

HARSH ENVIRONMENT & SPACE

ROBUST & RELIABLE FIBER OPTIC INTERCONNECT SOLUTIONS

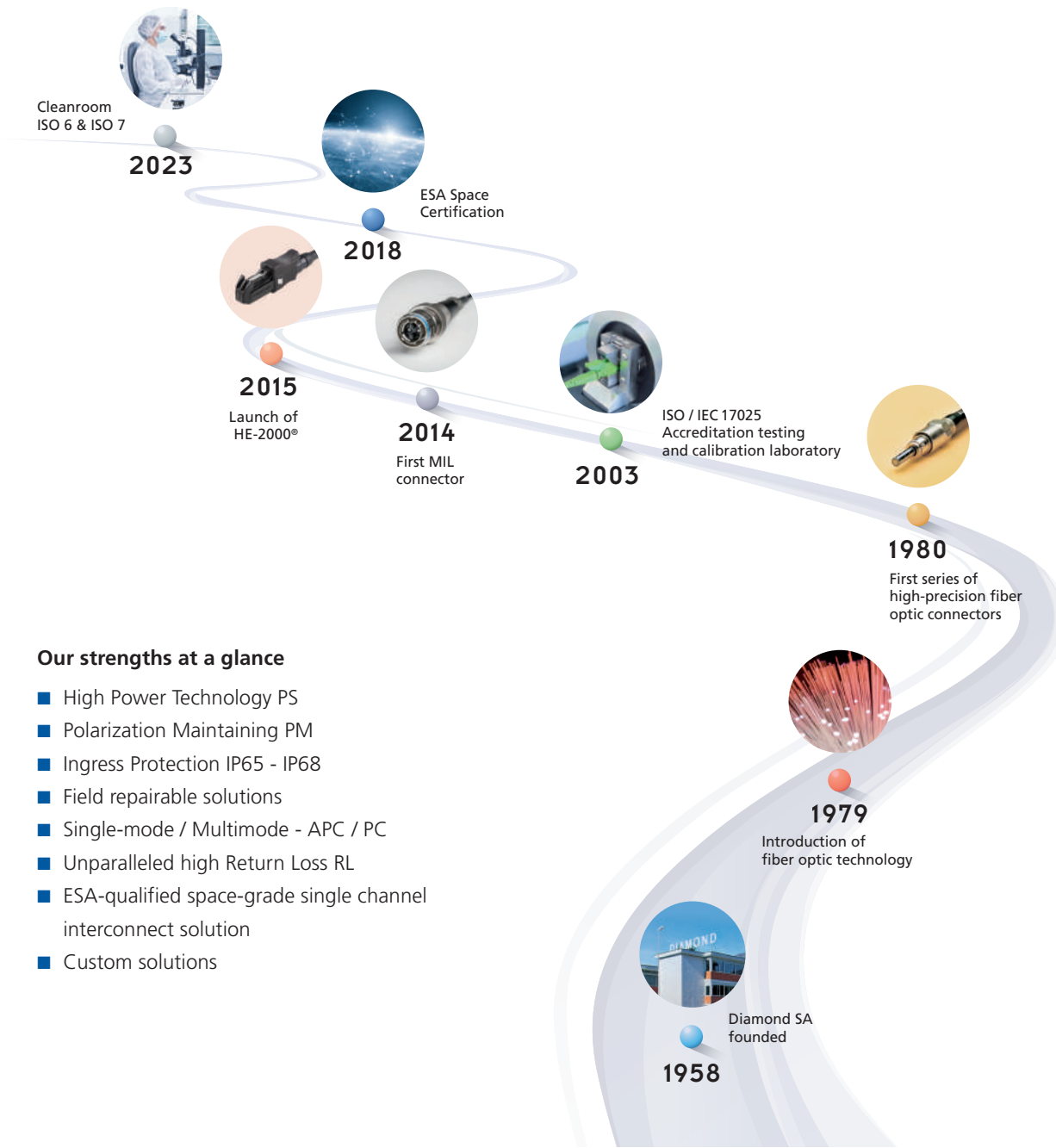


ROBUST AND RELIABLE INTERCONNECT SOLUTIONS FOR HARSH ENVIRONMENTS & SPACE

Diamond offers a wide range of strong, reliable, and customizable indoor / outdoor field fiber optic optical connectors with superior optical performances for both standard and custom products. Our connectors can also integrate 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



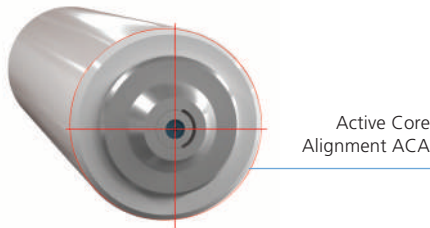
Our strengths at a glance

- High Power Technology PS
- Polarization Maintaining PM
- Ingress Protection IP65 - IP68
- Field repairable solutions
- Single-mode / Multimode - APC / PC
- Unparalleled high Return Loss RL
- ESA-qualified space-grade single channel interconnect solution
- Custom solutions

OUR TECHNOLOGIES

Active Core Alignment ACA

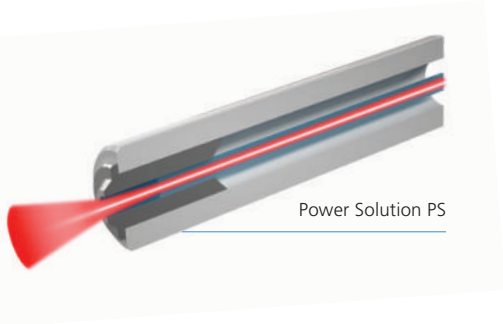
Diamond exclusively uses ceramic ferrules with titanium inserts, a composite ferrule, for its connectors. Diamond's patented Active Core Alignment process, perfectly centers the fiber core on the axis of ferrule, ensuring Insertion Loss IL values are reduced to a minimum.



Available connectors: all butt-joint based connectors.

Power Solution PS

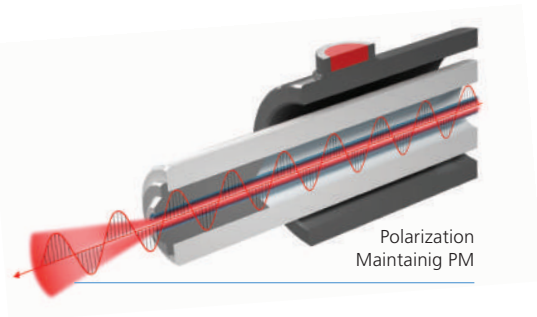
Diamond Power Solution connections utilize various beam expansion methods (Expanded Beam), which can vary greatly depending on the scope of the application. The different PS types available are as follows: PS Collimated (contact), PM-PS (contact), PSm (contact), PSi (free standing), PSc (collimator), 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

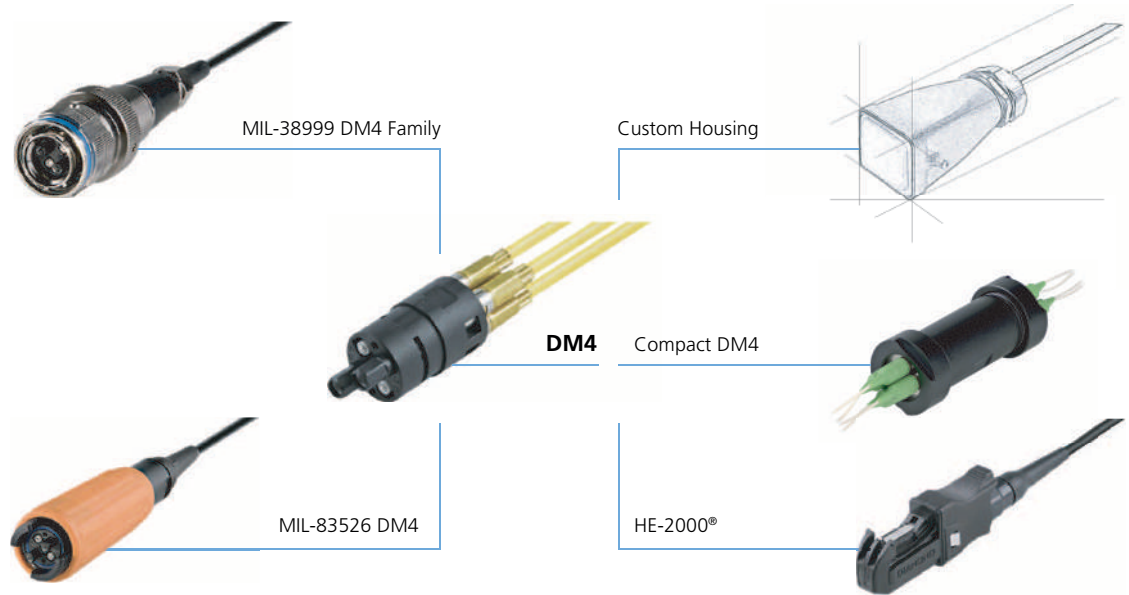
Diamond Polarization Maintaining connectors are renowned for their exceptional performance. The Active Core Alignment process minimizes core offset to ensure low Insertion Loss. Active Polarization Orientation guarantees optimal alignment of polarization axes for high Extinction Ratio on polarization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



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

HYBRID DM4 MULTIPURPOSE TERMINI

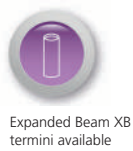
The DM4 insert is the core of the existing HE-2000®, MIL-38999 DM4 and MIL-83526 DM4 Diamond connectors. Furthermore, the design of the DM4 insert is constructed to fit into a variety of different connector housings.



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

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
- Steady and repeatable low Insertion Loss
- High and steady Extinction Ratio when terminated with polarization maintaining fibers
- Electrical pins 20 AWG

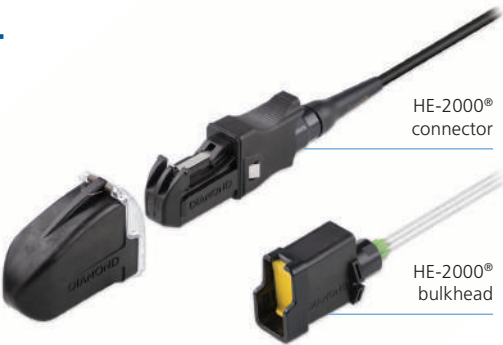
Features



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

Ideally suitable for



Industry 4.0



Oil & Gas



Lidars, Sensors



FBG Sensors



FTTA



Transportation

HE-2000® is a registered trademark of DIAMOND SA in the European and other countries.

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



Vibration / shock resistant

Ideally suitable for



Military



Oil & Gas



FBG Sensors



Transportation



HE-2000® connector



MIL-38999 DM4 size 13 connector



MIL-83526 DM4 connector



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

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



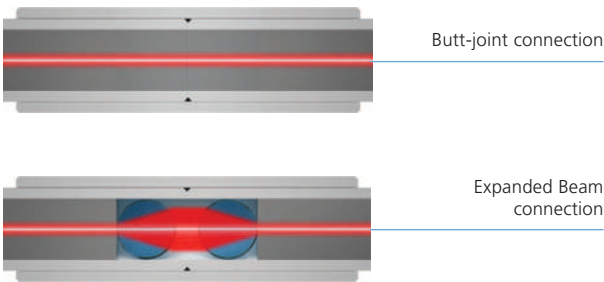
DiaFlex connector

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

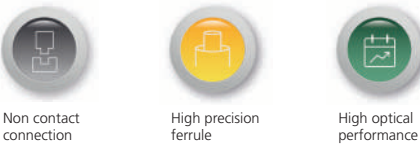


Expanded Beam XB lensed-ferrule

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



Features



Ideally suitable for



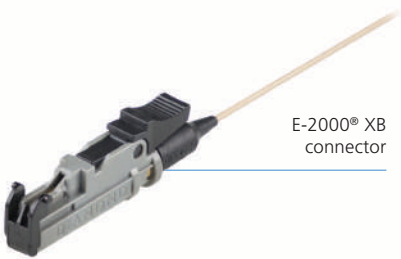
Optical specifications

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

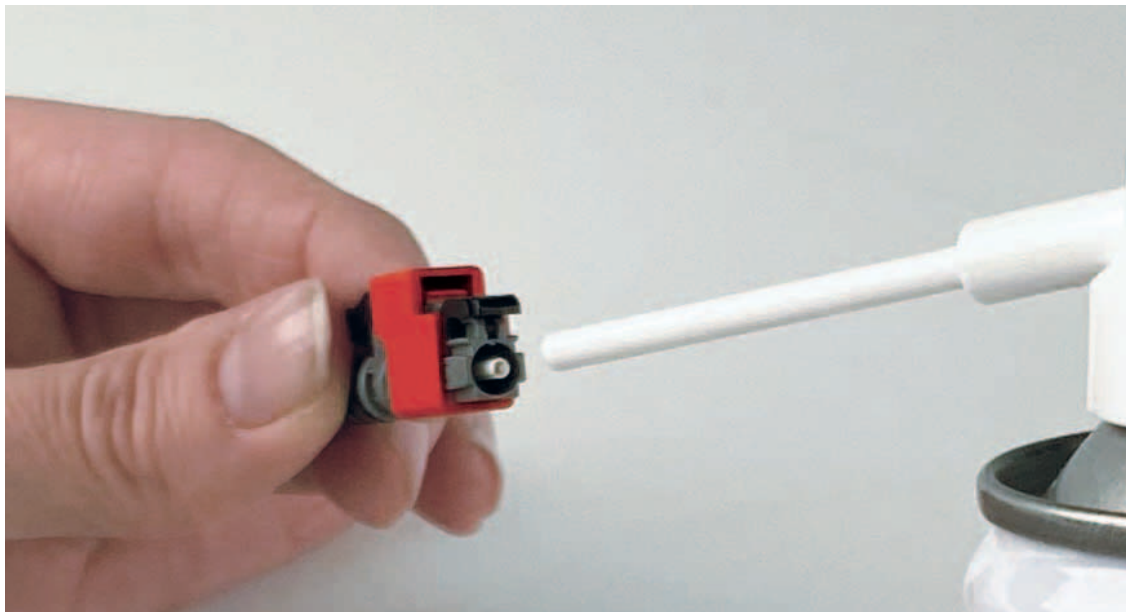
- High precision ferrule
- Mating durability: 500 cycles
- 900 µm fiber to 3 mm cable



Features



Ideally suitable for



Easy cleaning by using clean canned air



X-BEAM

- 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
- Available in SM and MM



Features



Ideally suitable for



Military

Midi AVIM® armored jacketing

- Crush resistance
- Optical safety for high-power applications
- Low Insertion Loss IL and high Return Loss RL
- High vibration/shock resistance
- Compatible with Mini AVIM® mating adapters and IMOD's



Features



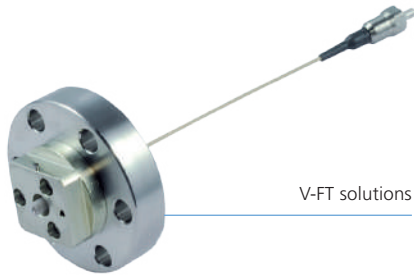
Ideally suitable for



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.



Features



High Temperature Connectors

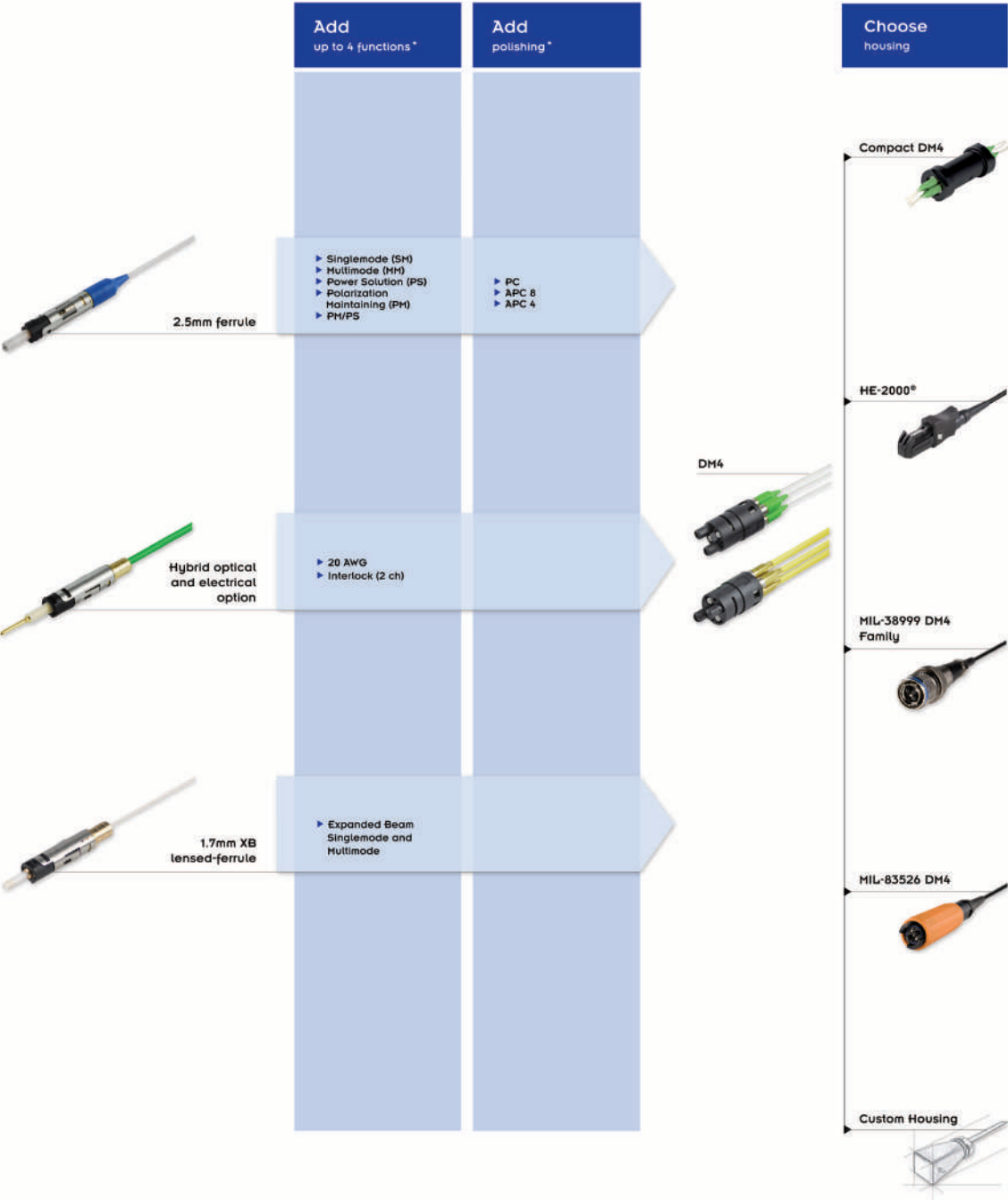
Diamond High Temperature assemblies rely upon a combination of specialized assembly techniques and materials, together with special fibers with appropriate coatings suitable for deployment within applications up to 150°. Further to the traditional advantages, these assemblies offer better environmental 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



STEP-BY-STEP TO YOUR PERSONALIZED HARSH ENVIRONMENT INTERCONNECT



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





AVIM® FAMILY – ULTRA-HARSH VIBRATION PROOF 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

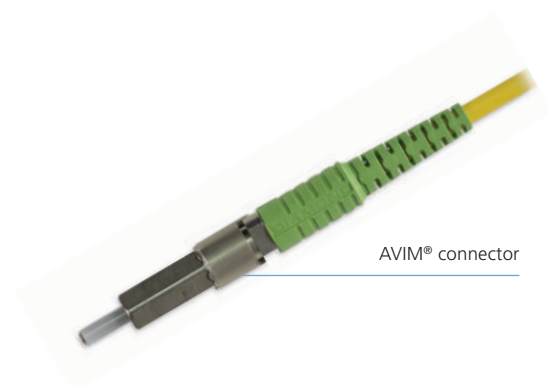
AVIM® – dynamic and proven

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

Features



IEC 61754-3,
ESCC 3420/002



AVIM® connector

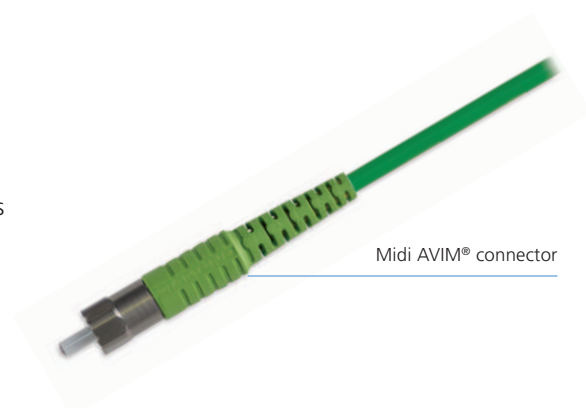
Midi AVIM® – light and easy to handle

- 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

Features



Standards
ESCC 3420/001



Mini AVIM® connector



More about
our Space solutions

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

Making the Grade

The AVIM® family is offered in 4 Grades to provide different levels of quality and performance standards depending on your requirements. These Grades all share the same components found in our standard AVIM® products. Grades are as follows:

- Commercial Grade
- Space Grade
- Enhanced Grade
- Customized Grade

INSPECTION AND CLEANING FOR HARSH ENVIRONMENT INTERCONNECTS

Contamination is the main reason for troubleshooting optical networks. Preliminary inspection and cleaning can prevent poor signal performance, equipment damage and network downtime. DIAMOND's Video Microscope Kit and accessories provide all the tools necessary to properly inspect and clean both harsh environment and standard connector end faces to ensure optimal connector performance.

Also available from Diamond is an Alberino® Patch Tool Set with all the necessary tools to select and install different connector bodies at the time of installation. In addition, our patented Alberino technology provides you with DIAMOND's high quality standards, including the low loss transmission values found in all of our products. Customized training is available upon request.



P5000i Digital Inspection Probe

Complete inspection and cleaning kit

Microscope with built-in Powermeter

ZEUS D50 HE Field Termination

The kit is based on DIAMOND's popular ZEUS D50 fusion splicer and includes all the tools needed for field repair of connectors in harsh environments.



ZEUS D50 HE Kit



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