WEBINAR

Fiber optics applications within harsh environments

Challenges and solutions

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Presentation Outline

Typical applications and their challenges

DM4 insert and its properties

Existing connector solutions and customized OEM approach

Expanded Beam technology – a robust and versatile alternative

Q&A

Typcial applications within harsh enviroments

Challenges / requested properties for HE applications

The products must be able to withstand:

- Adverse temperatures and weather conditions
- Shocks, vibrations, tensile stress
- External pressure, corrosive surroundings, etc.
- Dirt and humidity

Polarization Maintaining PM

High Power Technology PS

Field repairable

SM/MM

IP65 – IP68

APC / PC

Unparalleled high Return Loss (RL)

Customizable

DM4 – compact & modular solution

HE-2000™, MIL-38999 DM4 Family, MIL-83526DM4

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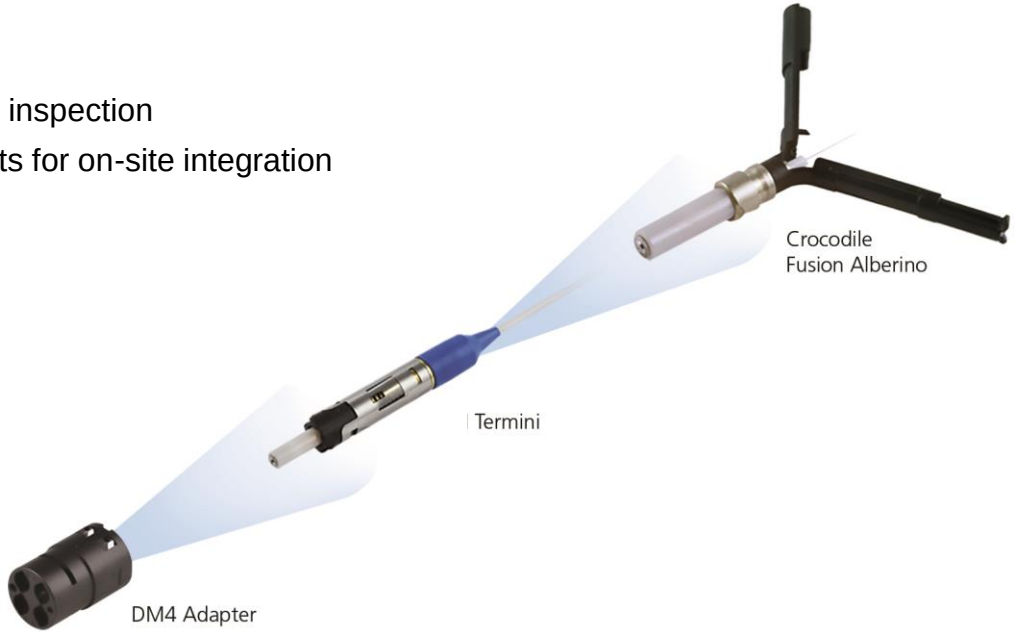
DM4 (Multipurpose Termini) main features

- Based on 2.5-mm Fusion Alberinos with integrated springs to prevent termini separation
- Up to 4 optical and / or electrical channels
- Genderless mating and self-aligning design
- Easy front-face ferrule access for cleaning & inspection
- Simple assembly and disassembly of contacts for on-site integration and repair



Features of optical & electrical termini

- Compatible with several fiber types such as MM, SM, PM, Power Solution and small-core fibers
- Available in PC and APC versions
- Steady and repeatable low Insertion Loss (IL) and high Return Loss (RL)
- High and steady Extinction-Ratio (ER) when terminated with PM fibers
- Compatible with tight cable construction and semi-loose cable / fiber construction
- Field repair and termination available with the Diamond Fusion Crocodile Alberino and Diamond ZEUS D50 HE fusion splicer
- Titanium ferrule front face
- Electrical pin: 20 AWG

Optical and electrical specifications

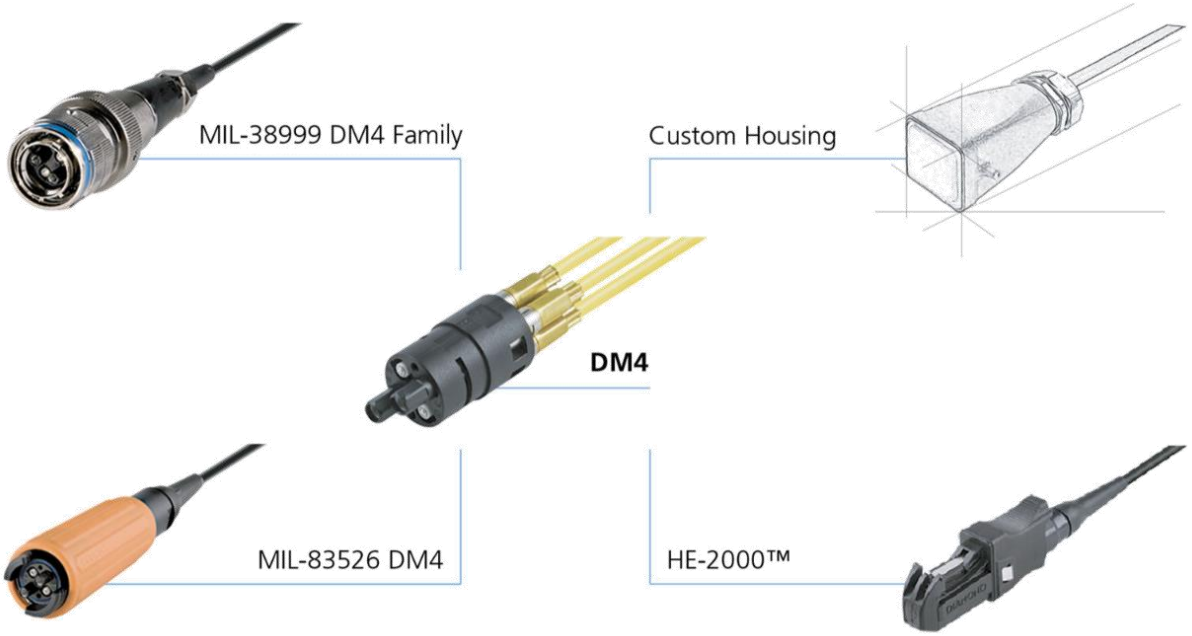
Optical Performances

MEASUREMENT/TEST	MULTIMODE	SINGLE MODE PC/APC	STANDARDS
Insertion loss (std. version)	typ. 0.20 dB max. 0.50 dB	typ. 0.15 dB max. 0.45 dB	IEC 61300-3-4 (λ =1310 / 1550 nm)
Insertion loss (fusion version)	typ. 0.20 dB max. 0.50 dB	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 (λ =1310 / 1550 nm)
Insertion loss (PM) version)	-	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 (λ =1310 / 1550 nm)
Return loss	min. 40 dB	min. 75 dB (APC) min. 50 (PC)	IEC 61300-3-6 (λ = 1550 nm)
Extintion Ratio	-	typ. 23 dB min. 20 dB	Diamond validated cross polarizers method (λ = 1550 nm)

Electrical Tests

Insulation resistant test	Resistance >200 MΩ	IEC 60512-3-1: 2002 (500V / 60 s)
Voltage Proof fest	PASS	IEC 60512-4-1: 2003 (2500V / 60 s / 50 Hz)

DM4 (Multipurpose Termini) modularity



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Add
up to 4 functions *

Add
polishing *

Choose
housing

2.5mm ferrule

- Singlemode (SM)
- Multimode (MM)
- Power Solution (PS)
- Polarization Maintaining (PM)
- PM/PS

- PC
- APC 8
- APC 4

Hybrid optical and electrical option

- 20 AWG
- Interlock (2 ch)

1.7mm XB lensed ferrule

- Expanded Beam Singlemode

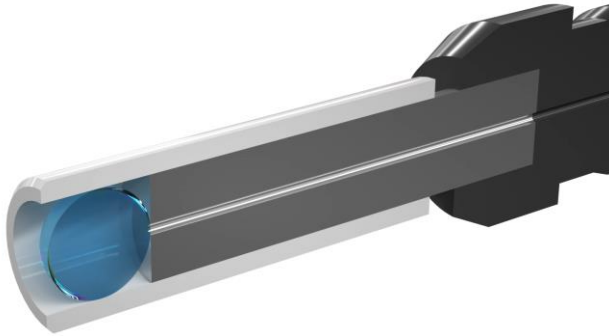
DM4

HE-2000™

MIL-38999 DM4 Family

MIL-83526 DM4

Custom Housing



Expanded Beam Interconnects

Robust. Versatile. Easy-To-Use.

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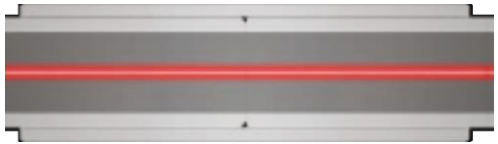
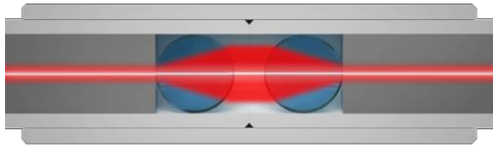
Expanded Beam Technology

Butt-joint connection



Expanded Beam connection



- Non-contact connection
- State-of-the-art optical performance
- High rate of mating cycles
- Insensitive to dirt and debris
- Low risk of damage
- High data rate capacity
- Easy cleaning process
- 150 x larger beam area

Diamond HE connector families

DM4

PC

High Optical performances (IL,RL)
Low harsh environment reliability
Cleaning tools
Repairable / manufacturable in-field
Fully customizable
Hybrid version

LENSED

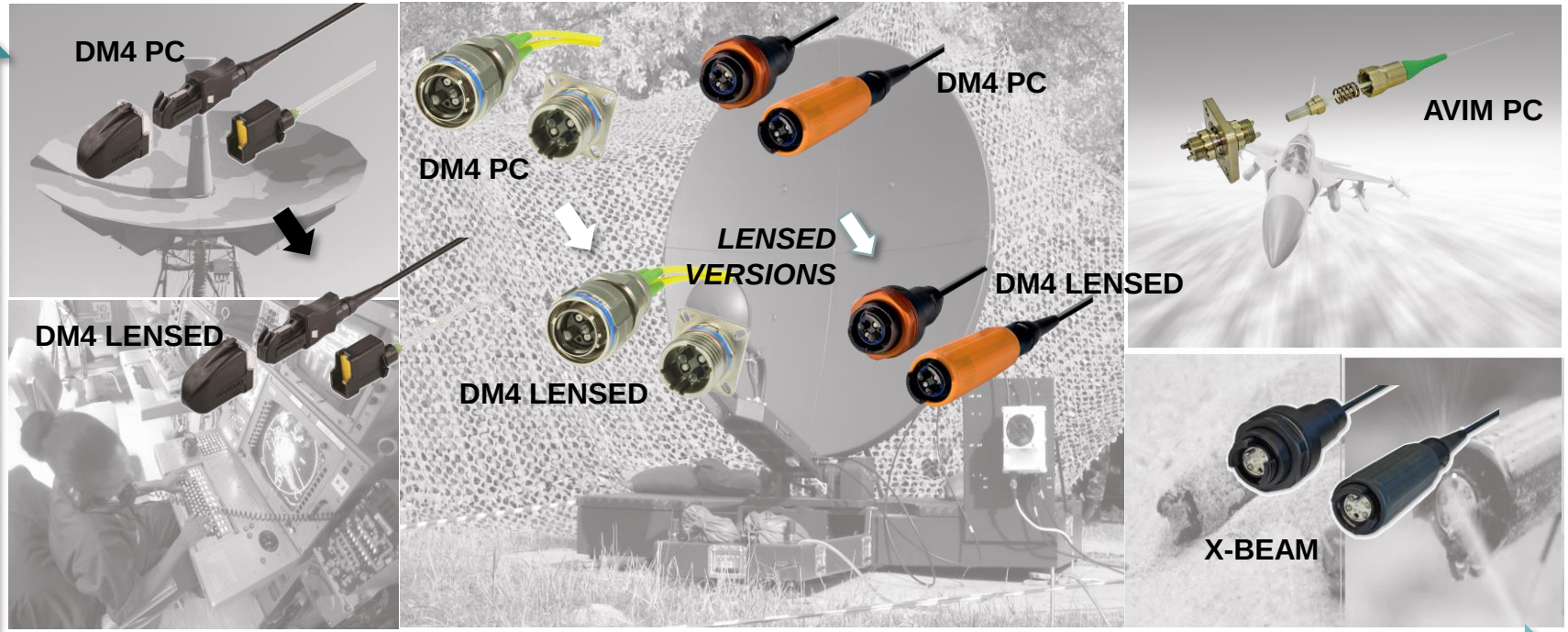
Medium Optical performances (IL,RL)
Medium harsh environment reliability
No cleaning tools
Repairable / manufacturable in-field
Fully customizable
Hybrid version

X-BEAM

LENSED

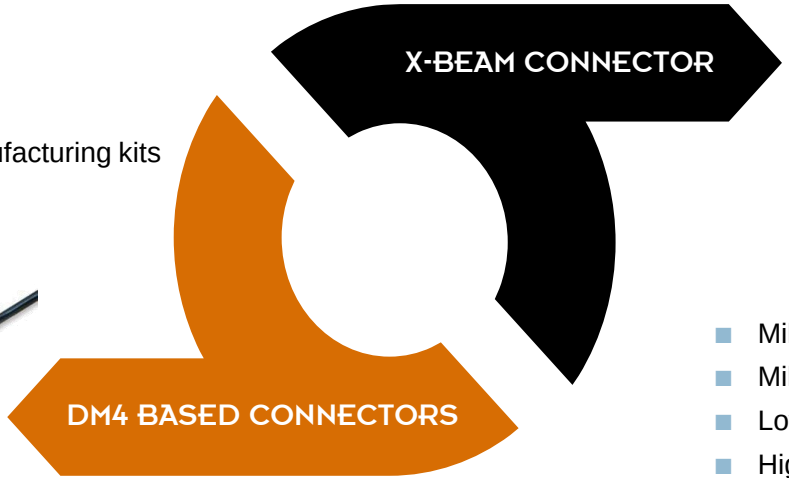
Low optical performances (IL,RL)
High harsh environment reliability
No cleaning tools
Repairable in-field MM
No customizable
No Hybrid version

Diamond connectors positioning



DM4 solutions (PC or Lensed) vs. X-Beam solutions

- Military new projects / custom tailored projects
- High flexibility
- High optical performances (Insertion Loss, Reflection Loss)
- High Power option (PS)
- Polarization Maintaining option (PM)
- Hybrid Option
- In-field complete repairing and manufacturing kits



- Military standard connector;
- Military old/existing projects
- Lower optical performances (IL, RL) than DM4
- Higher dust immunity
- In-field repairing kit only for MM fiber
- Higher price

Diamond X-BEAM vs. other X-BEAM

DIAMOND X-BEAM	COMPETITOR X-BEAM
Superior optical performances (ACA) MM version in-field repairable Low failure rate by sophisticated quality assurance Cable pull force guaranteed	Multi channels / multi format versions (Mini, Junior, Senior)

Q&A

Thank you for joining us today!

Contact us!

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