MILITARY, SPACE, AVIONICS

ROBUST & RELIABLE FIBER OPTIC INTERCONNECT SOLUTIONS
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.

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

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 & 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), 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.
**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 replaceable

**Ideally suitable for**
- Industry 4.0
- Oil & Gas
- Lubricants, Sensors
- IT
- 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 replaceable 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**
- Lubes, Sensors
- Oil & Gas
- Transportation

**Compact DM4**
- Light and small factor solution
- Aluminium case
- Easily pluggable by screwing

**Features**
- Lightweight
- On-site installable / field-repairable

**Ideally suitable for**
- High density packaging solutions
- Dry applications
- Industry 4.0

**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

**Features**
- Multi-fiber connector for 8/12/24 fibers
- Replaceable fiber ends
- Protective cap with feed-in eye
- Ingress Protection IP68

**Ideally suitable for**
- Building sites

**DiaFlex connector**

**Compact DM4 connector**

**ML-83526 DM4**

**Bulkhead**
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**
- Non contact connection
- High precision ferrule
- High optical performance

**Optical specifications**
- Insertion Loss: Typical 0.6dB / Maximum 1dB per connection
- Return Loss: Minimum 35dB
- Optical power: Up to 3 Watts@1550nm

**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 female
- Expanded Beam XB termini available

Ideally suitable for
- Industry 4.0

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: IP65
- Rugged construction for high reliability
- IEC 60529 compliant
- On-site installable / field repairable

Ideally suitable for
- Military

E-2000® is a registered trademark of DIAMOND SA in the European Union, USA and other countries.
**Step-by-Step to Your Personalized Military / Space / Avionics Interconnect**

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

**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 Singe 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.

**Features**
- High Return Loss RL
- Low loss due to Active Core Alignment ACA
- Contact, cable, holder
- 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°C. 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.

**Features**
- Reliable operation, up to 150°C (320°F)
- Low insertion loss A
- 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 (35gms /100-500g)

Features
- AVIM® - dynamic and proven
  - Compatible with kevlar reinforced cables
  - Unique AVIM 2-piece cleanable adapter

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

Micro AVIM® – ultra-compact, ideal for circuit boards
- Minimum space requirement
- Footprint of 4.5 x 21 mm

Features
- Easy installation
- Lightweight

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

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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.

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