INSPECTECH

Company Overview

About Us

InspecTech has been in business since 1977 customizing NDT solutions utilizing the **Eddy Current**, **Flux Leakage** and **Ultrasonic** technologies. We take a look at your application, and which specification you need to meet and then recommend the best technology.

Developed In-House

Mechanics manufacturing
Electronics manufacturing
Software development

50% of the **US** NDT market share

80% of the **Mexico** NDT market share

7 new reps in South America and Europe

New locations in **Corby, England**, and **Chengdu, China**

Countries where InspecTech Systems are Installed

Current Partnerships

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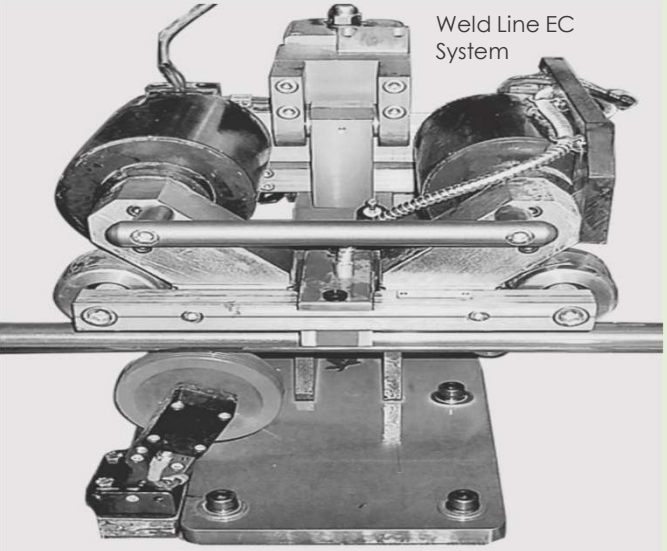
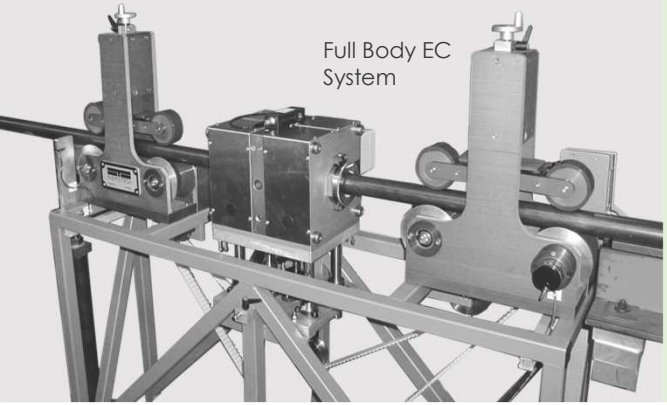
Eddy Current Technology



Weld Line EC System



Full Body EC System

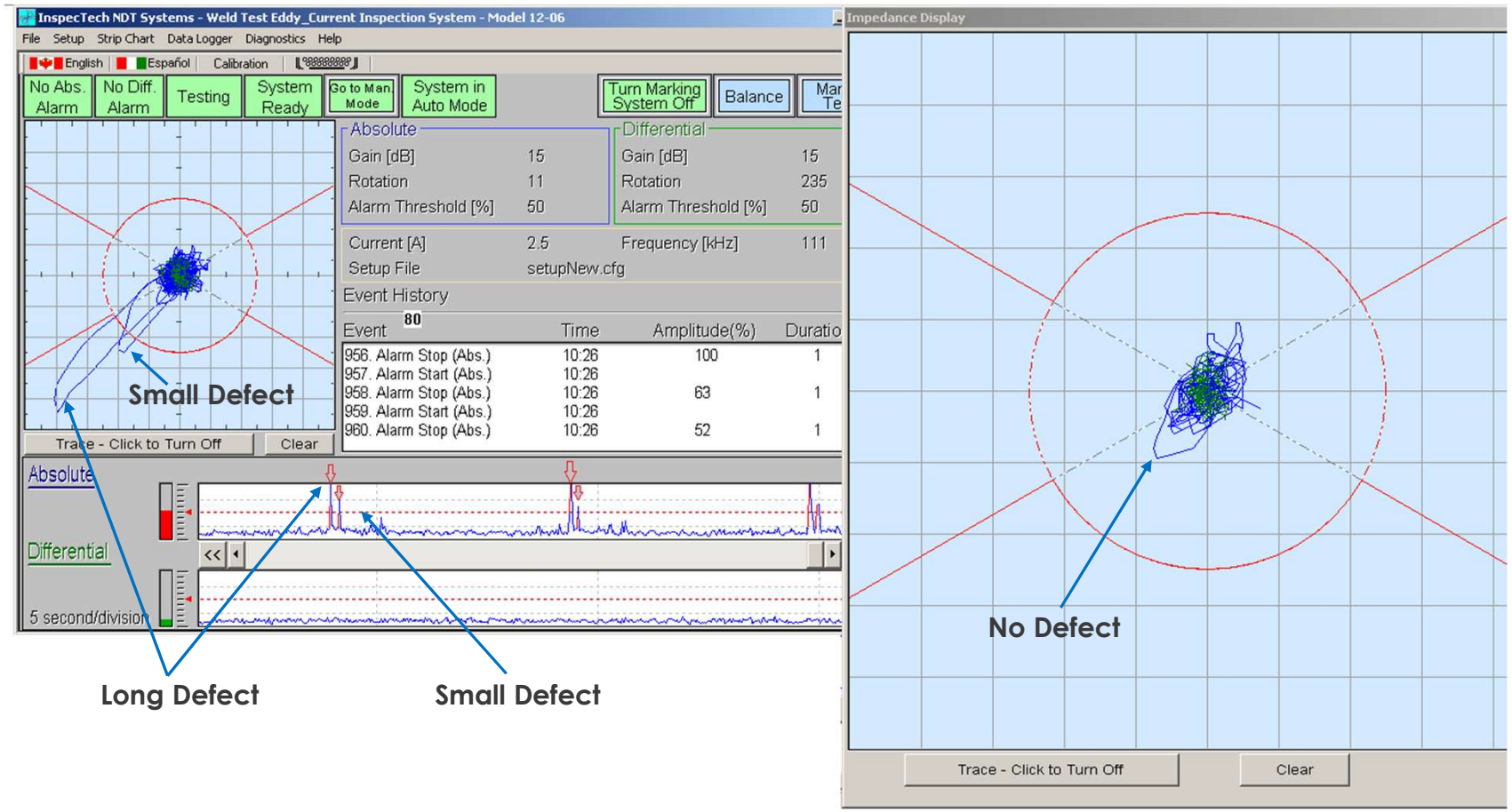
How it Works

Eddy currents are loops of electrical current induced within conductors by a changing magnetic field in the conductor. Any flaw/anomaly changes the path of the Eddy Currents. The probe monitors the distribution of any current within the material showing if there is a change in the eddy current paths.

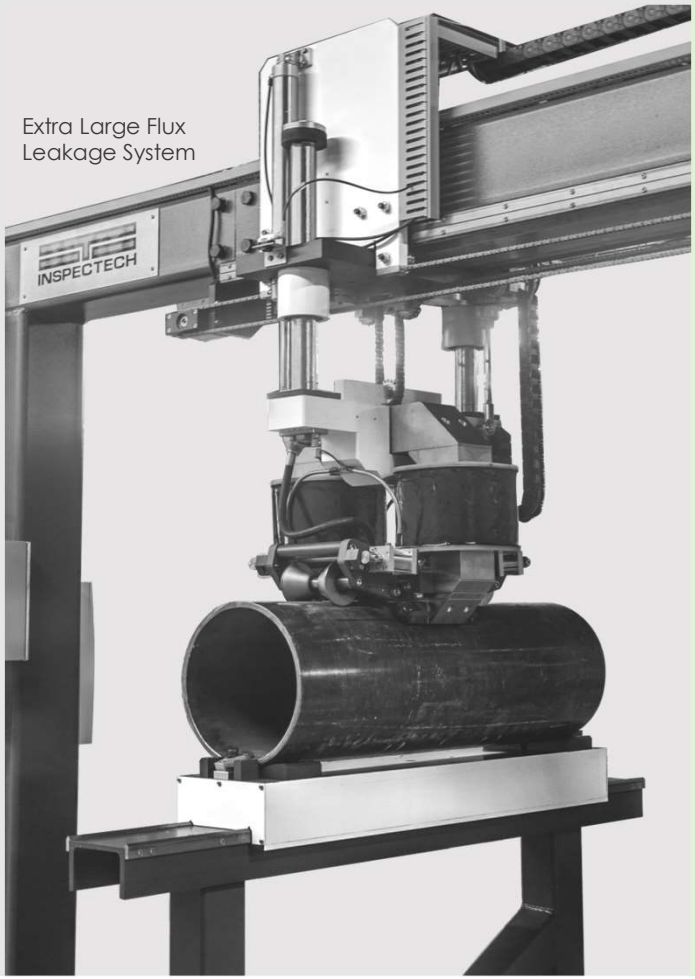
System Info

- In ferromagnetic material, the material must be magnetically saturated to allow for penetration of the Eddy Currents into the material
- Parameters to set up = Current, Frequency, Gain and Rotation
- On-Line or Off-Line systems available *(On-Line: prior to cutting, Off-Line: after cutting)*
- Weld Line or Full Body Inspection systems available
- Minimum OD = 0.500" (12,7mm) to Maximum OD 6.500"
- Maximum recommended wall thickness = 0.188" (4,8mm)
- Maximum tested Speed 300ft/min (91m/min)
- Calibrated with 1/13" and 1/8" drilled holes
- Recommended for inspection of thin wall material only

Eddy Current Technology



Flux Leakage Technology



Extra Large Flux Leakage System

How it Works

Fully magnetize/saturate the entire cross section/thickness of the tube. Any anomalies or defects will cause the magnetic field to go around those anomalies/defects which causes the magnetic field to “leak”.

System Info

- Parameters to set up = Current, Gain
- Can only be used with Magnetic Material
- Can inspect ID Scarf-in or ID Scarf-out Material
- Does not have the “skin effect” on coated material
- Minimum OD = 0.500” (12,7mm) and up
- Can test up to 0.625” (16mm) – Small. Large and Extra Large systems available
- Calibrates 10% notches, and 0.03” (0.8mm) holes

Flux Leakage Technology

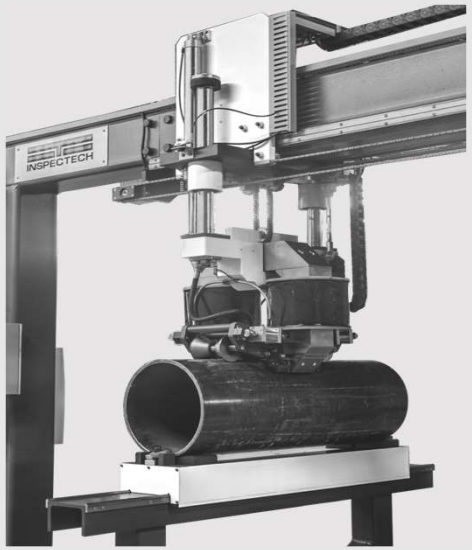
Inspectech pioneered the use of the **Flux Leakage Technology** for the On-Line, Weld Line inspection of ERW Tube and Pipe

Small Flux Leakage System

- Magnetizes from below
- OD from 0.500" (12,7mm) to 3.000" (76,2mm)
- W/T up to 0.313" (7,95mm)

Large Flux Leakage System

- Magnetizes from above
- OD from 1.500" (38,1mm) and up
- W/T up to 0.375" (9,5mm)



Extra Large Flux Leakage System

- Magnetizes from above
- OD from 4.000" (101,6mm) and up
- W/T up to 0.625" (15,9mm)

Ultrasonic Technology

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High frequency acoustic waves are sent from the transducer into the material through a couplant (mill/coolant/water). Any reflection of the wave back to the transducer from the discontinuity creates an electrical signal signifying that there is a defect/anomaly present

UT On-Line System

- Min OD 2" (50mm) and up
- Min Wall Thickness 0.125" (3mm) and larger
- Max tested speed up to 300ft/min (91m/min)

UT Off-Line System

- Min OD 2" (50mm) and up
- Min Wall Thickness 0.125" (3mm) and larger
- Single test head average throughput w/ 45ft pipe = 25/sec
- Available with multiple test heads to increase throughput

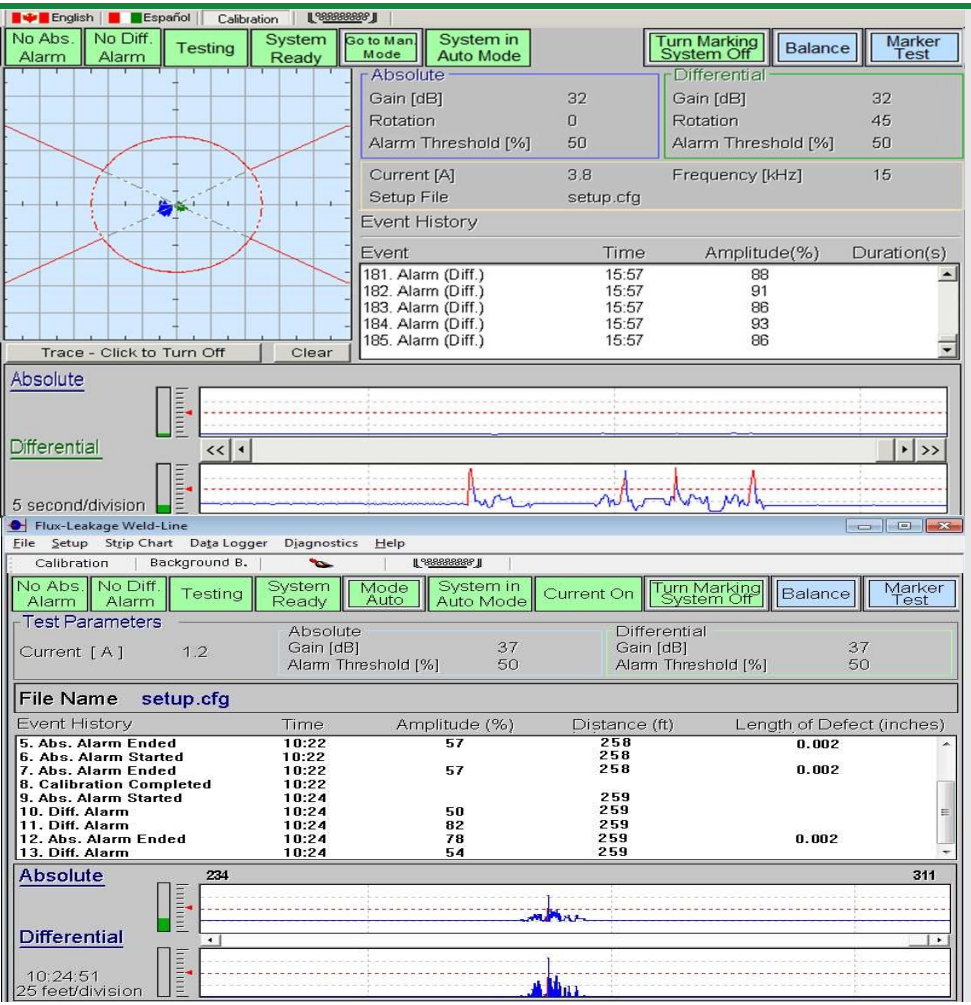
UT Spiral System

- Min OD 8.000" (203mm) and up
- Min Wall Thickness 0.125" (3mm) and larger
- Includes laser weld tracking system
- New design includes "on Bead" Transversal defect detection and less tooling

UT Skelp Monitoring System

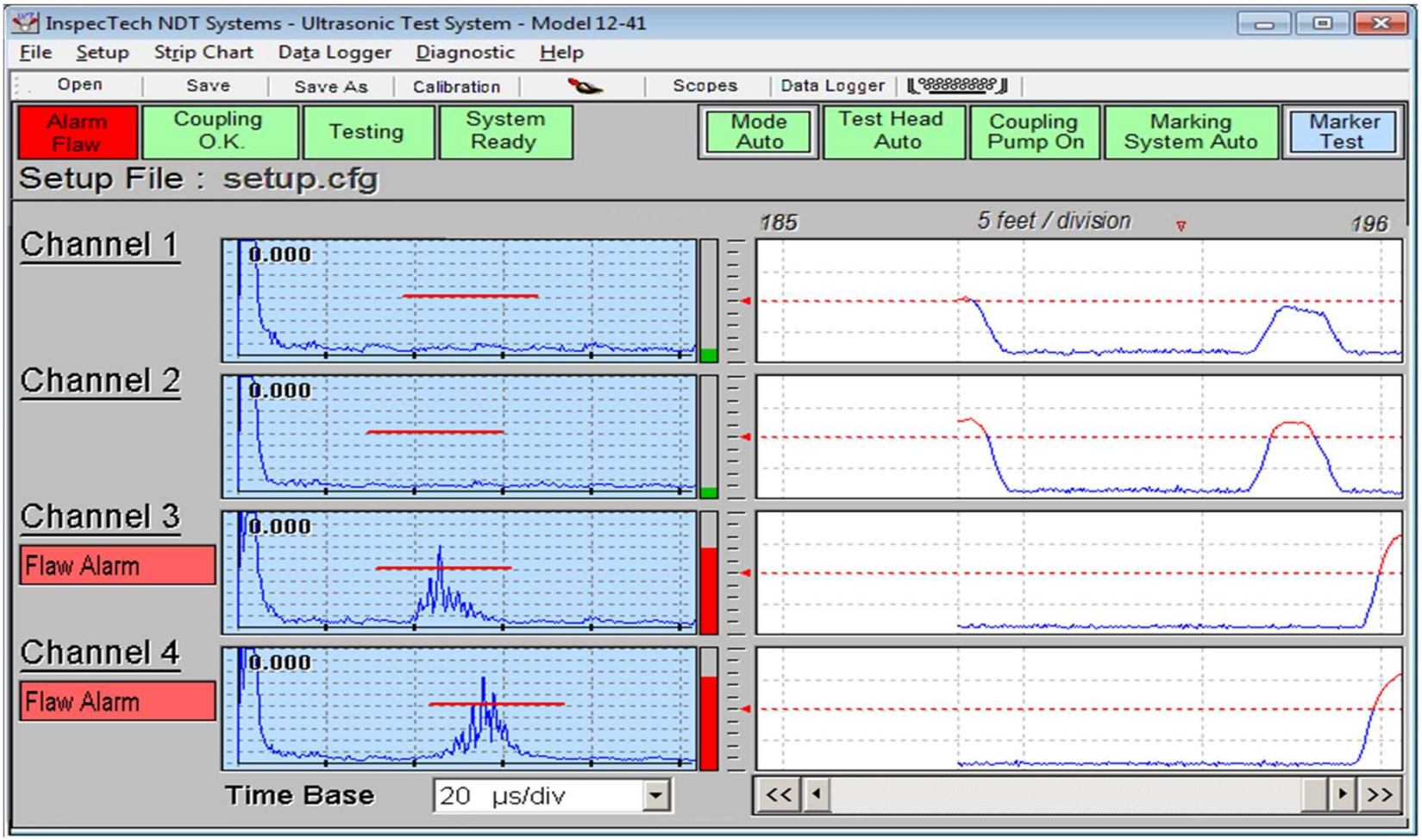
- Ultrasonic Strip/Plate inspection system for lamination defects and gauge monitoring
- Multi-channel UT System which can test from 10% to 100% strip coverage
- Max tested speed – 300ft/min (91m/min)

Operator Screens Eddy Current and Flux Leakage

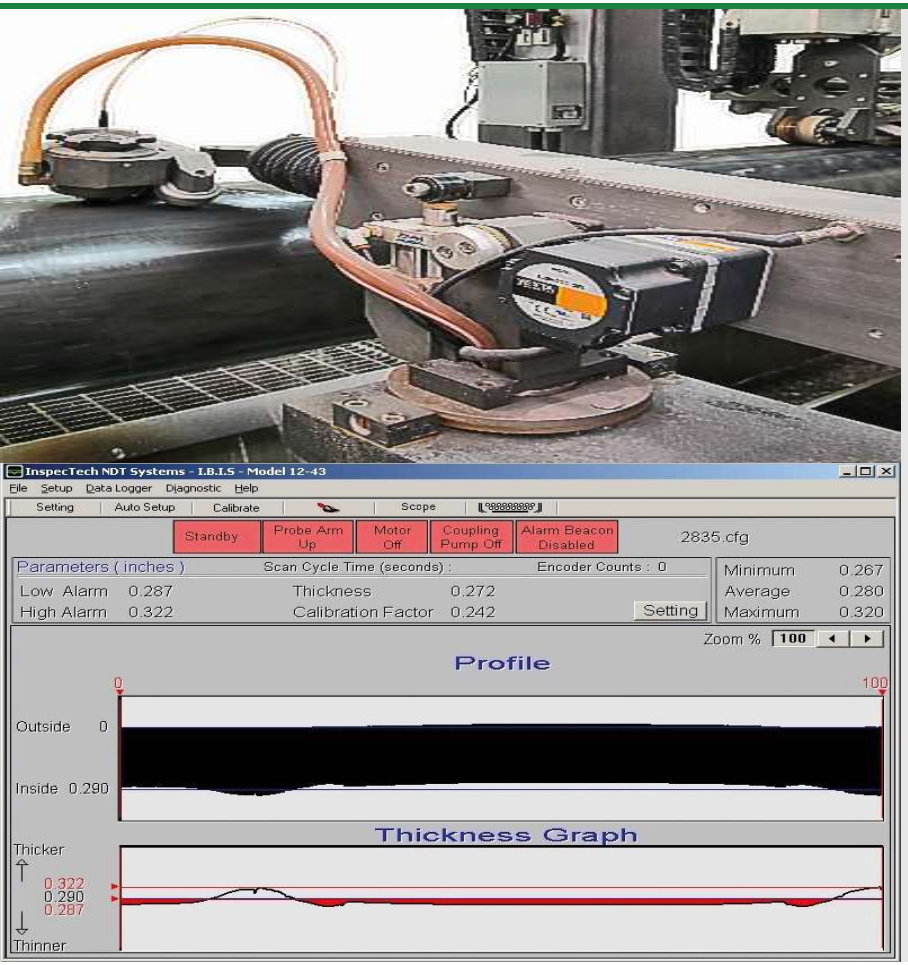


- Both Systems include 2 channels, an Absolute and a Differential channel
- The absolute channel is calibrated to detect slowly changing, long, continuous defects. E.g. and open seam or a crack
- The differential channel is calibrated to detect quickly changing defects. E.g. a hole
- All systems come with a complete data logger of all results
- Each system includes an Archive Feature, which stores the absolute and differential strip charts for better traceability for you and your customers

Operator Screen Example – 4 Channel Ultrasonic System

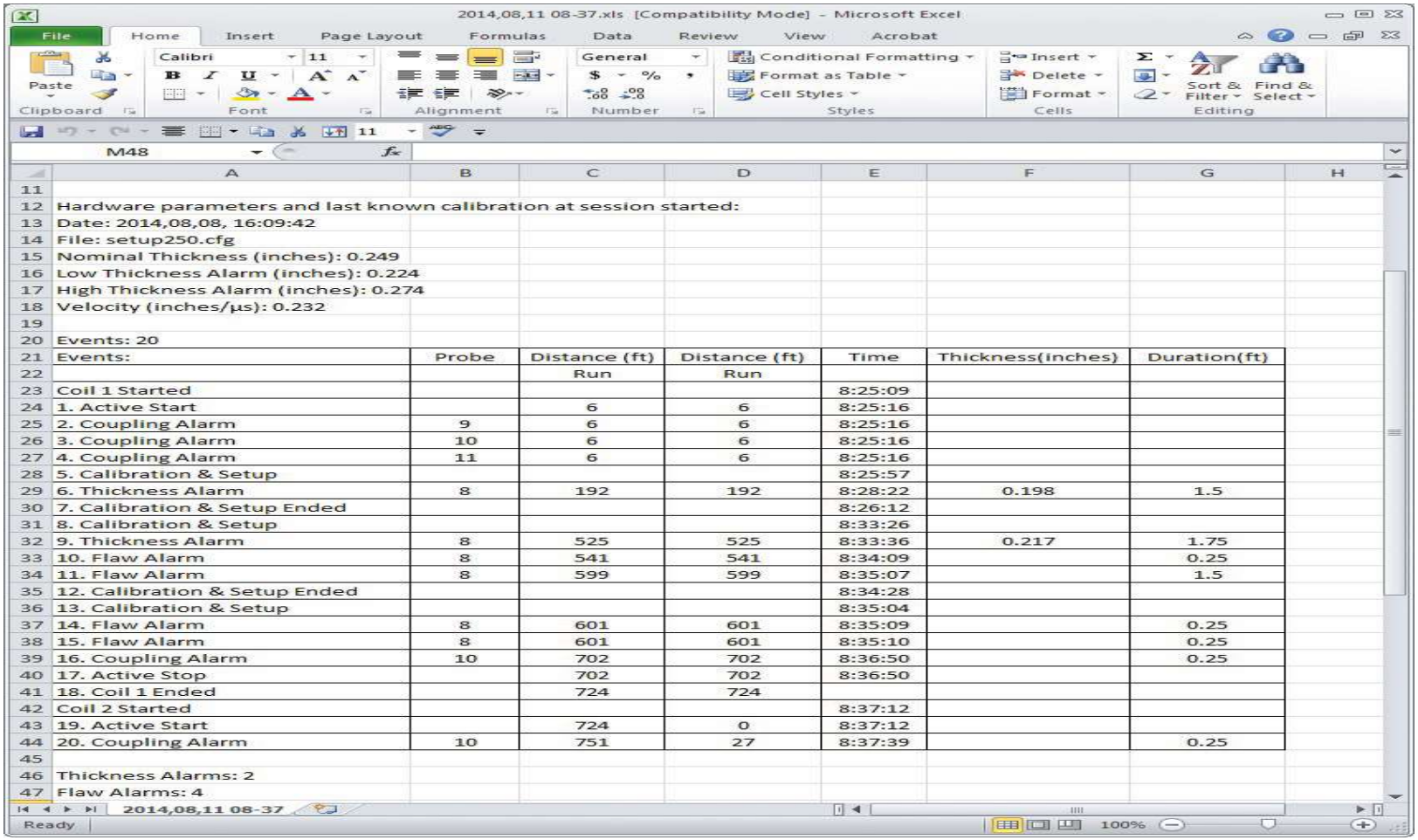


IBIS System (Inspectech B-Scan Inspection System)



- This system utilizes a thickness gauge transducer which transverses across the weld seam to be able to determine if the ID scarf removal tools is set properly
- Real time view to the profile of the ID bead, as well as a thickness strip chart with high and low alarm thresholds
- Visibility early on to see if the ID scarf removal tool is set too high (removing too much material), too low (not removing enough material), or if the tool has been chipped, rather than checking manually 300ft downstream after the tube has been cut
- Scrap Reduction Tool
- Can also be used to monitor for chatter and mismatch
- Min OD 2" (50mm) and up
- Min Wall Thickness 0.050" (1.2mm) Max Wall thickness and up
- Currently working on R&D project to monitor even thinner material

UT Data Logger Example (Can be exported to Text or Excel)



2014,08,11 08-37.xls [Compatibility Mode] - Microsoft Excel

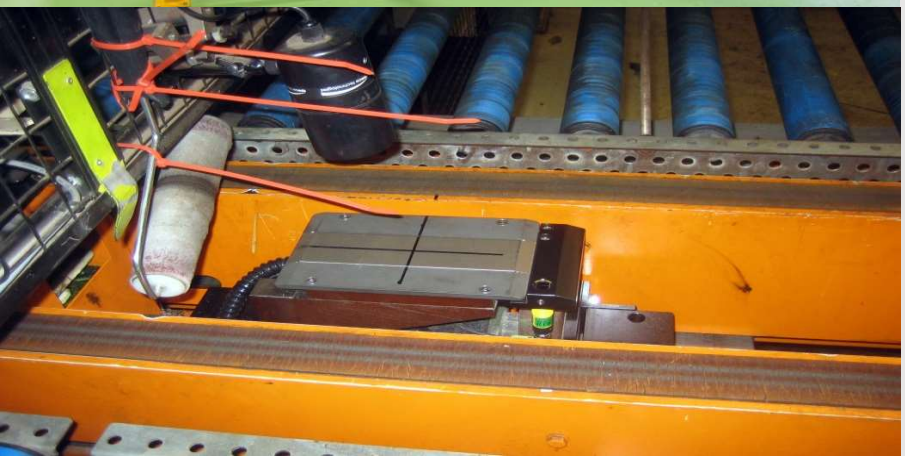
Hardware parameters and last known calibration at session started:
Date: 2014,08,08, 16:09:42
File: setup250.cfg
Nominal Thickness (inches): 0.249
Low Thickness Alarm (inches): 0.224
High Thickness Alarm (inches): 0.274
Velocity (inches/µs): 0.232

Events: 20

Events:	Probe	Distance (ft) Run	Distance (ft) Run	Time	Thickness(inches)	Duration(ft)
Coil 1 Started				8:25:09		
1. Active Start		6	6	8:25:16		
2. Coupling Alarm	9	6	6	8:25:16		
3. Coupling Alarm	10	6	6	8:25:16		
4. Coupling Alarm	11	6	6	8:25:16		
5. Calibration & Setup				8:25:57		
6. Thickness Alarm	8	192	192	8:28:22	0.198	1.5
7. Calibration & Setup Ended				8:26:12		
8. Calibration & Setup				8:33:26		
9. Thickness Alarm	8	525	525	8:33:36	0.217	1.75
10. Flaw Alarm	8	541	541	8:34:09		0.25
11. Flaw Alarm	8	599	599	8:35:07		1.5
12. Calibration & Setup Ended				8:34:28		
13. Calibration & Setup				8:35:04		
14. Flaw Alarm	8	601	601	8:35:09		0.25
15. Flaw Alarm	8	601	601	8:35:10		0.25
16. Coupling Alarm	10	702	702	8:36:50		0.25
17. Active Stop		702	702	8:36:50		
18. Coil 1 Ended		724	724			
Coil 2 Started				8:37:12		
19. Active Start		724	0	8:37:12		
20. Coupling Alarm	10	751	27	8:37:39		0.25

Thickness Alarms: 2
Flaw Alarms: 4

IBIS System (Inspectech B-Scan Inspection System)



- Used of the inspection of laser welded blanks (blanks must be magnetic in order to use the MFL technology)
- The magnetizing coils fully magnetize the entire thickness of the weld seam. Any defects/anomalies which pass through the magnetic field will cause a “leakage” in the magnetic field and or 20 channel hall effect sensor will pick it up as a potential defect
- Capable of detecting 0.3mm drilled hole
- Low maintenance – virtually NO mechanical consumable parts
- User friendly software, easy to operate and calibrate (only 2 parameters to set up)
- No need to cool the sensor after long periods of use
- Can be installed in conveyer belt or robotic mount application
- Inspectech developed an Eddy Current Text Head prototype for the inspection of aluminum welded blanks

IBIS System (Inspectech B-Scan Inspection System)

Ultrasonic Full Body Rotary System

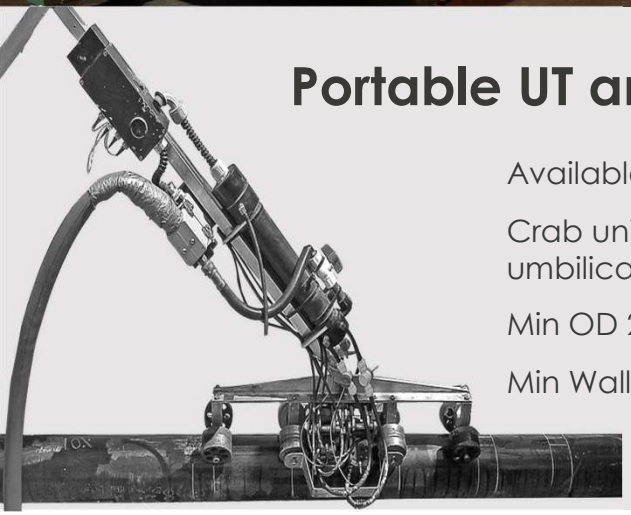
(left, pictured)

Complete coverage of entire tube

Min OD 2" (50mm) and up

Min Wall Thickness 0.050" (1.2mm) Max Wall thickness and up

Can inspect Tubes with upset ends



Portable UT and Crab Systems

Available in hand-held or walking crab mechanics

Crab unit complete with 50ft (15m) or 100ft (30m) umbilical, and 1000 litre couplant storage tank

Min OD 2" (50mm) and up

Min Wall Thickness 0.125" (3mm) and larger

Other Systems

Can inspect square/rectangular material

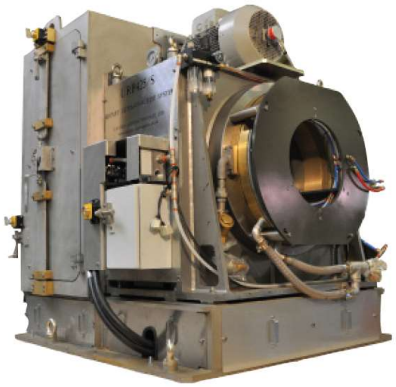
Can inspect pre-perforated tubing

Can inspect rolled bars and rods

Can inspect gas cylinders

Ultrasonic Rotary Test Systems

Ability to test hot finish tubes such as OCTG tubes using a unique contact shoe technique. Testing with contact shoes enables unrivalled signal repeatability and provides for an assured test on both plain end and/or upset end tubes at fast production speeds required by modern tube mills or third party inspection.



URP425 & URP500

- URP425: 5.5" to 16" OD (139mm to 425mm)
- URP500: 5.5" to 20" OD (139mm to 508mm)
- Diameter to Thickness ratio >5.5:1

URP200 & URP350

- URP200: 1" to $8\frac{5}{8}$" OD (25mm to 218mm OD)
- URP350: $2\frac{3}{8}$" to 14" OD (60.3mm to 355mm OD)
- Diameter to Thickness ratio >6:1

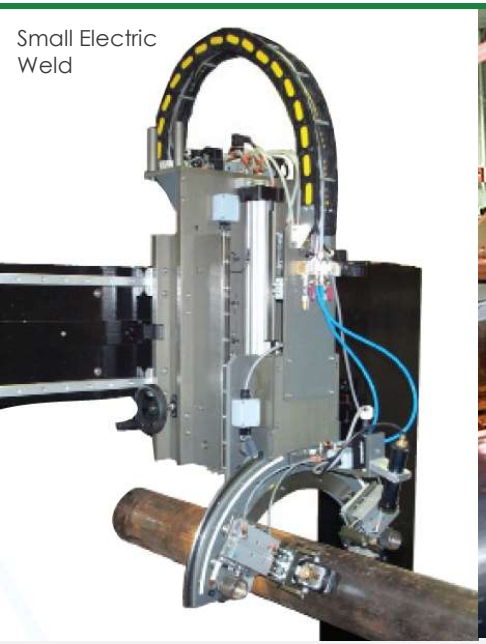
URP50A, URP75A URP120A

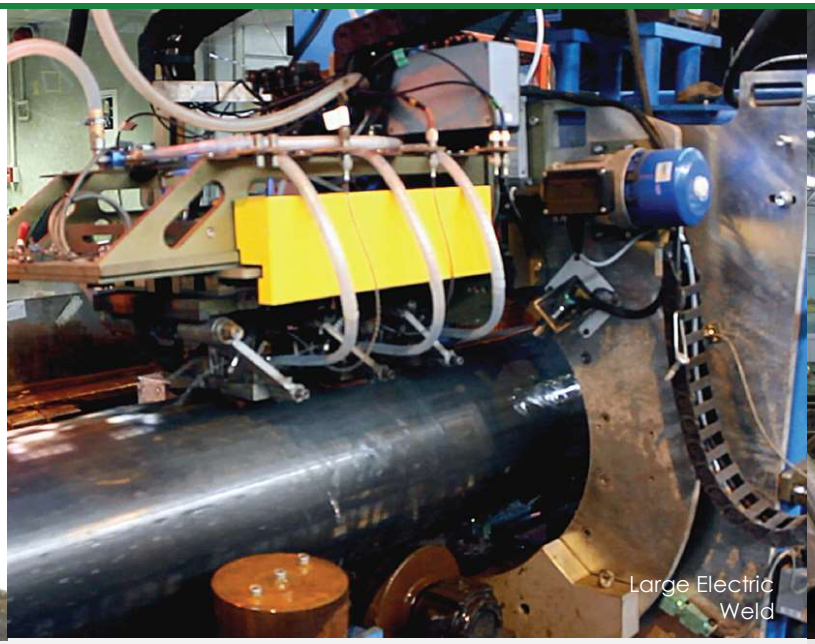
- URP50A: $\frac{3}{8}$" to $2\frac{1}{4}$" OD (10.0mm to 61mm OD)
- URP75A: $\frac{3}{4}$" to 3" OD (20mm to 75mm OD)
- URP120A: $2\frac{1}{2}$" to 5" OD (65mm to 125mm OD)

Ultrasonic Testing of Gas Cylinders

- Diameter to thickness ratio >5.5:1
- Vertical and Horizontal configurations
- Typical cylinder speed: Vertical up to 150RM, Horizontal up to 200RM
- Ultrasonic Test Capability: longitudinal, transverse, oblique, lamination and thickness

Welded Tube & Travelling Probe Tube Testing Systems (UTPS)


Small Electric Weld


Large Electric Weld


Ultrasonic Travelling Probe Tube Testing System (UTPS)

Welded Tube – Ultrasonic Test Systems

Small: suitable for 90-220mm tube diameters. Can carry 2 or 4 transducers mounted in contact shoe probe blocks.

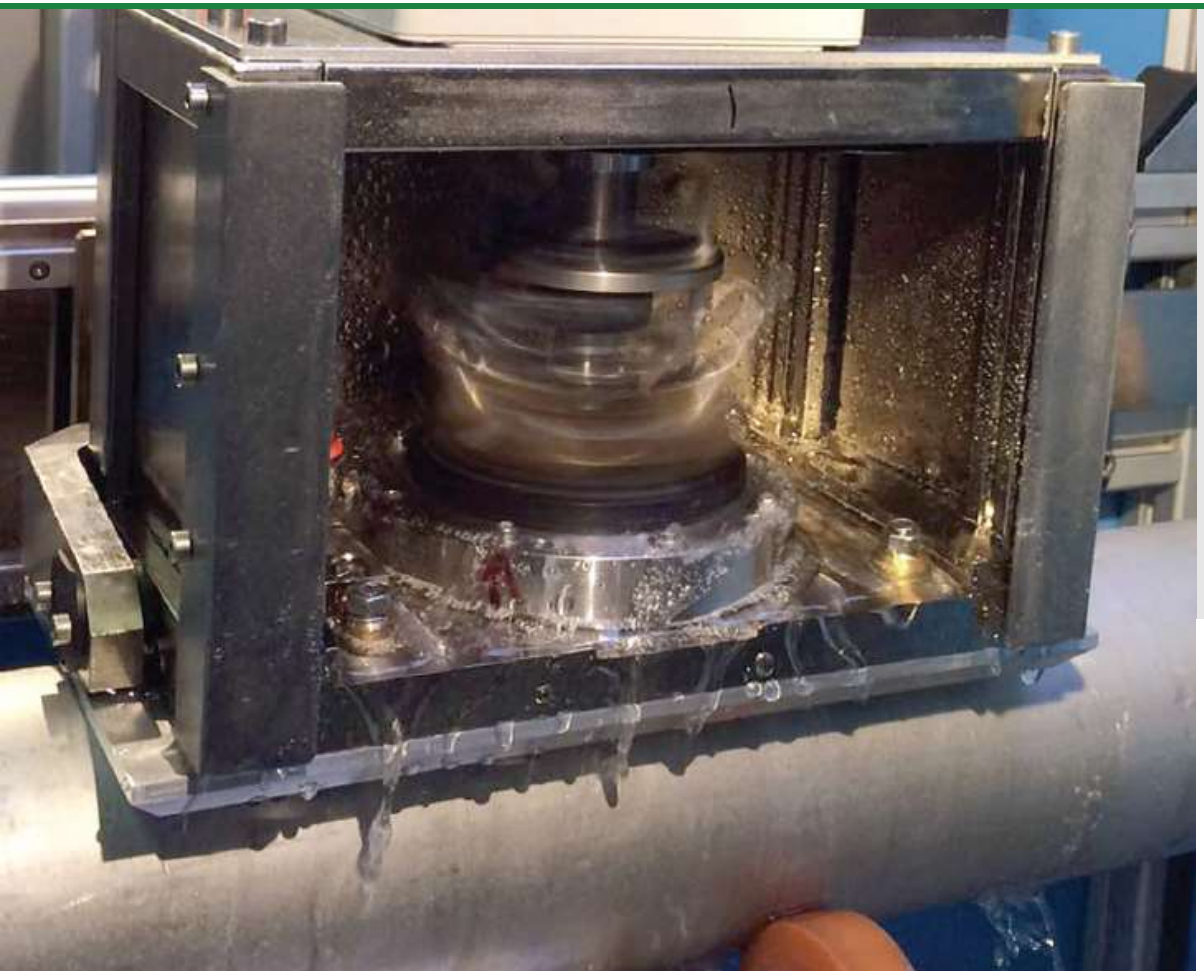
Large: can be located either on-line, in the sizing mill, or in an off-line Acceptance Test station. Probe system consists of 2 or 3 pairs of transducers.

Ultrasonic Travelling Probe Tube Testing System (UTPS)

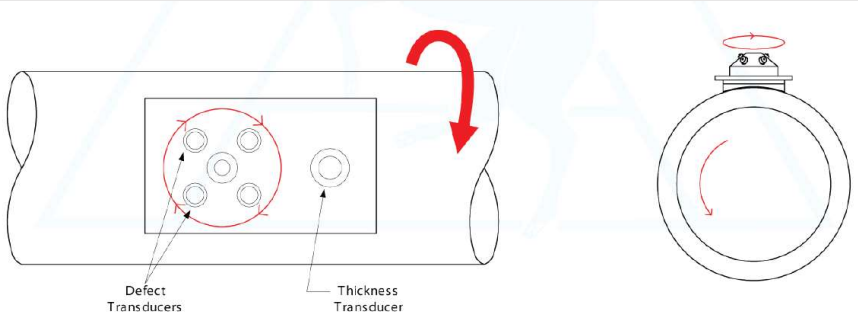
Designed for larger diameter heavy wall tubes.

Slower testing speeds but advantages of quick change flexibility, up to 80mm wall thickness testing, shorter untested end lengths and no limit to maximum OD size

PI Scan: 360 Degree Angle Ultrasonic Inspection System



- Unique ultrasonic scanner designed to detect imperfections oriented at any angle to the major axes of tubular products
- Features a test system known as Pi-Scan, which includes a high-speed rotating transducer cluster in a contact shoe mating on the tube surface



Electronic Cabinet

- All system orders come with our 12K NEMA enclosed, air conditioned electrical cabinets
- 19" touch screen monitor with backup keyboard and mouse
- Alarm Beacon with audio/visual alarm
- Large cabinet for ease of serviceability
- Software is customizable
- Data results can be sent directly to your PLC or server

Service

- InspecTech has 5 service technicians in Toronto, Ontario, and 5 service technicians in Monterrey, Mexico
- InspecTech has installed over 450 systems installed worldwide
- InspecTech stocks all critical spare parts in each location
- We are known for our fantastic service and unbeatable support

Thank You

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