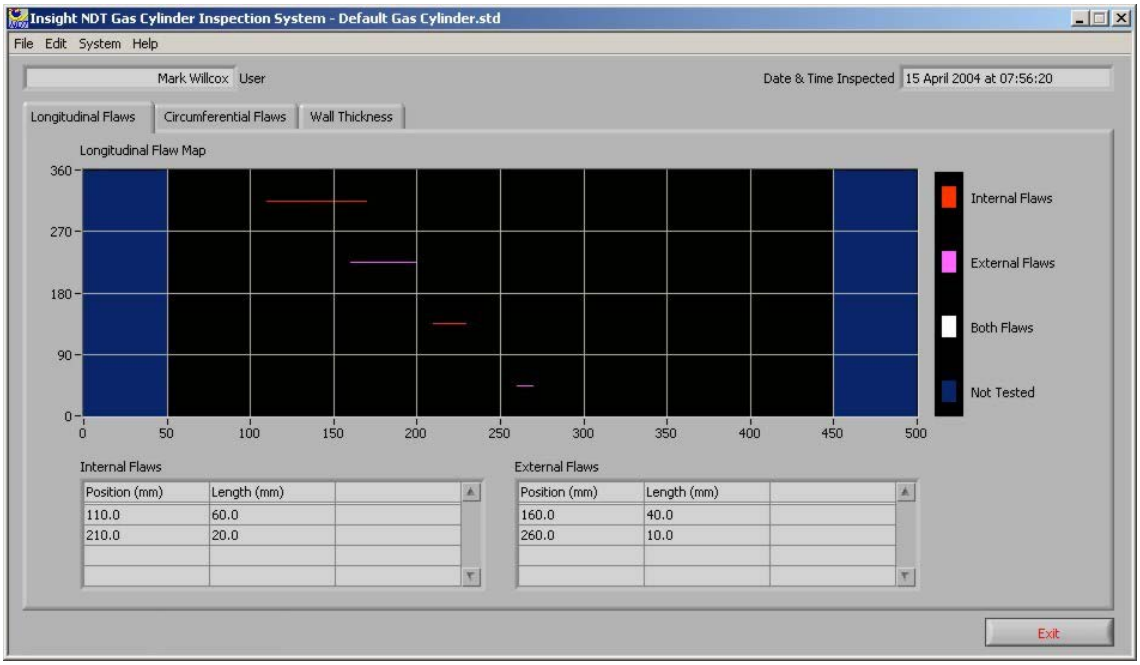
SOFTWARE FOR THE INSPECTION OF GNG CYLINDERS TO INTERNATIONAL STANDARDS



This gas cylinder software has been specifically designed for Ultrasonic Inspection of seamless gas cylinders to BS5045, EN1964 and ISO11439 on a 100% inspection basis.

The software assumes that a helical scan of the gas cylinder has been done; this could be by one of the mechanical systems that has been provided by Insight NDT or an existing mechanical system. The pitch of the scan needs to be such that a 100% inspection is guaranteed, with 10% scan overlap. Once inspected to gas cylinder would be either acceptable or reject. If reject a flaw report is saved which details that size and position of all flaws found

The gas cylinder inspection software collates data from the ultrasonic instrument concerning the ultrasonic flaw detection of gas cylinders. This data is stored analysed and displayed following each gas cylinder tested, and furthermore, the software will compare the test results with accept/reject criteria previously entered by the user in the form of a gas cylinder inspection file, and make an accept/reject decision based upon this data. Finalised test results are displayed following each test. See the reverse of this brochure.

Inspection of Gas Cylinders to Standards;

BS5045 : Part 1 : 1982 Appendix B.
EN1964-1-1999 Annex C.
ISO11439 : 2000 Annex B.

Supports up to four shear wave and one compression wave channels.

Recording and recall of test results.

Can be used to up-grade existing inspection systems.

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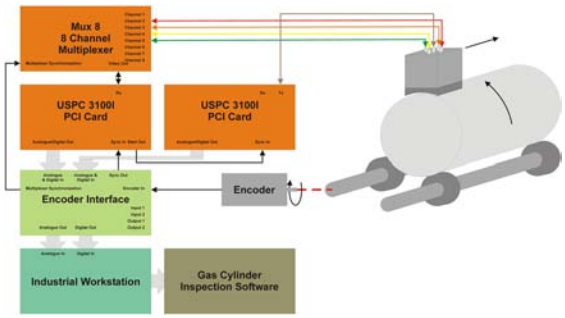
Theory of Operation

The use of ultrasound as a non-destructive test method involves transmitting bursts of ultrasonic energy into the gas cylinder and monitoring the reflection from any flaw that may be there. Also at the same time the wall thickness is monitored, using an additional probe.

For a flaw to be determined as a valid flaw, the amplitude of the reflected ultrasonic echo must be greater than the threshold level set for the monitor gate on the ultrasonic instrument.

For the thickness monitor, the time of flight of the ultrasound, from the surface of the gas cylinder, to the inner surface of the cylinder is measured. This time of flight measurement is in the form of an analogue voltage proportional to the thickness of the wall measured. Both the flaw digital alarms for each monitor gate and the analogue time of flight signal are connected to the industrial workstation for processing and thickness calculation. All of these operations are synchronised by the rotation of the drive rolls. Please refer to the system block diagram below;



Introduction to the Gas Cylinder Inspection Software

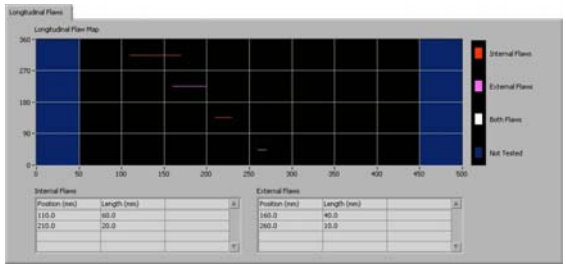
The gas cylinder inspection software, allows the use of up to 5 Ultrasonic channels, to test the gas cylinder in accordance with BS5045:Part 1: 1982 Appendix B, EN1964-1-1999 Annex C and ISO11439:2000 Annex B

The data from an inspection of a gas cylinder is displayed in a graphical form, and the precise flaw lengths calculated. This inspection data can be loaded from a saved inspection file or the result of a recently completed inspection.

The main screen has a number of tab pages, which allow viewing of the data for the desired flaw type. Each of which are described below;

Longitudinal Flaws

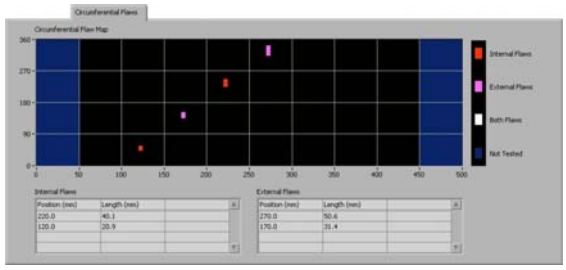
This page shows the chart for the ultrasonic channels that are connected to the longitudinal flaw shear wave probes, as shown below;



The flaws are represented graphically on the chart. In addition to this chart, there are two text controls which display the position and length of flaws found for both internal and external flaws.

Circumferential Flaws

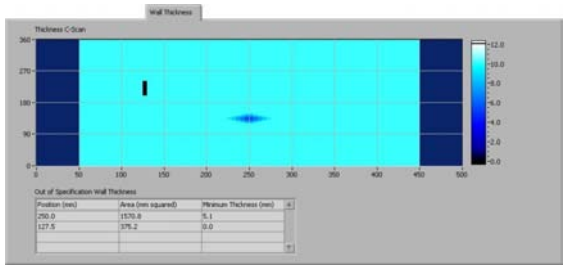
This page shows the chart for the ultrasonic channels that are connected to the circumferential flaw shear wave probes, as shown below;



The flaws are represented graphically on the chart. In addition to this chart, there are two text controls which display the position and length of flaws found for both internal and external flaws.

Wall Thickness

This page shows the chart for the ultrasonic channel that is connected to the wall thickness compression wave probe, as shown below;



The flaws are represented graphically on the chart. In addition to this chart, there is a single text control which displays the area, position and minimum thickness of the wall thickness flaws found.