



## DATA SHEET

# Fusion splicing



When you want to terminate a fibre or splice two together, you have two options...

First, you have mechanical splicing. This involves crude devices that merely "hold" the two fibre ends adjacent to one another to allow light to pass through, but don't actually join the fibres together. Subsequent manual handling of the splice can displace the fibres and cause a significant increase in optical loss. The alternative, is the sci-fi sounding solution of Fusion Splicing: creating a high performance joint between two fibres using the heat created by an electrical arc. Strip-clean-leave-splice in a matter of minutes.

 **ANDY HARDING**  
DIRECTOR, INTERNET CONNECTIONS LTD

### Fusion splicing advantages

- ✓ **Strong:** Unlike mechanical splicing where the two fibre ends are not physically joined, fusion splicing results in a single, uninterrupted length of fibre.
- ✓ **Resilient:** Because the join is seamless, it isn't vulnerable to disturbance and signal loss caused by subsequent manual handling, as is the case with a mechanical splice.
- ✓ **Low optical loss:** A cleaner connection maintains optical quality and maximises fibre performance.
- ✓ **Quality assured:** Work is carried out by skilled and experienced engineers, while the resultant fibre joints are inspected microscopically to ensure quality.

## PART OF THE SERVICE

When we install fibre all of our terminations and connections are fusion spliced.

# CLIENT TESTIMONIAL

Having absolute confidence in a network provider is very reassuring. I am happy to say that by choosing Internet Connections we have this assurance.

Simon Chappell, Backup Technology

## A typical installation...

### 1. Preparing the fibre

- First of all, the two fibre ends are stripped of their protective casing and insulation.
- Next, the exposed fibres are cleaned – simply, with alcoholic wipes.
- Finally, each fibre is precisely cleaved (at 90 degrees perpendicular to the axis) to create the ideal flat surfaces that will form the basis for the joint.

### 2. The fun part (the splicing)

- The two prepared fibre ends are placed into a splicing machine, where a robotic process aligns the each fibre in the x,y,z plane.
- Once perfectly aligned, an electrical arc fuses the fibres together, creating a joint that is often stronger than the fibre itself.
- The exposed fibre is then protected by a heat-shrunk splice protector.

## Jargon buster

- >> **Decibel (Db) or Optical loss:** Where a length of fibre is interrupted (e.g. where two fibres are joined together) "link loss" will occur. Decibel loss is a way of expressing the degree of signal degradation through link loss. OTDR equipment can be used to identify points of degradation along a length of fibre. By using techniques such as fusion splicing to join lengths of fibre/attach connectors, decibel loss can be minimised.
- >> **Fusion splicing:** A method of terminating/joining fibres or affixing connectors to fibre to maintain optical quality by minimising decibel loss. Fibre ends are cleaved (cut) perfectly at 90 degrees, before being cleaned, and then fused together using highly localised heat (quite often an arc of electricity).
- >> **OTDR (Optical Time Domain Reflectometer):** An OTDR is used measure the performance of live fibre optical cabling after new installations or as part of fault finding/diagnostics exercises.

internet connections ltd  
The Chapel, Villa Road  
Cheddleton, Staffs ST13 7EA

0800 2888 680  
sales@inetc.co.uk  
www.inetc.co.uk

