ARE YOU READY FOR THIS?

Optimend®

GLUELESS, RUGGED AND MINIATURE SHAPE MEMORY ALLOY REUSABLE MECHANICAL SPLICE

Six years of research and development have gone into making a new fibre optic connection technology with shape memory alloy. This rugged, glueless and miniature technology, Optimend®, which is completely reusable, has great implications for most fibre optic applications. From installing fibre in volatile environments, extreme temperatures and very tight spaces to connecting a replaceable fibre optic sensor system for biological analysis, you will be amazed at the abilities of our discoveries.

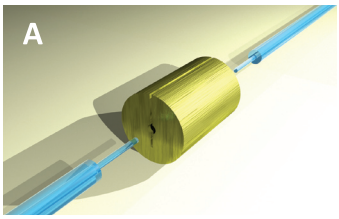
Why we use shape memory alloy

- Its mono-crystalline structure is known for its very little thermal expansion between - 80 °C (- 112 °F) and over 200 °C (395 °F).
- Its hyper-elasticity enables the material to deform under mechanical stress and to completely return to its original dimensions and shape as this stress is released. This mechanism can be repeated as necessary.

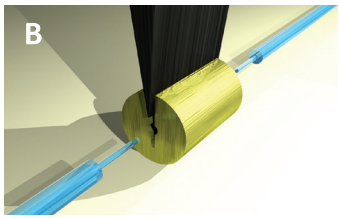
Optimend® Reusable Mechanical Splice

To connect two optical fibres, PhasOptx uses alloy cylinders of 2 to 4 mm long with 1.3 or 2.3 mm in diameter. This miniature cylinder, drilled and slit over its length, aligns fibre cores automatically and holds the fibres firmly in place.

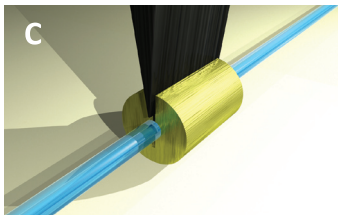
USE



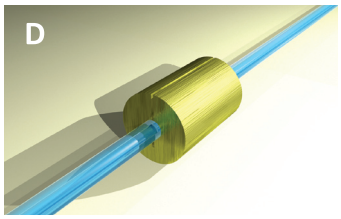
Mechanical splice at rest



Insertion of wedge to open reusable splice



Fibre insertion



Release of elastic stress by removal of wedge and automatic (passive) alignment and hold of fibre claddings

FIBRE TYPES

- 1000 µm POF (Plastic Optical Fibre)
- 230 µm hybrid PCF fibres (polymer and glass)
- 125 µm single-mode and multi-mode fibres (tolerance of 123 to 128 µm)
- Specialty fibres over 125 µm (example: micro-structured fibre)

DIMENSIONS

- Length: 2 to 4 mm (without additional protection)
- Diameter: 1.3 and 2.3 mm

USE AND INSTALLATION TEMPERATURES

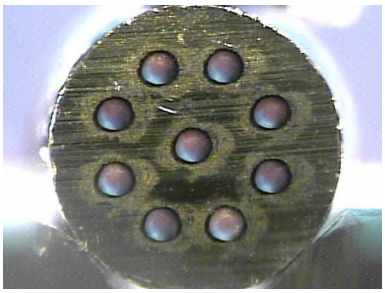
From - 80 °C (- 112 °F) to over 200 °C (395 °F)

INSTALLED FIBRE TRACTION RESISTANCE

Within current IEC standards for primary and secondary coated fibres

OPTICAL LOSSES (for single-mode fibre of 125 µm)

- Attenuation of 0.1 to 0.5 dB
- Reflection of 45 to 55 dB



9 holes (120 µm ± 2 µm)

Standardization

Phasoptx is a member of the ARINC standards committee that offers guidelines for using optical fibre in commercial aircraft. Key employees are also part of the Canadian Standard's Council and members of the International Electrotechnical Commission (TC86) regulating the use of optical connectors and components as well as proposing a new performance standard for reusable optical mechanical splices.

Laser micro-machining

Miniaturization of work done on shape memory alloy required exceptional advances in micro-machining, particularly in femtosecond and nanosecond laser machining. Our expertise is such that PhasOptx can manufacture splices of 2.3 mm in diameter and 4 mm long with over 4 independent optical connexions for 125 µm fibre.

PHASOPTX

503-460, rue Sainte-Catherine Ouest, Montréal, QC H3B 1A7 Canada
Phone: 514 788-6332, fax: 514 395-0260
www.phasoptx.com - info@phasoptx.com