

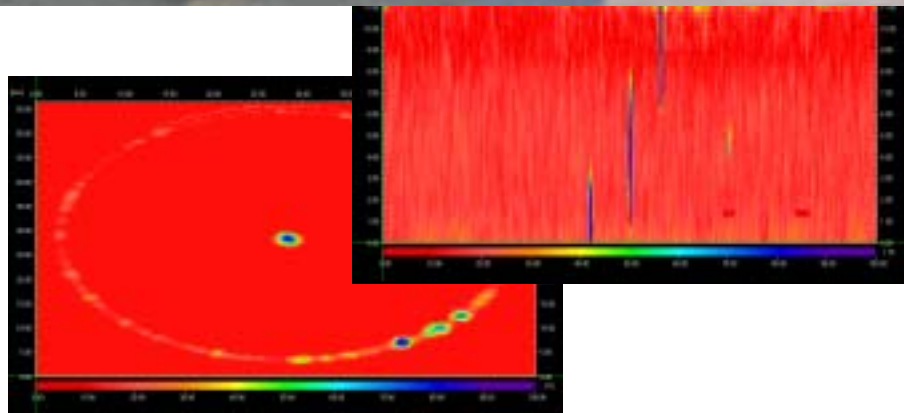
**ScanMaster**

# Industrial Ultrasonic Scanning Systems

*LS-500 SERIES*

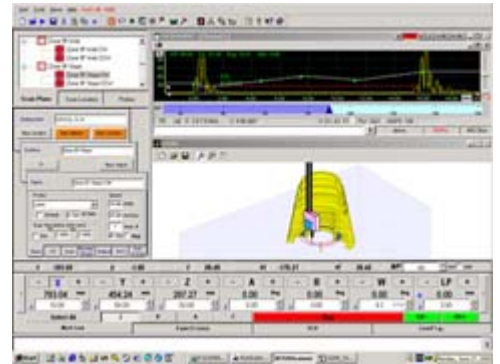


*High resolution low cost C-scan imaging systems for production and laboratory inspection*



## PRODUCT FEATURES

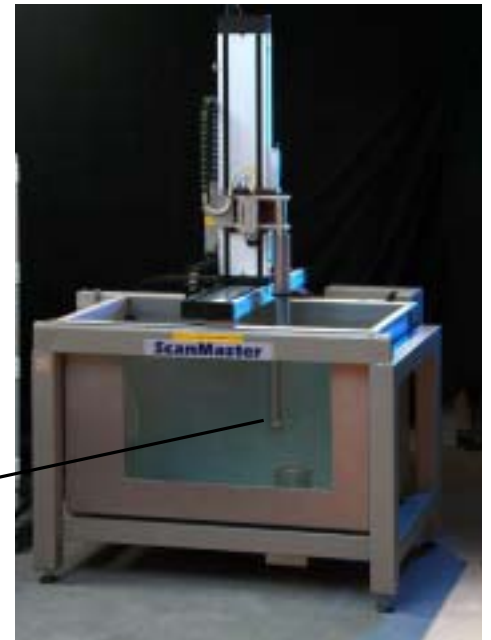
- *Fully integrated imaging systems, including ultrasonic electronics, scanning mechanics, data acquisition and process software.*
- *Rugged, reliable systems for multi shift operation in industrial environments.*
- *Accurate scanning mechanics, with exceptional resolution and repeatability on all axes.*
- *High immunity against electromagnetic noise.*
- *ScanMaster CSI databased software for Windows 2000/XP<sup>®</sup>, with programming in parts coordinates for importing complex part geometry from CAD.*
- *Excellent near-surface flaw resolution and penetration power.*
- *Multiple gate A-scan, B-scan and C-scan imaging with real time view on monitor display.*
- *Unique software functionality increases productivity and reduces scan time.*
- *Extensive real time, and post scan, data processing and analysis.*
- *Process utilities with automated flaw search, identification and evaluation.*
- *Reporting of inspection and set up results with customized report generation.*



A-scan motion control and teach-in window



Motorized A/B  
Manipulator (optional)



# LS-500 SERIES

## PRODUCT DESCRIPTION

The *LS-500* series industrial scanners are C-scan inspection machines in modular design *allowing for choice of system scanner length according to requirements with no need for custom design.* Unique robot design allows for precision scanning motion.

<b>Architecture</b>	Each system includes an integrated <b>upi/upc-100</b> ultrasonic instrument with search tube mounted <b>RPP3</b> square wave pulser-preamplifier, precision servo motion control for each axis and ScanMaster software for part set-up, scan, inspection analysis and data archiving.
<b>Sizes</b>	The systems modular design allows for selection of sizes. The length of the X axis can be specified. Sample scanning platforms are: <b>LS-500-1000</b> – Motion envelope of (X, Y, Z) 1000mm x 600mm x 600mm (40"x 24"x24") <b>LS-500-1500</b> – Motion envelope of (X, Y, Z) 1500mm x 600mm x 600mm (60"x 24"x24") <b>LS-500-2000</b> – Motion envelope of (X, Y, Z) 2000mm x 600mm x 600mm (80"x 24"x24")
<b>Inspection tank</b>	Stainless steel with expansive window, high capacity water conditioning system and water skimmer.
<b>Scanning robot</b>	Rugged modular design. Bridge mounted search tube design for high-speed inspection with tight tolerance limits for accuracy, repeatability and resolution.
<b>Inspection technique</b>	Immersion inspection in pulse-echo mode. Thru transmission mode with range of optional transducer yokes.
<b>Transducer manipulator</b>	Manual A/B adjustment. Optional motorized A/B dual-gimbal manipulator including sealed, direct drive servo motors with low backlash.
<b>Transducers</b>	Any 1-20MHz (1-50MHz optional) immersion type transducer with standard UHF connector.
<b>Parts turntable</b>	Optional high performance turntables with servo drive.
<b>Rated loads</b>	400mm (16") 150kg (330lb).
<b>Reference standards table</b>	Table up to 500mm x 600mm (20" x 24"), for locating reference standards. Include two 90 degree reference edges.
<b>Ultrasonic hardware</b>	One to sixteen channels upi/usc-100 rack-mount ultrasonic instrument with <b>RPP3</b> programmable square wave pulser-preamplifier for each channel.
<b>Operator console</b>	Desktop monitor, keyboard and mouse. Complete system control from system display. Optional remote control device.
<b>MAC motion control</b>	Servo motion control, with encoder feedback and RF noise suppression circuitry for all axes. Hardware housed in environment-protected cabinet.
<b>Data acquisition</b>	B and C-scan imaging software with peak amplitude and TOF measurement and "SMART" threshold-based A-scan signal capture.

# LS-500 SERIES

<b>Data analysis and processing</b>	C-scan Data Processing and Analysis Tool Kit. Includes a library of tools for image processing image projection and measurement of flaw size, depth and signal strength.
<b>Advanced database</b>	CSI software for Windows 2000/XP® is data based. Part geometry, ultrasonic set-ups, scan plans and scan results are saved in unique and easily managed databases. Relevant geometry, UT set-ups are automatically called up during scan time.
<b>Documentation tools</b>	Standard documentation tools include: Operator annotations on screen customized reporting, A-scan display screen dumps, generation and storage of standard graphical format files such as pcx, bmp or tiff.
<b>System access control</b>	Five levels of programmable authorized access.
<b>Remote data</b>	Optional remote and data processing station connected via LAN to the control console.
<b>Import geometry</b>	Import part geometry from CAD programs such as Unigraphics and AutoCAD, or from text files.
<b>Import part program</b>	Import part programs from one ScanMaster system to another.

## PERFORMANCE ENVELOPE

Axis	Motion Envelope	Speed Range	Resolution	Repeatability	Accuracy	Backlash	Min. Motion
	mm (in)	mm/sec (in/sec)	mm (in)	± mm (in)	± mm/300mm (in/12in)	± mm (in)	mm (in)
<b>X</b>	1000/1500/2000 (40/60/80)	0.1-150 (0.004-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	0.1 (0.004)>	0.05 (0.002)
<b>Y</b>	600 (24)	0.1-150 (0.004-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	0.1 (0.004)>	0.05 (0.002)
<b>Z</b>	600 (24)	0.1-150 (0.004-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	0.1 (0.004)>	0.05 (0.002)
A/B	Manual adjustment ± 2 degrees						
<b>OPTIONAL MOTORIZED AXES</b>							
	deg		deg	deg	±deg/45deg	± deg	deg
<b>A</b>	± 37.5	0.1-20deg/sec	0.01	≤0.02	0.03	≤0.02	0.02
<b>B</b>	± 112	0.1-20deg/sec	0.01	≤0.02	0.03	≤0.02	0.02
<b>W</b>	360	0.1-30RPM	0.01	≤0.03	0.03	≤0.03	0.03

\* Specifications are subject to change without notice.

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