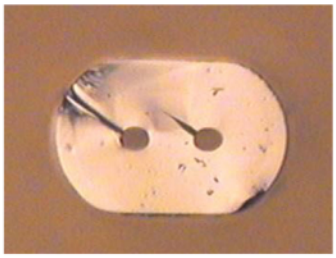
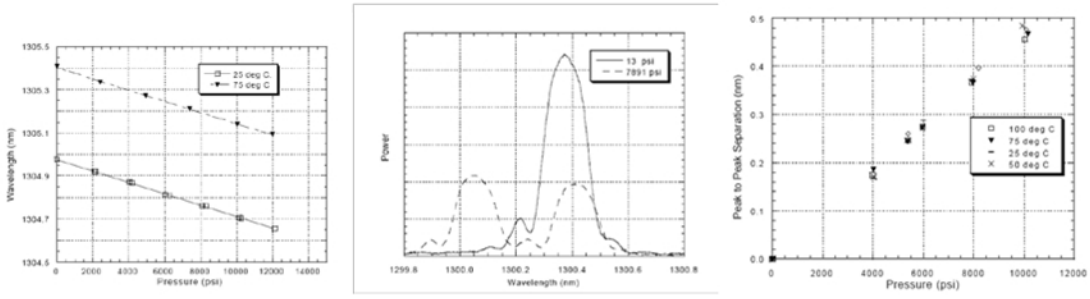
Pressure and Temperature Sensors

Temperature Sensors: Temperature measurements using fiber optic sensors can be made at cryogenic temperature up to the melting temperature of the fiber materials. The exact range of temperatures that can be supported depends on the fiber materials selected and manufacturing techniques. The manufacturing methods determine the spectral shape of the fiber grating and the overall performance. Columbia Gorge Research and Timbercon have experience in operating Fiber Bragg Grating sensors through a range of temperature from cryogenic temperatures through the melting temperature of quartz (1100° C) for silicon dioxide based optical fibers (with resolution of 0.1° C) and even sapphire fiber grating sensors operating stably up to the 1500° C range with resolution of about 2° C. Timbercon has experience developing robust connections and interfaces needed for operation in harsh environments that strongly complements the technical expertise of Columbia Gorge Research in the application of these fiber sensors in many real applications.

Multi-parameter Pressure and Temperature Sensors: In many cases it is highly desirable to be able to measure pressure and temperature simultaneously. To address this requirement, Columbia Gorge Research invented and patented a technology with side hole optical fibers that allows both parameters to be measured simultaneously. This is possible by writing a Fiber Bragg Grating onto a side hole optical fiber and measuring the spectral separation of the dual peaks generated as pressure changes. This peak to peak separation is nearly temperature independent. So, the temperature may be measured by tracking the overall wavelength shift of those dual peaks.





For more information or to discuss your specific application, please contact:

Columbia Gorge Research
(503) 328-8518
ericudd@aol.com
www.columbiagr.com

Timbercon, Inc.
(503)827-8141
info@timbercon.com
www.timbercon.com