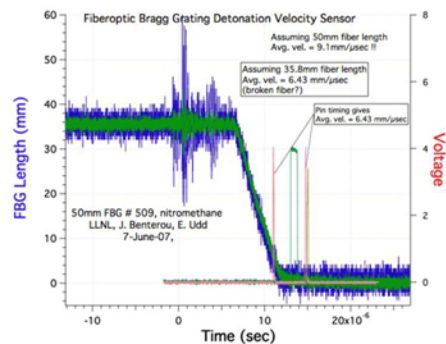
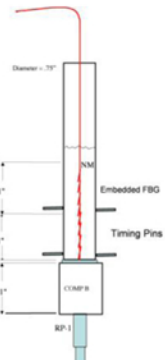
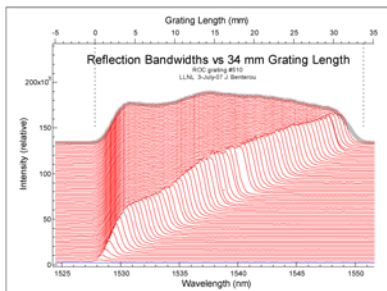
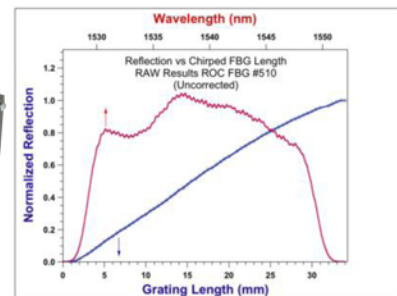
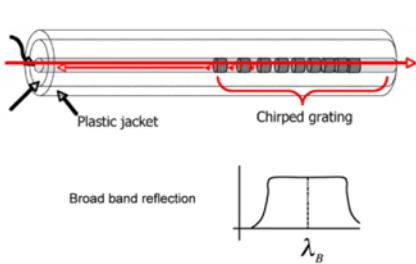




## Ultra High Speed Sensing Detonation and Blast Wave Fiber Bragg Grating Sensors

For certain applications, it is necessary to be able to monitor events with a resolution of a few nanoseconds or less. Columbia Gorge Research and Timbercon have been pioneering a system that can be used effectively in these situations and have delivered systems to support field testing.

In particular, this system has been used to effectively measure the position and velocity of blast waves continually over lengths in excess of 100 mm. More recently, these systems have been used to support multiple channels simultaneously so that four or more regions associated with a blast wave may be monitored. The basic system uses a chirped Fiber Bragg Grating that is placed in the blast region. As the blast wave propagates the return optical signal from the chirped FBG is monitored and in turn can be used to determine the velocity and position as is illustrated by the diagrams and photos below.



**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