



STORAGE TANK NDT SYSTEM

The Most Innovative and Ultimate Above Ground Storage Tank Inspection Tool

APPLICATIONS

Advantages & Features

- No couplant or magnets required
- Minimal floor preparation
- Tests through coatings
- Maximum penetration up to 1.25" (32mm)
- Scanning speed of 15-20 feet (4.5 - 6m) per minute
- Tests ferrous materials such as carbon steel and cast iron
- PC-based/Modular electronics using digital signal processing
- Real-time data display with advanced signal processing
- Wheel assemblies provide easy maneuverability and independent height adjustment
- Full coverage over scanned area with no "dead space"
- High resolution color graphics with 3-D display
- Uses a maximum voltage of $\pm 12V$ DC inside of tank, meeting required specifications for tank safety
- LEDs with adjustable threshold provide a visual alarm
- Electronic & Software compatibility between F2000 Sr. & Jr.
- 32 channels – F2000 Sr.; 16 channels – F2000 Jr.
- F2000 Jr. specially designed for hard to reach areas

New Design Features

Sensors and electronics

- High sample rate for greater resolution of smaller flaws
- Precisely matched sensors assure uniform channel response
- Utilizes DSP technology for more in-depth, online processing
- Electronics package with surface mount technology and
- Miniaturized PC boards **inside** floor scanner

Alarm system

- Protected LED Threshold alarms
- Brighter, easy to see alarms
- Alarm indicates when scanner is pushed too fast (to ensure speed control)

Wheels and suspension

- 8 large diameter wheels (3"/76.2mm dia)
- Wide wheel base for increased stability
- Double wheel axle design for heavily pitted topside and non-level plates
- Chemically resistant wheels are designed to suppress vibrations and roll over debris without sustaining damage

Maneuverability and Integration

- Fixed wheels provide more stable and straighter scans

- Detachable fixed stainless steel push handle for more control
- Operation by one individual
- Notebook PC mounted to handle

Software for the Storage Tank NDT System TT-F2000 Mark II Sr/Jr

- Filters optimized to reduce background noise and enhance flaw signals
- "Quick View" feature to simultaneously view phase and amplitude for easy flaw discrimination
- Windows-based display program with embossing and 3-D rotational view capabilities

"Quick View" display program showing 32 channels of phase and amplitude simultaneously, using real tank data.	Battery operated system with extra battery pack
Windows-based display program. The top screen shows Embossed data in grey scale; middle shows color C-Scan view; bottom shows line plot side view for 32 channels	Windows-based display program with 3-D rotational image. The top screen shows 3-D rotational image movable with program controls or with mouse; bottom shows line plot side view for 32 channels.

Detection Capabilities

- Topside and Bottom side defects evaluated in a single scan
- Detects 1/8" (3mm) diameter pits 50% deep on 1/4" (6mm) plates
- Detects as low as 5% wall thinning
- Clearly separates flaws from liftoff signals using the "QuickView" software
- Detects flaws through nonmagnetic coating with thicknesses up to 1.00" (25.4 mm) *

- Resolution may be compromised with thicker coatings

Options

- **Encoder:** An electronic wheel feeds distance and speed information into the collection and display software for locating and mapping flaws
- **Mapping software:** Takes plate dimensions input by user and draws entire tank floor (*with the help of AutoCAD LT or Turbocar and the encoder data, the software plots each flaw seen by the F2000 System at the corresponding spot on the tank floor where it occurred*)
- **Batteries:** Two 12V batteries provide 10 hours of operation
- **Battery Charger:** A dual battery charger can charge batteries overnight for a full day of power needs
- **F-2000 Jr.:** 16 channel hand held scanner with wheels, for hard to reach areas such as sumps, annular rings, roof supports, and buckled areas

FEATURES

- User friendly menu driven functions
- Special real time signal processing algorithms
- Real time 3-D display in full color
- Rotating view for seeing hidden flaws
- C-scan type overhead view shows defects for easy detection
- Encoder data displayed for distance and location plots
- Digital filtering for signal manipulation while preserving raw data
- Zooming algorithms for detailed views
- Uniquely separates pitting from gradual wall loss or gradual wall loss from pitting, by suppressing one or the other (see insert)

- Shows wall thinning in percent loss or inches/mm remaining

TECHNICAL SPECIFICATIONS

Electronics	
Electronic Base	Digital/DSP based
Channels	16 or 32
Power Consumption	Max 15VA
Line Voltage	110/220 VAC (self-adjusting) 50/60 Hz or 12 VDC
Dimensions	13" (330mm) L x 11.5" (292mm)W x 3.5" (89mm) H
Weight	5 lbs. (2.27kg)
Scanner	
Measuring Technique	Low Frequency Electromagnetic Technique (LFET)
Maximum Penetration	0.750" (19mm) Carbon Steel, 1.25" (32mm) Cr-M or Cast Iron
Number of Sensors/Channels	Sr. 64/32, Jr. 16/16
Inspection Width	Sr. 13" (330mm), Jr. 4" (102mm)
Scanning Speed	15 - 20 ft (4.5 - 6m) per minute
Dimensions	• Sr. 13.5" (343mm)L 11.5" (292mm)W 6.5" (165mm)H • Jr. 6.5" (165mm)L 4.5" (114mm)W 5.5" (140mm)H
Weight	Sr. 26 lbs. (11.8kg), Jr. 3 lbs. (1.36kg)
Battery Pack	

Number	2
Voltage/Current	12 VDC / 17Ah
Charge Life	10 hours per battery
Charging Time	12 hours
Weight	14.3 lbs.(6.5kg) each



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