

Leak Detection in a Pipe using Fibre Bragg Grating sensor

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Abstract

Being the main and safest oil and gas transportation method globally, the integrity and condition of pipeline system is very crucial. The offline existing maintenance method might have consumed more time and risky as it does not detect the flaws immediately after it is formed. This paper focused on the detection of the leak detection in pipes using the Fiber Bragg Grating pressure transducer. Two different sizes of artificial leak were introduced on the pipe in order to measure the applicability of the FBG sensor in detecting the leak in a pipe. Findings showed that bigger leak size contributed to higher voltage drop in the pipe. This study shows that FBG is a reliable method to be utilised in leak detection because it is very sensitive towards pressure changes in pipe. The results also showed that FBG exhibits good uniformity.

Keyword: Fibre Bragg; Sensor; Leak Detection