

# MILITARY, SPACE, AVIONICS

ROBUST & RELIABLE FIBER OPTIC INTERCONNECT SOLUTIONS

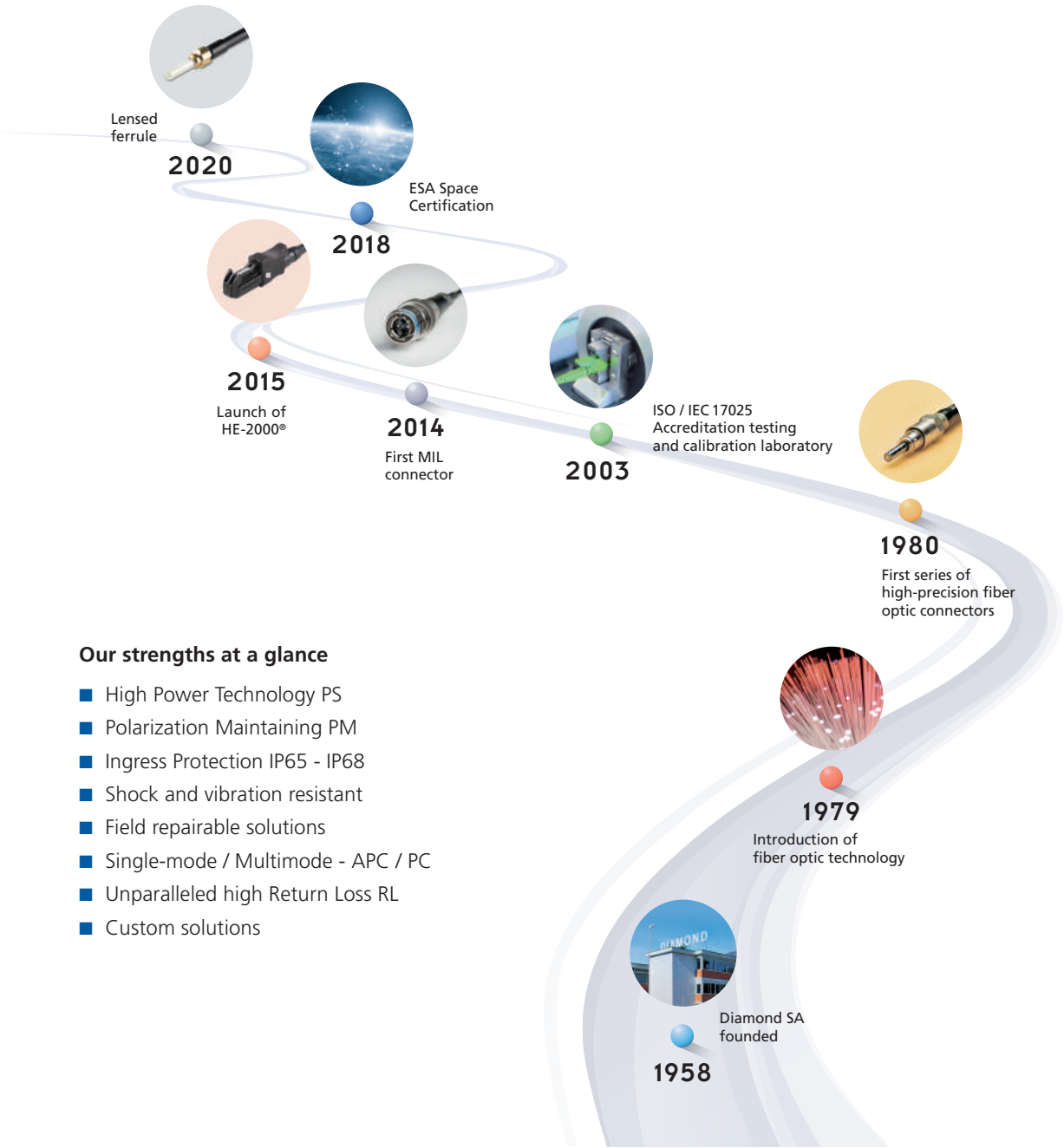


ROBUST AND RELIABLE INTERCONNECT SOLUTIONS  
DESIGNED FOR MILITARY/SPACE/AVIONICS

Diamond offers a wide range of strong, reliable, and customizable fiber optic optical connectors with superior optical performances. These connectors are also available with High Power PS and Polarization Maintaining PM technology.

These products are built to withstand adverse temperatures, such as weather, shock, vibration, tensile stress, external pressure, corrosive surroundings and more. These conditions are much harsher than those typically endured by standard commercial connectors and cable assemblies.

Striving for innovation



Our strengths at a glance

- High Power Technology PS
- Polarization Maintaining PM
- Ingress Protection IP65 - IP68
- Shock and vibration resistant
- Field repairable solutions
- Single-mode / Multimode - APC / PC
- Unparalleled high Return Loss RL
- Custom solutions

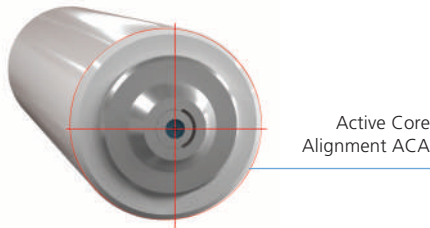


OUR TECHNOLOGIES

Active Core Alignment ACA

Diamond exclusively uses ceramic ferrules with titanium inserts, a composite ferrule, for its connectors. Diamond's patented Active Core Alignment process, perfectly centers the fiber core on the axis of ferrule, ensuring Insertion Loss IL values are reduced to a minimum.

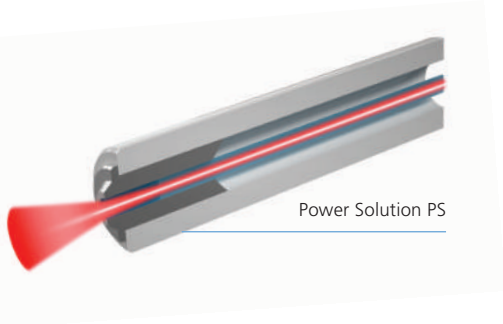
**Available connectors:** all butt-joint based connectors.



Power Solution PS

Diamond Power Solution connections utilize various beam expansion methods (Expanded Beam), which can vary greatly depending on the scope of the application. The different PS types available are as follows: PS Collimated (contact), PM-PS (contact), PSm (contact), PSi (free standing), PSc (collimator), PSf Free Space (diverging), PSb Ball Lens (expanded beam) and PSI Lensed (focused).

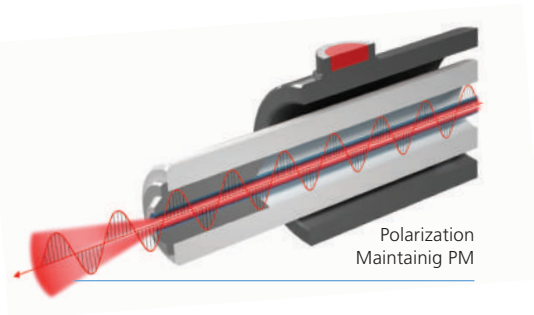
**Available connectors:** E-2000®, F-3000®, Mini AVIM®, DMI, FC, X-Beam and more upon request.



Polarization Maintaining PM

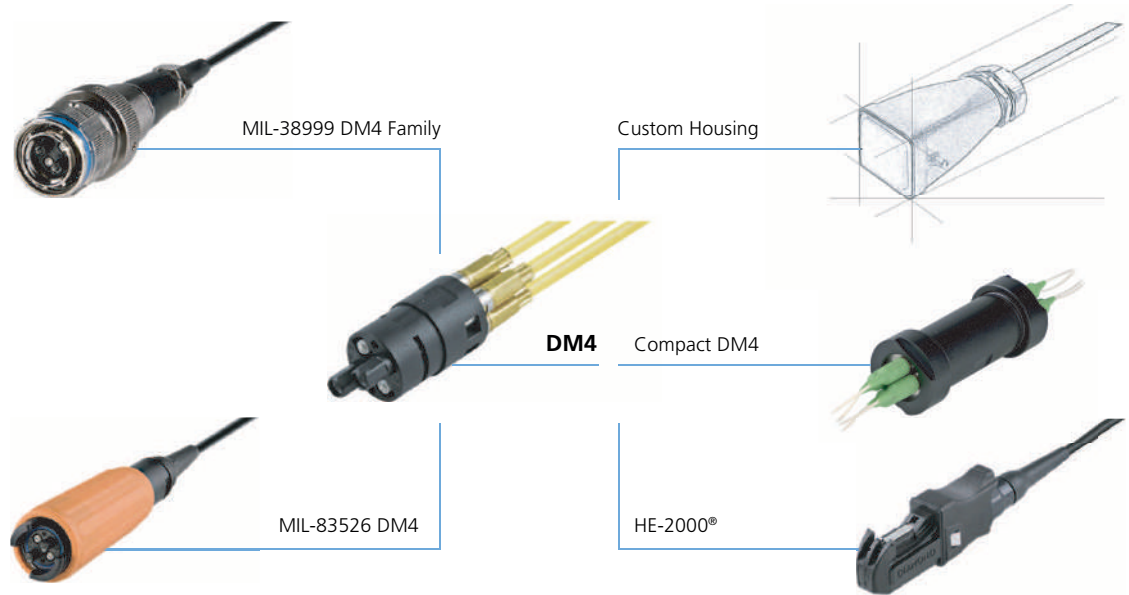
Diamond Polarization Maintaining connectors are renowned for their exceptional performance. The Active Core Alignment process minimizes core offset to ensure low Insertion Loss. Active Polarization Orientation guarantees optimal alignment of polarization axes for high Extinction Ratio on polarization maintaining and polarizing fibers.

**Available connectors:** E-2000®, F-3000®, FC, SC, DMI, AVIM® family and others upon request.



HYBRID DM4 MULTIPURPOSE TERMINI

The DM4 insert is the core of the existing HE-2000®, MIL-38999 DM4 and MIL-83526 DM4 Diamond connectors. Furthermore, the design of the DM4 insert is constructed to fit into a variety of different connector housings.



Characteristics of DM4 insert

- Based on standard 2.5-mm Alberinos with integrated springs to prevent termini separation
- Up to 4 channels
- Genderless mating and self-aligning design
- Easy termini insertion and removal for field termination and repair

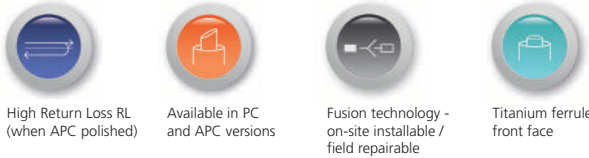
Features



Features of termini

- Compatible with several fiber types such as Multimode (MM), Single-mode (SM), Polarization Maintaining (PM), Power Solution (PS) and small-core fibers
- Repeatable low Insertion Loss
- High Extinction Ratio when terminated with PM fibers
- Electrical pins 20 AWG

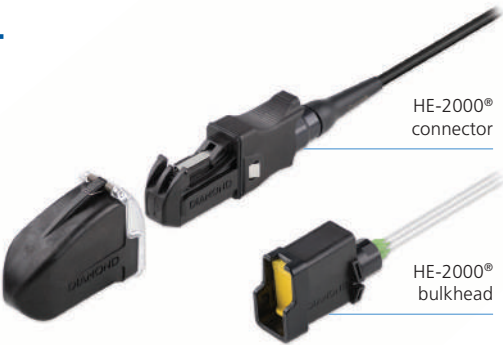
Features



# DM4 BASED INTERCONNECT SOLUTIONS

## HE-2000®

- Push-pull connector with automatic protection cap
- Up to 10'000 mating cycles
- Harsh-environment plastic shell, made from nylon with 25% fiber-glass reinforcement



### Features



Automatic protection shutter on IP65 connector



Ingress Protection IP67



Mechanical and color coding



On-site installable / field repairable

### Ideally suitable for



Industry 4.0



Oil & Gas



Lidars, Sensors



FBG Sensors



FTTA



Transportation

## MIL-38999 DM4 Family

- Size 13 and 25 shells (according to MIL std 38999 series III)
- Available on cable reel up to 500 meters length
- 4 to 12 channels



### Features



Ingress Protection IP67



On-site installable / field repairable of size 13



Vibration / shock resistant

### Ideally suitable for



Military



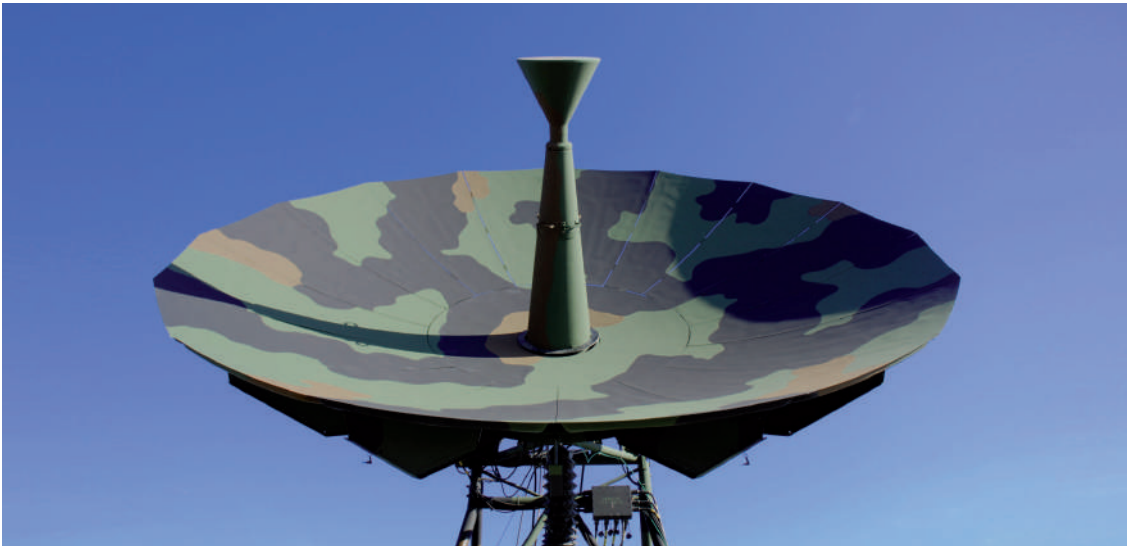
Oil & Gas



FBG Sensors



Transportation



Military

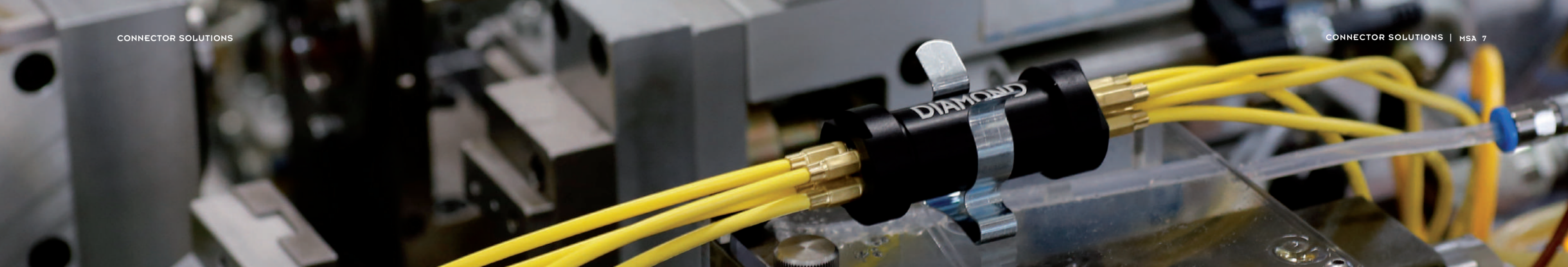


Space



Avionics





**MIL-83526 DM4**

- Keyed, self-aligning connector housing aides in “blind mating” applications
- Aluminium case suitable for wet applications

**Features**



Ingress Protection IP68



Rugged construction for highly reliable optical connections

**Ideally suitable for**



Lidars, Sensors



Oil & Gas



Transportation



MIL-83526 DM4 connector

MIL-83526 DM4 bulkhead

**Compact DM4**

- Light and small factor solution
- Aluminum case
- Easily pluggable by screwing

**Features**



Lightweight



On-site installable / field repairable

**Ideally suitable for**



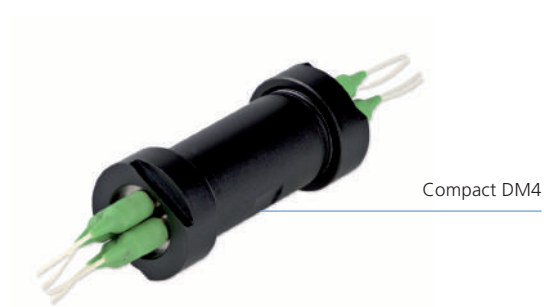
High density packaging solutions



Dry applications



Industry 4.0



Compact DM4

**MT FAN-OUT INTERCONNECTS**

**DiaFlex (Fan-Out Connector)**

- Cable retention 700 N
- Easy to use
- Robust metal fiber divider
- Small external diameter allows for flexible usage
- Custom connector types and cable lengths



DiaFlex connector

**Features**



Multi-fiber connector for 8/12/24 fibers



Replaceable fiber whips



Protective cap with feed-in eye

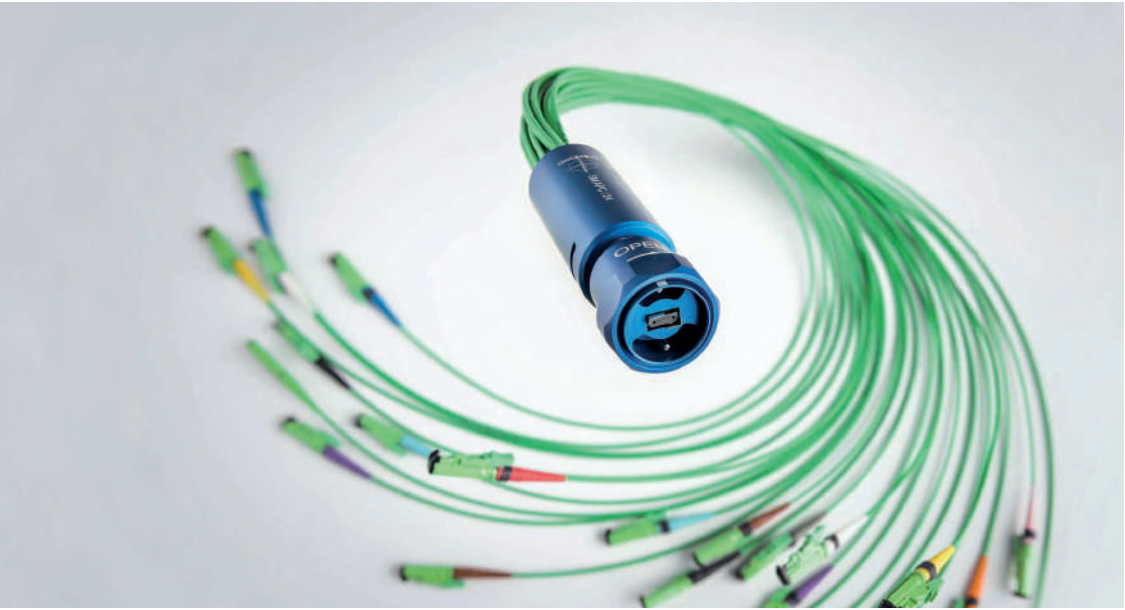


Ingress Protection IP68

**Ideally suitable for**



Building sites

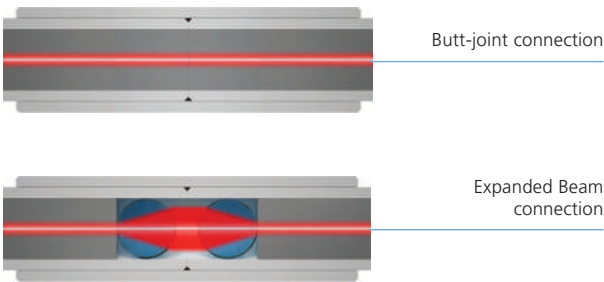


EXPANDED BEAM XB

Unlike conventional ferrules, the lensed-ferrule operates on the Expanded Beam principle, ensuring reliable and low maintenance optical connections with insensitivity to dirt and debris. The use of high precision components and unique assembly techniques results in a highly repeatable, low IL ferrule, that opens new perspectives in the context of optical connections, where mating-cycles, dust insensitivity, reliability and low losses are required.

Advantages of Expanded Beam

- High rate of mating cycles
- Less sensitive to dirt and debris
- Low risk of damage
- High data rate capacity
- Easy cleaning process



Expanded Beam XB lensed-ferrule

- Low Insertion Loss
- High power compatibility
- On-site installable / field repairable
- Various connector bodies available



Features



Ideally suitable for



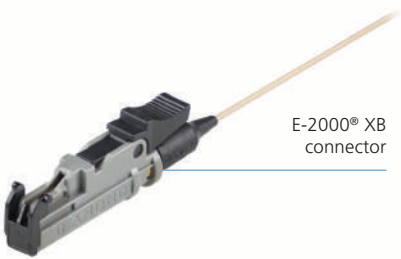
Optical specifications

Insertion Loss	Typical 0.6dB / Maximum 1dB per connection	
Return Loss	Minimum 35dB	
Optical power	Up to 3 Watts@1550nm	Short-term test on factory assembled E-2000® XB connectors in laboratory environment

EXPANDED BEAM XB INTERCONNECTS

E-2000® XB

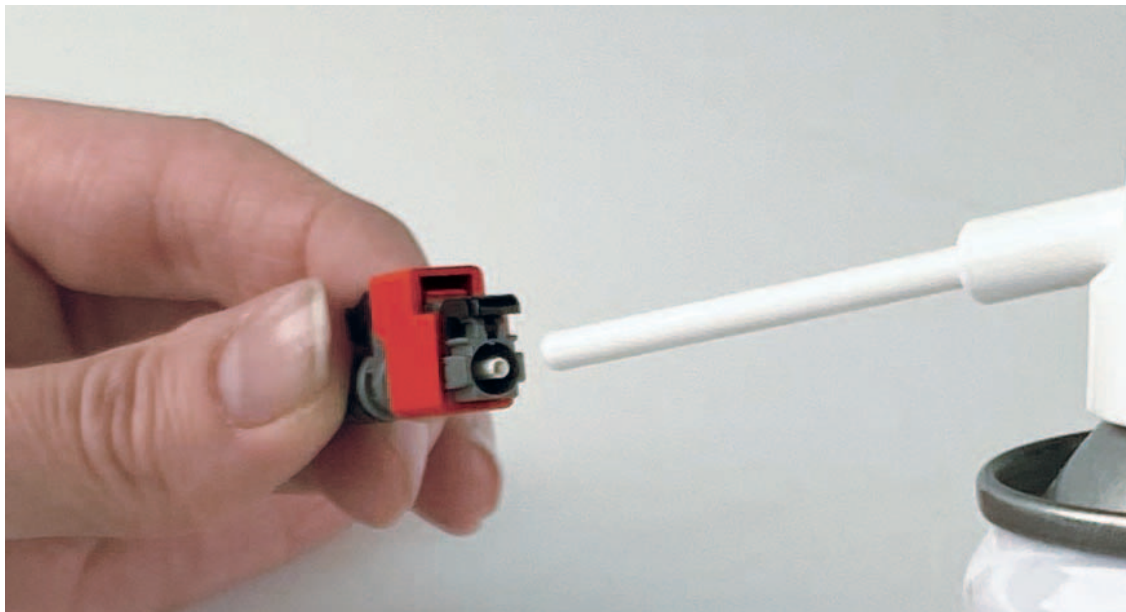
- High precision ferrule
- Mating durability: 500 cycles
- 900 µm fiber to 3 mm cable



Features



Ideally suitable for



Easy cleaning by using clean canned air





**revos E-2000® XB**

- Integrated caps and shutters
- E-2000® connector with Active Core Alignment
- Easy lever locking
- Available on cable reel up to 500 meters length

**Features**



Ingress Protection  
IP65



High precision  
ferrule

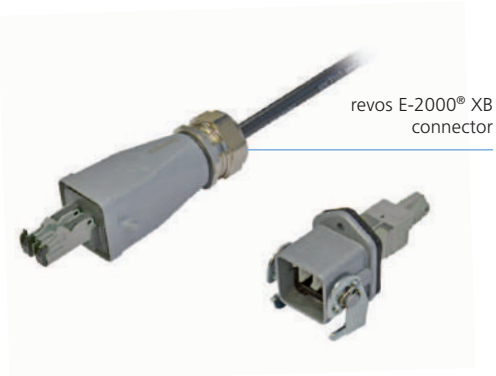


Expanded Beam  
XB termini available

**Ideally suitable for**



Industry 4.0



revos E-2000® XB  
connector

**X-BEAM Junior**

- Integrated Expanded Beam lens system to protect the fiber end-face
- Hermetic coupling (EN 1779 / DIN EN 13185)
- Low loss connection and high repeatability
- Genderless design to simplify mating
- Available on cable reel up to 500 meters length
- Loopback bulkheads available

**Features**



Ingress Protection  
IP68



Rugged construction  
for high reliability



IEC 60529  
compliant



On-site installable /  
field repairable

**Ideally suitable for**



Military

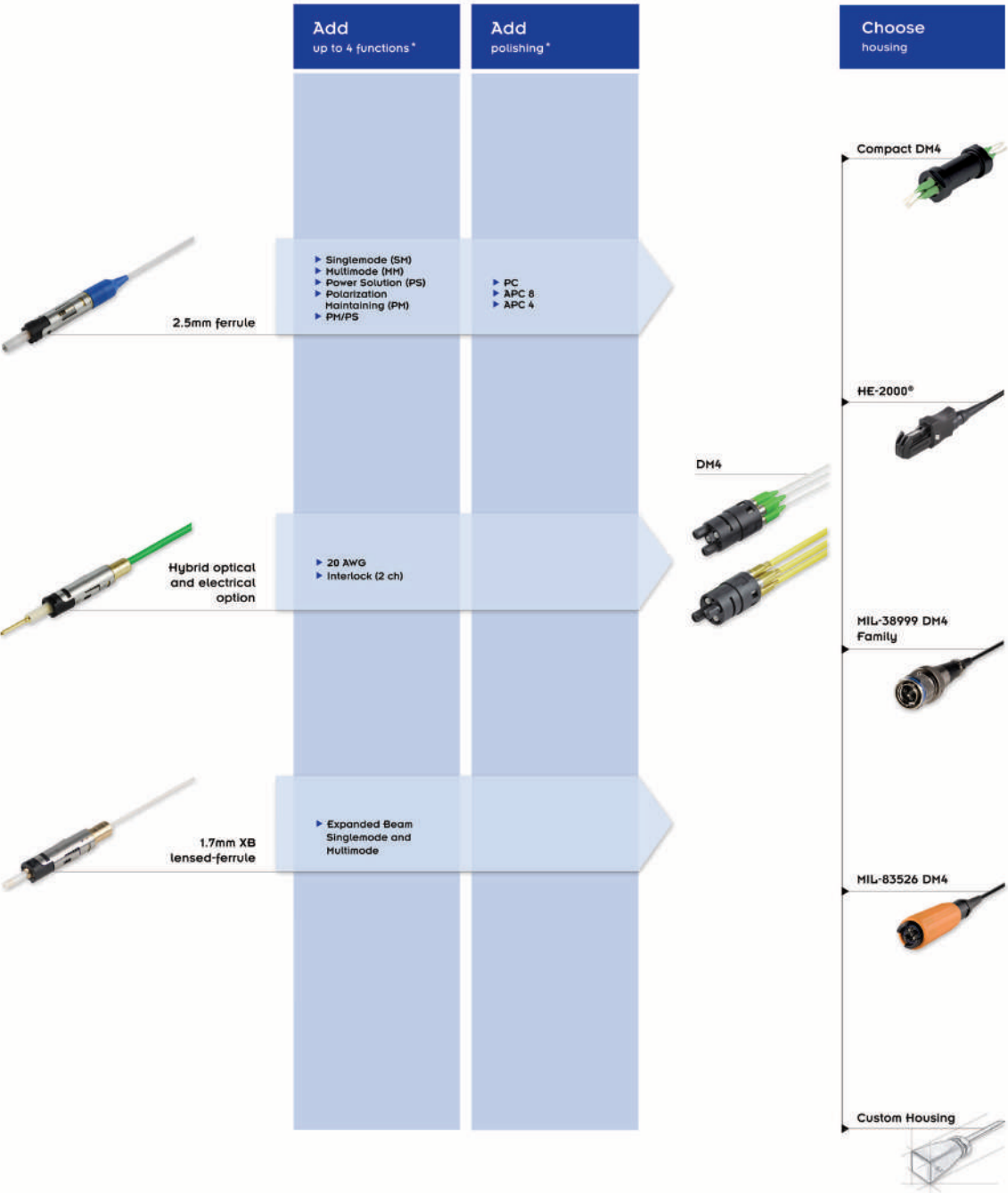


X-Beam  
standard

X-Beam  
fusion



STEP-BY-STEP TO YOUR PERSONALIZED MILITARY / SPACE / AVIONICS INTERCONNECT

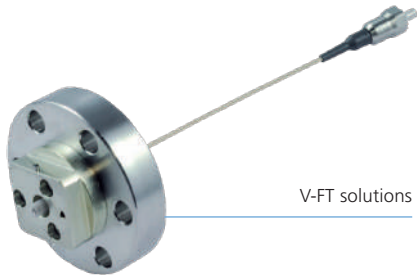


\*Standard add-ons, custom configurations available upon request.

SPECIAL APPLICATIONS

Vacuum Feedthrough

Diamond proposes Vacuum Feedthrough V-FT solutions for a large range of optical fiber and adapters, using an epoxy sealing technology. V-FT integrates a standard 2.5mm ferrule permanently sealed in a standard CF flange with a variety of adapters. The obtained feedthrough benefits from a very low leak rate. It can be ordered for many type of fibers, including Single mode SM, Multi mode MM, Polarization Maintaining PM, Power Solution PS, large core Multimode MM and others. Multi-channel systems are also available using standard CF building block elements.



V-FT solutions

Features

- High Return Loss RL
- Low loss due to Active Core Alignment ACA
- Compact, robust, stable
- Low leakage due to special sealing technology

High Temperature Connectors

Diamond High Temperature assemblies rely upon a combination of specialized assembly techniques and materials, together with special fibers with appropriate coatings suitable for deployment within applications up to 150°. Further to the traditional advantages, these assemblies offer immunity to electromagnetic interference, better environmental stability and enhanced remote sensing compared to traditional electronic sensors. Assemblies are available in PC and APC version with Multimode or Single-mode fibers.



High Temperature connectors

Features

- Reliable operation up to 150°C (320°F)
- Low Insertion Loss IL
- Ultra high polish for high Return Loss RL





## AVIM® FAMILY – SHOCK AND VIBRATION RESISTANT INTERCONNECT SOLUTION

### Common qualities

- Low Insertion Loss IL, High Return Loss RL
- Vibration / shock resistant (35grms /100-500g)

### Features



Low Insertion Loss IL  
High Return Loss RL



Vibration / shock  
resistant

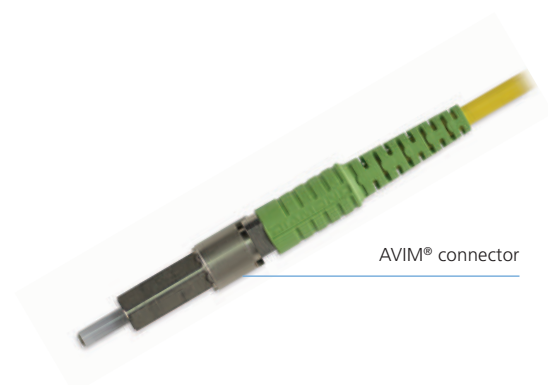
### AVIM® – dynamic and proven

- Compatible with kevlar reinforced cables
- Unique AVIM 2-piece cleanable adapter

### Features



IEC 61754-3,  
ESCC 3420/002



AVIM® connector

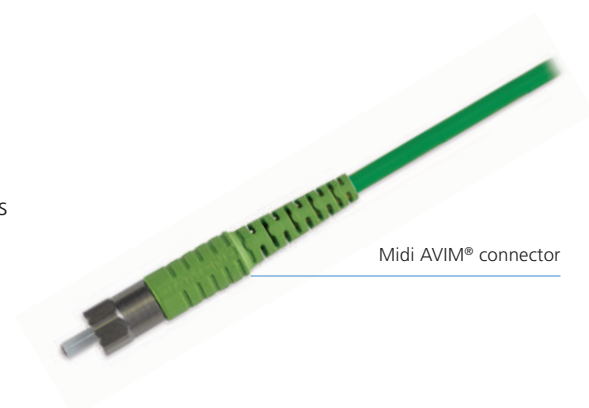
### Midi AVIM® – light and easy to handle

- Full titanium construction
- Compatible with kevlar reinforced cables
- 100% compatible with Mini AVIM® mating adapters

### Features



Description in  
ESCC 3420/001



Midi AVIM® connector

### Mini AVIM® – compact, small and embeddable

- Titanium construction
- Compatible with secondary coated fibers
- Space qualified according to ESCC 3420/001
- Commercial, space or enhanced grade available upon request

### Features



Standards  
ESCC 3420/001



Mini AVIM® connector



### Micro AVIM® – ultra-compact, ideal for circuit boards

- Minimum space requirement
- Footprint of 4.5 x 21 mm

### Features



Description in  
ESCC 3420/001



Easy installation



Lightweight



Micro AVIM® connector

## PORTABLE CONNECTOR AND CABLE REPAIR SYSTEM

Diamond offers a complete range of solutions for fast, easy and high performing optical connector and cable repair in the field. The solution is suitable for a wide variety of applications, including different connector types necessary to meet your requirements. The ZEUS Fusion Field Termination Kit offers:

- Splice-on connectors for both fiber and cable
- Cable repair tools
- Fiber-to-fiber splicing equipment

Also available from Diamond is an Alberino® Patch Tool Set with all the necessary tools that allow you to choose and mount different connector bodies at the time of installation. In addition, our patented Alberino® technology provides you with Diamond high quality standards, including low loss transmission values that you can find in all our products. A tailored training is available on request.



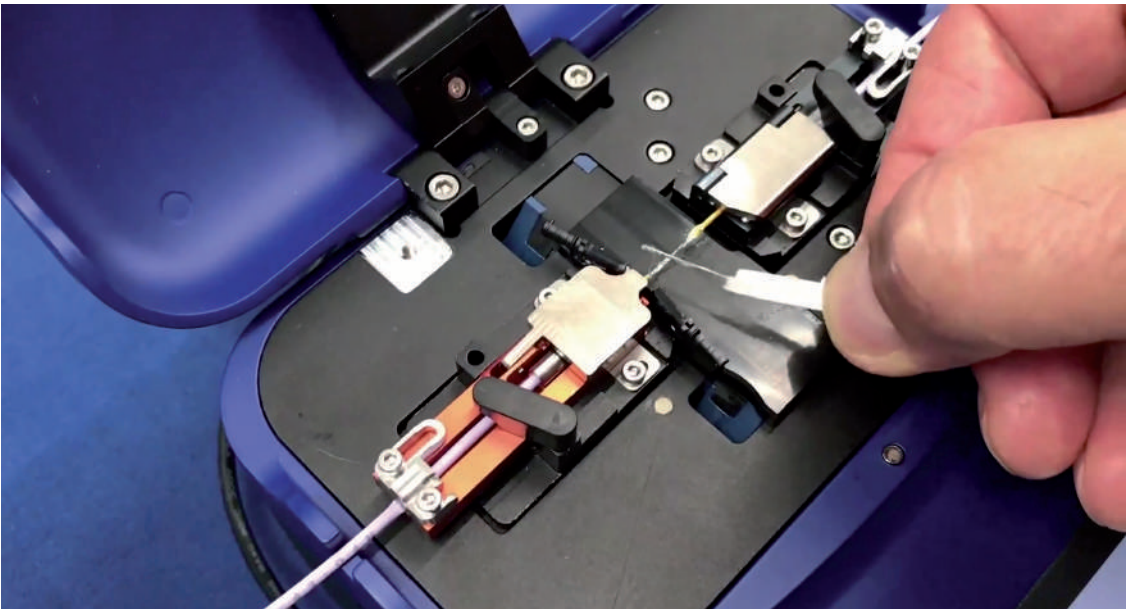
Zeus D50 HE



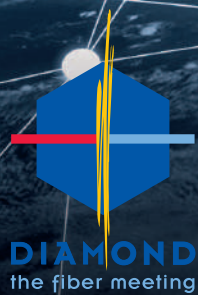
Video  
Microscope Kit



Cleaning Kit







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