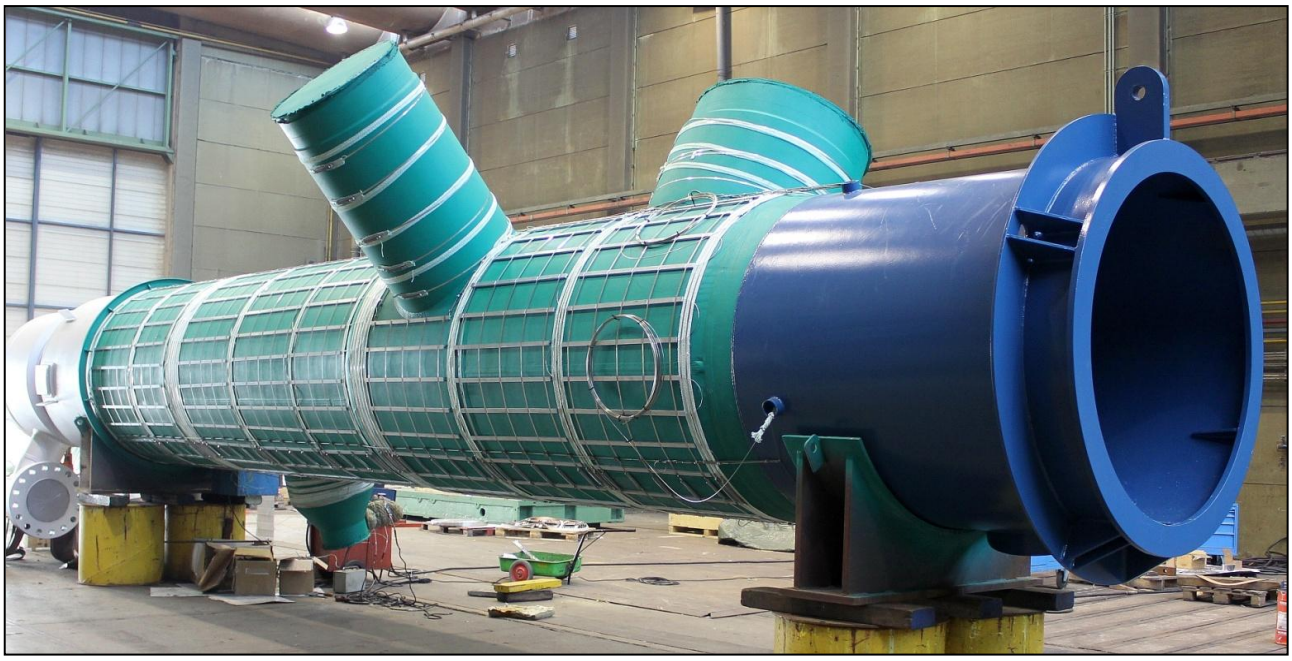
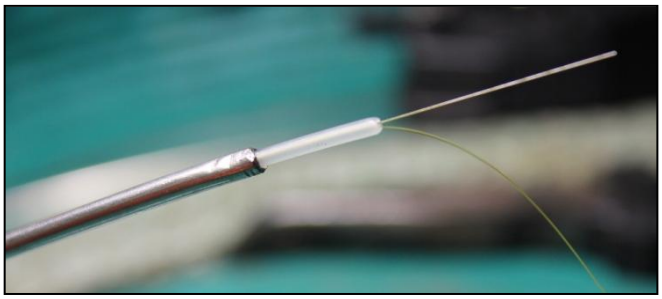
DECEMBER 2013

DTS FOR VESSEL SKIN TEMPERATURE MONITORING





Yara is market leader in fertilizer production with production plants worldwide. Inventec received the order for the supply, installation, commissioning and start-up of a vessel skin temperature monitoring system for the Yara plant at Sluiskil, The Netherlands.

The system is based on the Distributed Temperature Sensing (DTS) technology. A reading unit constantly launches a high frequency light pulse of a specific wave length into an optical fiber and analyses the variations in the so-called Raman frequency in the backscattered spectrum.

The location of a measurement is obtained by measuring the time (nanoseconds) elapsed between launching the pulse and receiving the backscattered light. The fact that this phenomenon occurs at anyone point along the length of the fiber makes it possible to produce the truly distributed temperature.

In this case the skin temperature monitoring system consists of a network of fiber optic cable attached to the full outside area of a secondary reformer steam generator. The function of the system is to constantly monitor the vessel's skin temperature and to immediately provide a warning when a hot spot occurs while pinpointing its exact location. A hot spot can occur when at a particular point the internal thermal insulation of the vessel wall is not functioning properly or has a "leak". As at the location of a hot spot the temperature of the vessel skin can rise to as much as 400°C, a special fiber optic cable has to be applied.