Tubing Encapsulated Fibre
(TEF)

Qteq's TEF provides a reliable, high performance optical pathway for sensing and transmitting distributed measurements in the downhole environment. For most applications the design consists of a 1/8" fibre-in-metal-tube (FIMT), shrouded inside ¼" A825 metal tube armour, otherwise known as a tube-in-tube design.

The TEF can be fabricated without a thermoplastic encapsulation, or with round or flatpack encapsulation made from Santoprene, Polypropylene or Hylar. Furthermore, the flatpack configuration can be supplied with or without wire ropes either side of the TEF, with wire rope used as bumper bars to protect the TEF in highly deviated or horizontal wells. This flatpack configuration is also used in behind-casing monitoring applications.

Features and Benefits

- Facilitates distributed sensing and transmission of various downhole parameters.
- Multiple configurations available to suit wide range of well designs and trajectory.
- Variety of metallurgies available to suit downhole conditions.
- Wide range of thermoplastic encapsulation materials available to suit downhole temperatures.
- Wide range of optical fibre types available to suit types of measurements being acquired.
- Design enables use of metal-to-metal sealing systems for high pressure applications.
- Qteq's Fibre Splice can to be used to simply and quickly splice sections of TEF in case of accidental damage.

Specifications

Metallurgy	316SS, A825
Cable Armour Size	¼"
FIMT	⅛"
Working Pressure	20,000 psi
Temperature Rating	Fibre selection dependent on bottom hole temperature (BHT) Mid-Temp 150 °C
Weight	172.64 kg/km
Optical Fibre	Single Mode or Multi Mode (customer specific count)
Fibre Type	Carbon Polyimide
Tensile Strength	1,130 kg
Encapsulation	None (bare), 11 mm square or round. Optional flatpack with wire rope either side