

Philtec Application Note

Fiberoptics For High Magnetic Fields

The Problem

To measure displacements in the presence of high magnetic fields.

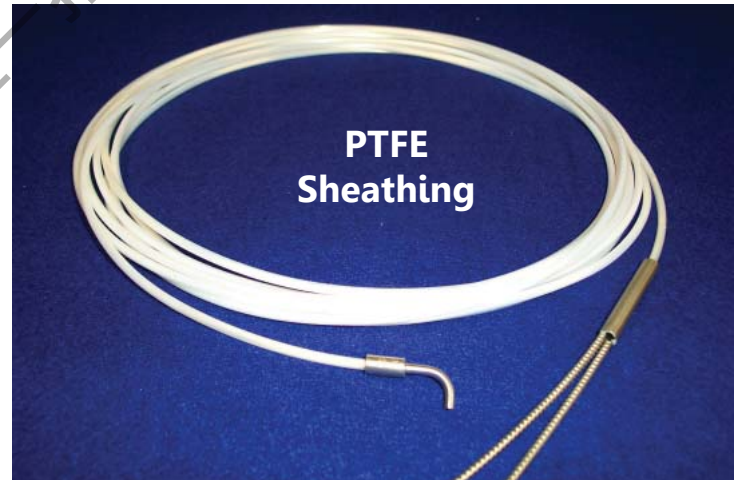
The Solution

Fiberoptic cables and probes contain no electrical circuitry or moving parts. Philtec offers a variety of sheathing and tip materials. By sheathing 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.

Code	Sheathing Materials	Temp. Range	Features
C2	Silicone Rubber	-62 to +232 C	Maximum flexibility, no crush strength
C3	Silicone over PTFE Wrap	-62 to +232 C	Light crush resistance, 2 m max. length
C6	PVC Shrinkwrap over Nylon	+10 to +107 C	Light crush resistance, long lengths OK
C7	PTFE	-270 to +260 C	Zero outgassing, poor flexibility
C8	PVC Shrinkwrap	+10 to +107 C	Good flexibility, no crush strength, long lengths OK
C11	Polyolefin Shrinkwrap	-55 to +135 C	Good flexibility, Good Vapor Barrier



Torlon Tip with Silicone/PTFE Sheathing



NOTE: Translucent PTFE is shown on the cable above, which was supplied for a stepper machine application. Opaque PTFE should be specified when the cable is exposed to external light sources.

PHILTEC

Fiberoptic Sensors for the Measurement of Distance, Displacement and Vibration