

# ScanMaster

Ultrasonic Inspection Solutions

## Industrial and Laboratory Ultrasonic Scanning System

### LS - 50 SERIES



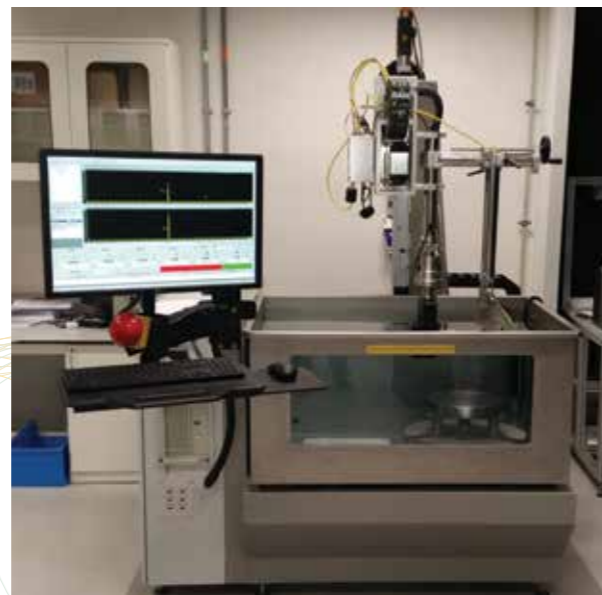
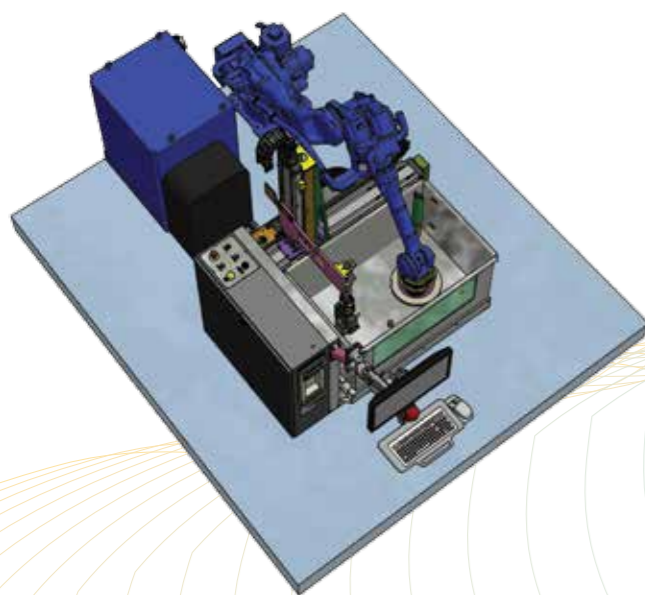
# High Resolution C-scan Imaging Systems for Production and Laboratory Inspection

## PRODUCT DESCRIPTION

The LS-50 is a **compact, reliable, fully integrated** ultrasonic immersion system that includes scanning mechanics, motion control, electronics, data acquisition and analysis software. This system is an optimal **cost-effective** solution for a variety of applications for inspection of small parts and structures of various geometrical shapes, in **industrial** and **laboratory** environments.

### Main Features:

- Accurate scanning mechanics, with exceptional resolution and repeatability on all axes
- High immunity against electromagnetic noise
- Interface for automatic loading/unloading of inspected products by articular robot
- Encoder outputs for connection of external devices, such as phased array or eddy current instruments
- Excellent near-surface flaw resolution and signal-to-noise ratio
- Powerful ScanMaster CSI software for Windows 7©, with part coordinates programming for importing complex part geometry from CAD
- Multiple gate A-scan, B-scan and C-scan imaging with real time view on the monitor display
- Unique software features for increased productivity and user-friendly operation
- Extensive real time and post-scan data processing and analysis with automated flaw search, identification and evaluation
- Export of A-scan and C-scan data for further processing in external applications, such as MatLab and more
- Reporting of inspection and setup results, with customized report generation capability



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### Specifications

<b>Architecture</b>	Includes an integrated usc-100b ultrasonic instrument with search tube-mounted RPP-3 square wave pulser-preamplifier, precision servo motion control for each axis and ScanMaster software for part setup, scanning, inspection analysis and data archiving.
<b>Operator console</b>	Versatile operator station attached to the gantry includes a 24" flat desktop monitor, keyboard and mouse, and easily accessible Emergency Stop button. The system display provides complete system control.
<b>Inspection tank</b>	Stainless steel with expansive window, high capacity compact water conditioning system and water skimmer.
<b>Scanning robot</b>	Rugged modular design. Console-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 a range of optional transducer yokes is available.
<b>Transducer manipulator</b>	Manual or motorized A/B <b>gimbal-gimbal</b> manipulator including sealed, direct drive servo motors with low backlash.
<b>Transducers</b>	Immersion type transducers with standard UHF connectors. Frequency up to <b>20MHz</b> .
<b>Part rotator</b>	High performance <b>400mm (16")</b> turntable or bar rotator with servo drive. Rated load: Up to <b>80kg (176lb)</b> .
<b>Reference standards table</b>	Table up to 300mm x 100mm (12" x 4"), for locating reference standards.
<b>Ultrasonic hardware</b>	Multi-channel <b>usc-100b</b> rack-mount ultrasonic instrument with UPR-101 ultrasonic board and RPP-3 programmable square wave pulser-preamplifier for each channel.
<b>SC4-M motion control</b>	Servo motion control, with encoder feedback and RF noise suppression circuitry for all axes. Hardware is housed in an environment-protected cabinet.
<b>Data acquisition</b>	<b>A-, B- and C-scan</b> imaging software with peak amplitude and TOF measurement. Full and Smart (threshold-based) A-scan signal capture.

<b>Advanced database</b>	CSI software for Windows 7©. Part geometry, ultrasonic setups, scan plans and scan results are saved in unique and easily managed databases. Relevant parameters are automatically retrieved during scan time.
<b>Import geometry</b>	Support of part geometry import from <b>CAD</b> programs (e.g., Unigraphics, AutoCAD, CATIA) or from text files.
<b>Transfer part program</b>	Ability to transfer part programs from one ScanMaster system to another, regardless of tank size.
<b>Data analysis and processing</b>	C-scan Data Processing and Analysis Tool Kit includes a tool library for image processing and measurement of flaw size, depth and signal strength.
<b>Documentation tools</b>	Standard tools include on-screen annotations, customized reporting, A-scan display screen dumps, and generation / storage of standard graphical files such as .pcx, .bmp and .tiff.
<b>System access control</b>	Five levels of programmable authorized access.
<b>Remote data</b>	Option for a remote data processing station connected to the control console via LAN.

## MECHANICAL PERFORMANCE:

Axis	Motion Envelope	Speed Range	Repeatability	Accuracy	Backlash	Min. Motion
	mm (in)	mm/sec (in/sec)	± mm/300mm (in/12in)	± mm/300mm (in/12in)	± mm (in)	mm (in)
<b>X</b>	750 (30)	0.1-150 (0.004-6)	≤0.05 (0.002)	0.025 (0.001)	0.05 (0.002)	0.01 (0.001)
<b>Y</b>	400 (16)	0.1-150 (0.004-6)	≤0.05 (0.002)	0.025 (0.001)	0.05 (0.002)	0.01 (0.001)
<b>Z</b>	450 (18)	0.1-75 (0.004-3)	≤0.05 (0.002)	0.025 (0.001)	0.05 (0.002)	0.01 (0.001)
	deg	deg/sec	deg	±deg/45deg	± deg	± deg
<b>A<sup>1</sup></b>	± 38	0.1-20deg/sec	≤0.02	0.02	≤0.02	0.01
<b>B<sup>1</sup></b>	± 112	0.1-20deg/sec	≤0.02	0.02	≤0.02	0.01
<b>C</b>	360	0.1-50RPM	≤0.03	0.03	≤0.03	0.01

<sup>1</sup>Manually adjustable manipulator is available (±2 degrees)

## Options:

- Bar rotator for inspection of bars and tubes
- Full integration of phased array capability
- 3D contour following for scanning parts of complex geometry
- Application-tailored multi-transducer probe holder
- Interface to loading/unloading robot for automation of inspection

## CORPORATE OFFICES

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