
Corrosion Resistance	500 hours salt spray
Cable Retention	1000N (cable dependant)
Weight (approx)	Plug: 9.88oz/280g Bulkhead: 9.88oz/280g
Connector Shell Material / Colour	Shell Parts: stainless steel 316 Grip: black flourosilicone

*Measurements against reference—random mate performance in line with MIL-DTL-83526

Ordering Information

J **PSW** **2** **50** **A** **50** **S**

Connector Family
J = Junior Geo-Beam

Connector Type
PSW = Plug Sealed Window
BDSW = Bulkhead D-Hole Mount Sealed Window
BSSW = Bulkhead SQ-Flange Mount Sealed Window
BDRSW = Reversed Bulkhead D-Hole Mount

Number of Channels
2 = 2 Optical Channels

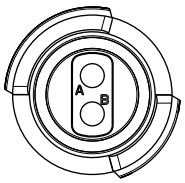
Fiber Type
50 = 50/125
62 = 62.5/125

Connector Shell Material
S = Stainless Steel

Cable Diameter
50 = MIL-TAC 5.0mm
55 = MIL-TAC 5.5mm
95 = Shipboard 9.3mm
SZ = Standard Zipcord 2x2.8mm
BF = Buffered Fibre 0.9mm

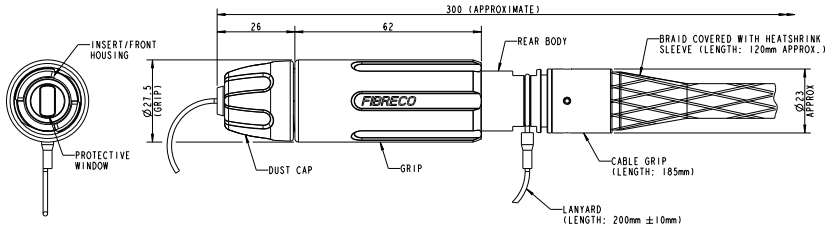
Wavelength of Operation
A = 850/1300nm

Optical Insert Arrangement

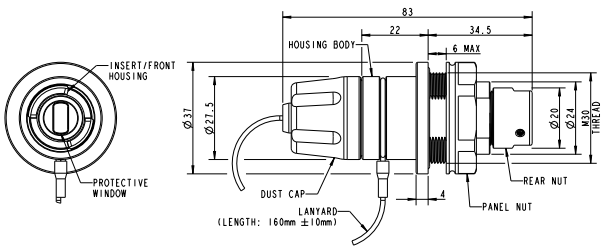


INSERT FACE

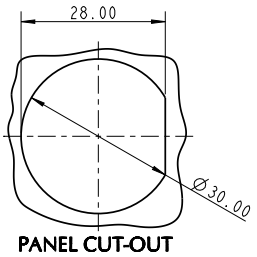
Plug Connector



Bulkhead Connector



Bulkhead Panel Cutout



PANEL CUT-OUT

Geo-Beam™ EX

Features

- 2, 4, 6 and 8 Expanded Beam Channels
- 2 Expanded Beam Channels with 2 #16 MIL-C-39029
- 2 Expanded Beam Channels with 2 #20 MIL-C-39029
- 4 Expanded Beam Channels with 2 #16 MIL-C-39029
- 2 Expanded Beam Channels with 2 #16 and 2 #20 MIL-C-39029
- 8 #16 Pin or Socket Contacts (All Copper MIL-C-39029, All Fiber MIL-PRF-29504, Mixed Copper & Fiber)

Specification

- Standard ATEX approved metric cable gland can be used
- Certified for equipment used in hazardous environments
- Applicable to upstream/midstream/downstream
- ATEX is European only and regulatory to all EU countries
- IECEx is a worldwide standard (and is used in the US)
- Can be used in Zone 0 Hazardous Areas when utilized with appropriate hardware

Description

Cinch Connectivity Solutions explosion proof series Geo-Beam™ EX has been designed in accordance to information defined within ATEX directive IECEx 60079 for use in Zone 1 and Zone 2 Hazardous Areas.

The Geo-Beam™ EX product range consists of an Inline Plug and Box Mount Bulkhead and is manufactured using Stainless Steel 316, making it able to withstand the most extreme environments. The product uses a Tri-Start Trapezoidal coupling method giving a reduce turn and an additional locking mechanism giving positive mating, and an audible click to ensure full engagement.

The Geo-Beam™ EX electrical range will offer the greatest flexibility of connector configurations and broadest options for the customer. The range is primarily designed using an 8 way copper connector, focusing around a standard #16 MIL-C-39029 contact and offers a variable range of fiber optic configurations, using MIL-PRF-29504, physical contact and optical termini.

The Geo-Beam™ EX Expanded Beam Connector is designed using a standard Fibreco insert. The insert allows up to 8 expanded beam channels, or a hybrid option, enabling a combination of power, electrical and optical connectivity in an all in one solution.

Technical Specification

Power Max AMPS per Pin		13		
Power Max Voltage		600		
Power Max AMPS		64		
Insertion Loss (Optical)	**Singlemode**	-1.0dB (typical -0.5dB)		
	Multimode	-0.7dB (typical -0.5dB)		
Return Loss (Optical)		≥50dB singlemode		
Insertion Loss	**Singlemode**	-2.5dB (typical -1.5dB)		
(Expanded Beam)	**Multimode**	-2.0dB (typical -1.0dB)		
Return Loss (Optical)		≥35dB (typical 40dB) singlemode		
Temperature Class		Gas: T4 (-30°C to +60°C)	Dust: T135°C	
Surface Temperature		60°C		
Standard Coding		II 2 G D	Ex db op pr IIC T4 Gb	Ex tb IIIC T80°C Db
Certification		ATEX Directive 2014/34/EU & IEC 60079 ATEX Code: CML16ATEX1398X	IECEx Code: CML16.0151X	
IP Rating (when mated)		IP67		
Free Fall Resistance		1kg (7 Joules) at 1.2M (Steel Plate Base)		
Weight (approx)		Plug - 420g / Bulkhead - 580g (Additional weight with gland)		
Connector Shell Material / Color		Stainless Steel 316 (shotblast finish)		

Ordering Information

EX15 P 2E 09 B 2 2 SB

Connector Family

EX15 = Geo-Beam EX (ATEX) Shell Size 15

Connector Type

P = Plug
BM = Bulkhead Box Mount without Panel Nut
BMP = Bulkhead Box Mount with Panel Nut

Number of Channels

0 = No Optical Channels
2E = 2 Optical EB Channels
4E = 4 Optical EB Channels
6E = 6 Optical EB Channels
8E = 8 Optical EB Channels
2P = 2 Optical PC Channels (MIL-PRF-29504/4D & 5D) - only with 6 Electrical Contacts Size 16
4P = 4 Optical PC Channels (MIL-PRF-29504/4D & 5D) - only with 4 Electrical Contacts Size 16
6P = 6 Optical PC Channels (MIL-PRF-29504/4D & 5D) - only with 2 Electrical Contacts Size 16
8P = 2 Optical PC Channels (MIL-PRF-29504/4D & 5D)

Fiber Type

09 = 09/125
50 = 50/125
62 = 62.5/125
For No Optical Channels leave line blank

Connector Shell Material

SB = Stainless Steel Shot Blast

Number of Electrical Contacts size 16

0 = No Electrical Contacts size 16
2 = 2 Electrical Contacts size 16
4 = 4 Electrical Contacts size 16
6 = 6 Electrical Contacts size16
8 = 8 Electrical Contacts size 16
MIL-C-39029/93A & 94A for hybrid expanded beam option
MIL-C-39029/56E & 58E for full power or physical contact hybrid

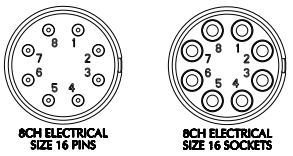
Number of Electrical Contacts size 20

0 = No Electrical Contacts size 20
2 = 2 Electrical Contacts Size 20 (MIL-C-39029/93A & 94A) - 2E only

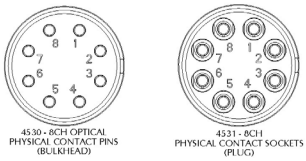
Wavelength of Operation

A = 850 / 1300nm
B = 1310 / 1550nm
C = 1310nm ONLY
D = 1550nm ONLY
For No Optical Channels leave line blank

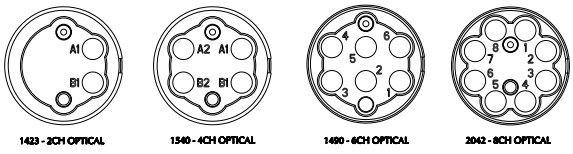
Electrical



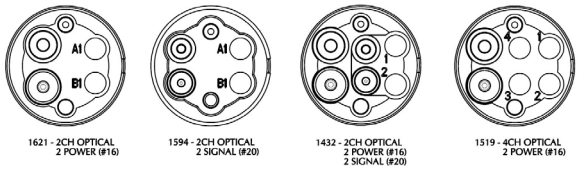
Optical Pin and Socket



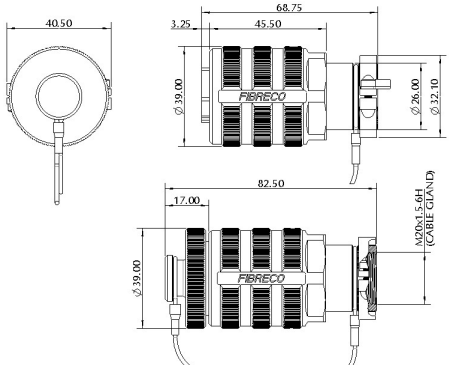
Optical Inserts



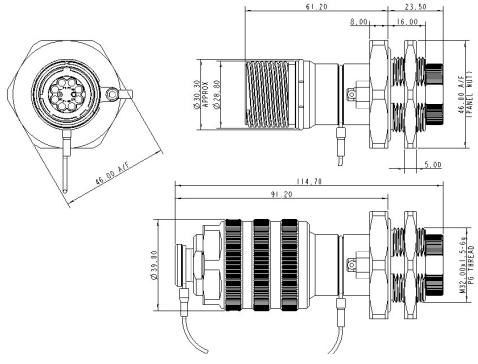
Hybrid Inserts



Plug Connector



Bulkhead Connector



Cable Assemblies

Description

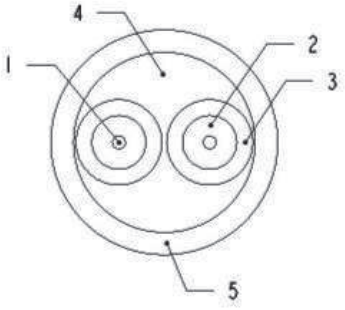
Cinch-Fibreco manufactures custom fiber optic cable assemblies for a wide range of military and industrial harsh environment applications.

Our manufacturing facility is geared for volume termination of the Senior, Junior and Mini expanded beam connectors. We keep large stocks of singlemode and multimode tactical fiber optic cable and deployable cable reels enabling fast turn-round production of all deployable cable assemblies, harnesses and bulkhead assemblies.

Our facility is fully equipped with the latest automated termination, polishing and testing technology including interferometer ferrule end face characterisation and Optical Time Domain Reflectometer testing

Tactical Cable Construction (typical)

1. Optical fiber
2. Acrylate fiber coating
3. Color coded 900um buffer
4. Aramid strength member
5. Polyurethane jacket



Cable Characteristics (typical)

Cable Diameter	2 core: 5.0mm / 4 core: 5.5mm / 6 core: 6.0mm / 8 core: 6.5mm / 12 core: 6.5mm / 16 core: 7.5mm
Weight	2 core: 21kg/km / 4 core: 27kg/km / 6 core: 32kg/km / 8 core: 38kg/km / 12 core: 51kg/km / 16 core: 60kg/km
Tensile Load (short term)	1800N
Operating Temperature	-55°C to +85°C
Storage Temperature	-70°C to +85°C
Crush Resistance	440N/cm
Impact Resistance	200 Impacts (EIA/TIA-455-24 Mil)
Minimum Bend Radius	10X sheath diameter
Sheath Material / Color	Polyurethane, Matt Black

Multimode Fiber Characteristics (typical)

Part Number	Attenuation dB/km		Bandwidth MHz/km		NA
	850nm	1300nm	850nm	1300nm	
62.5/125 OM1	3.5	1.5	200	500	0.27
50/125 OM2	3.5	1.5	500	500	0.20
50/125 OM3	25	0.6	1500	500	0.20

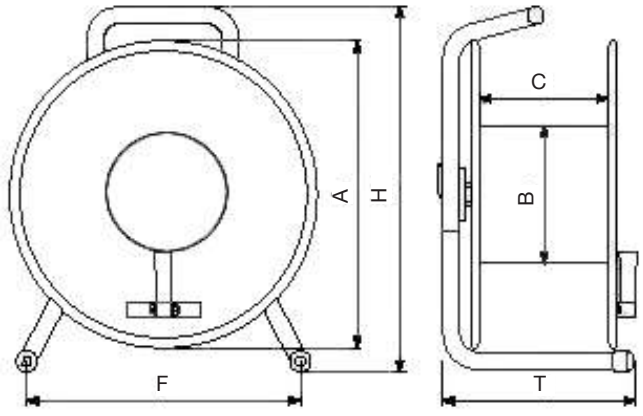
Singlemode Fiber Characteristics (typical)

Part Number	Attenuation dB/km		Dispersion ps/nm.km		RI
	1310nm	1550nm	1310nm	1550nm	
9/125 OS1	0.5	0.5	3.5	18.0	1.470

Recommended Cable Capacity (metres)

Reel Ref	2 core (Ø 5.0mm)	4 core (Ø 5.5mm)	6 core (Ø 6.0mm)	8 & 12 core (Ø 6.5mm)	16 core (Ø 7.5mm)
R0310	180	150	125	100	80
R0380	350	300	250	200	150
R0385	600	500	350	300	250
R0582	1000	750	600	500	400

Reel Ref	Material	Weight kg	Ø A	Ø B	Width C	Width F	Height H	Depth T
R0310	Non-Metallic	2.5	310	170	112	262	360	230
R0380	Steel	6.0	380	178	142	300	450	230
R0385	Steel	7.0	380	178	210	300	460	290
R0582	Steel	12.5	580	320	170	430	710	250



Universal Field Splice

Features

- Repairs 1 to 4 fiber MIL-TAC cable
- Multimode or Singlemode
- Universal design for mechanical or fusion splices
- High tensile load
- Fully sealed
- Re-usable

Description

The Universal Field Splice has been developed to offer fast in-field repairs to damaged multimode and singlemode MIL-TAC fiber optic cable.

The field splice enclosure features a rugged, fully sealed, rigid design with strain-relief for standard 2 and 4 channel tactical cable. The universal design allows the use of Corning CamSplice™ mechanical splices (supplied as standard) and 3M Fibrlok™ mechanical splices. The enclosure is also suitable for use with many modern fusion splicers.

The Universal Field Splice is available as standard in Aluminum (black hard anodised) material. A Stainless Steel version is also available for offshore and mining applications.

A range of termination and replenishment kits are available including a full termination tool kit complete with heavy duty fitted carry case. Replenishment kits provide replacement strain-relief components and consumables to enable the re-use of field splice enclosures.

Technical Specification

Operating Temperature	-55°C to +85°C
Water Immersion	15m
Free Fall Resistance	500 falls from 1.2m height
Vibration	10-500Hz, 3 directions, 0.75mm amplitude@ 10g acceleration
Bump	4000 bumps @ 40g acceleration
Crush Resistance	3kN
Corrosion Resistance	500 hours salt spray
Cable Retention	1500N (cable dependant)
Weight (approx)	Aluminum Shell: 150g
Shell Material / Color	Black Anodised Aluminum or Stainless Steel

Field Splice Kit FSK-01

Complete kit including two splice enclosures, tools, consumables and heavy duty carry case

Contents	Quantity
Field splice enclosure	2
Bend relief boot	4
Strain-relief bush 5.0mm	4
Strain-relief bush 5.5mm	4
Crimp ring	4
Grub screw	16
Corning CamSplice™ mechanical splice	6
Corning FBC006 fiber cleave tool	1
Crimp tool & die set	1
IPA dispenser & cleaner	1
Miller fiber strippers	1
Steel rule	1
Shell spanner	2
Side cutters	1
Snap-off knife	1
Marker pen	1
Cable strip template	1
Lint-free wipes	1 pack
Fiber sharps bin	1
Syringes / tips	10
Loctite 480 Cyanoacrylate Adhesive	1 pack
Cyanoacrylate debonder	1 pack
Seal Lubricant	1 pack
Heavy duty fitted carry case	1

Field Splice Kit FSK-02

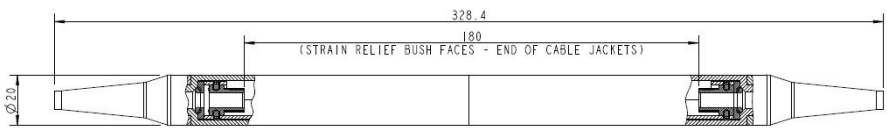
Kit including one splice enclosure and all components and consumables

Contents	Quantity
Field splice enclosure	1
Bend relief boot	2
Strain-relief bush 5.0mm	2
Strain-relief bush 5.5mm	2
Crimp ring	2
Grub screw	8
Corning CamSplice™ mechanical splice	6
Loctite 480 Cyanoacrylate Adhesive	1 pack
Seal Lubricant	1 pack

Field Splice Kit FSK-03

Kit including all components and consumables to allow the re-use of a field splice enclosure

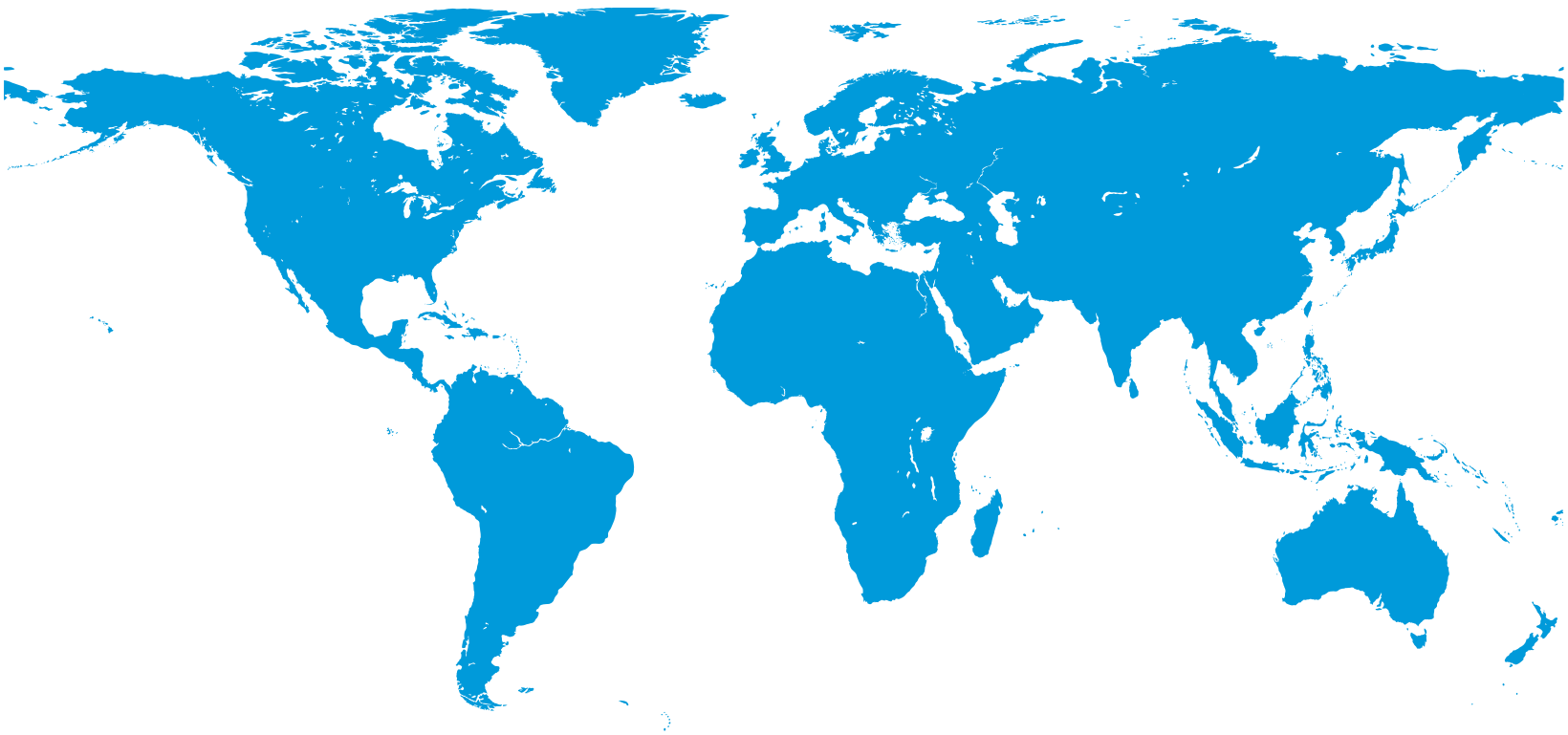
Contents	Quantity
Bend relief boot	2
Strain-relief bush 5.0mm	2
Strain-relief bush 5.5mm	2
Crimp ring	2
Grub screw	8
Corning CamSplice™ mechanical splice	6
Loctite 480 Cyanoacrylate Adhesive	1 pack
Seal Lubricant	1 pack



About Cinch Connectivity Solutions

In operation since 1917, Cinch supplies high quality, high performance connectors and cables globally to the Aerospace, Military/Defense, Commercial Transportation, Oil & Gas, High End Computer, and other markets. We provide custom solutions with our creative, hands on engineering and end to end approach.

Our diverse product offerings include: connectors, enclosures and cable assemblies utilizing multiple contact technologies including copper and fiber optics. Our product engineering and development activities employ cutting edge technologies for design and modeling, and our various technologies and expertise enable us to deliver custom solutions and products for our strategic partnerships.



For more information, please contact us:

North America
+1 507.833.8822
ccsorders@us.cinch.com

Asia-Pacific
+86 21 5442 7668
ccs.asia.sales@as.cinch.com

Europe, Middle East
+44 (0) 1245 342060
CinchConnectivity@eu.cinch.com

belfuse.com/cinch

cinch
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