Philtec Application Note

No. 70
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Magnetic Fields

The Problem

Fiberoptic probes and cables may be exposed to high magnetic fields.

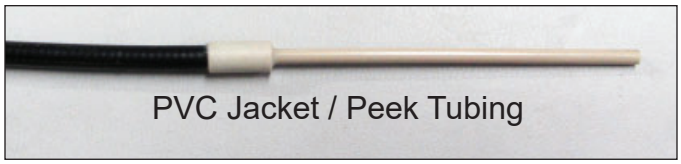
The Solution

By jacketing the fiberoptic cable in non-metallic materials, and by constructing the sensor tip from non-metallic or non-magnetic materials, Philtec sensors can be configured to perform measurements in very high magnetic fields. Successful applications to several Tesla have been reported.

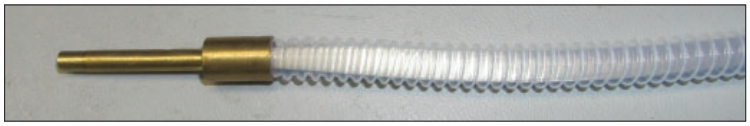
Option	Cable Jackets	Max Temp.	Features
C3	Silicone Coated Fiberglass	232 C	Good flexibility, no crush strength
C6	Convoluted PTFE	260 C	Very flexible, moderate crush resistance
C7	PTFE Tubing	260 C	Zero outgassing, poor flexibility
C8	PVC Only	105 C	Flexible, no crush strength
C11	Polyolefin Shrink Tubing	300 C	Semi-flexible, thin wall vapor barrier, no crush
C13	Furcation tubing	85 C	High Tensile Strength for small diameter probes

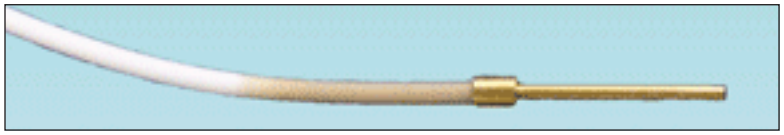
Option	Tips	Max Temp.	Features
T3	Peek Plastic	250 C	Non-metallic
T3	Torlon	260 C	Non-metallic
T11	Aluminum	400 C	Non-magnetic
T11	Brass	400 C	Non-magnetic

EXAMPLES


PVC Jacket / Peek Tubing


Peek Tip Threaded


Convoluted PTFE / Brass Tip


PTFE Jacket / Brass Tip