

ScanMaster

Ultrasonic Inspection Solutions

Industrial and Laboratory Ultrasonic Scanning System

LS - 50 SERIES



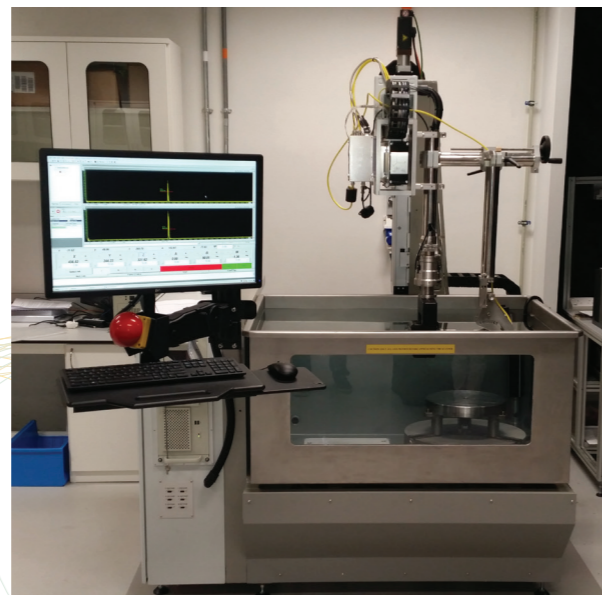
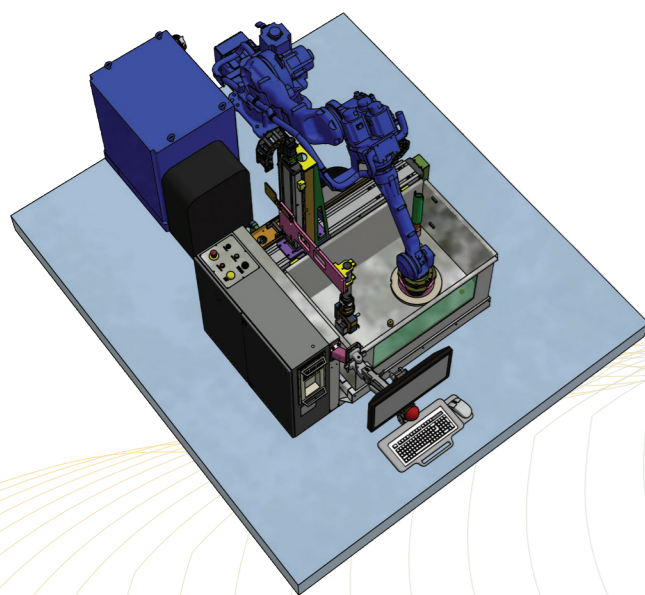
High Resolution C-scan Imaging Systems for Production and Laboratory Inspection

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

Architecture	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.
Operator console	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.
Inspection tank	Stainless steel with expansive window, high capacity compact water conditioning system and water skimmer.
Scanning robot	Rugged modular design. Console-mounted search tube design for high-speed inspection, with tight tolerance limits for accuracy, repeatability and resolution.
Inspection technique	Immersion inspection in pulse-echo mode. Thru transmission mode with a range of optional transducer yokes is available.
Transducer manipulator	Manual or motorized A/B gimbal-gimbal manipulator including sealed, direct drive servo motors with low backlash.
Transducers	Immersion type transducers with standard UHF connectors. Frequency up to 20MHz .
Part rotator	High performance 400mm (16") turntable or bar rotator with servo drive. Rated load: Up to 80kg (176lb) .
Reference standards table	Table up to 300mm x 100mm (12" x 4"), for locating reference standards.
Ultrasonic hardware	Multi-channel usc-100b rack-mount ultrasonic instrument with UPR-101 ultrasonic board and RPP-3 programmable square wave pulser-preamplifier for each channel.
SC4-M motion control	Servo motion control, with encoder feedback and RF noise suppression circuitry for all axes. Hardware is housed in an environment-protected cabinet.
Data acquisition	A-, B- and C-scan imaging software with peak amplitude and TOF measurement. Full and Smart (threshold-based) A-scan signal capture.

Advanced database	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.
Import geometry	Support of part geometry import from CAD programs (e.g., Unigraphics, AutoCAD, CATIA) or from text files.
Transfer part program	Ability to transfer part programs from one ScanMaster system to another, regardless of tank size.
Data analysis and processing	C-scan Data Processing and Analysis Tool Kit includes a tool library for image processing and measurement of flaw size, depth and signal strength.
Documentation tools	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.
System access control	Five levels of programmable authorized access.
Remote data	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)
X	750 (30)	0.1-150 (0.004-6)	≤0.05 (0.002)	0.025 (0.001)	0.05 (0.002)	0.01 (0.001)
Y	400 (16)	0.1-150 (0.004-6)	≤0.05 (0.002)	0.025 (0.001)	0.05 (0.002)	0.01 (0.001)
Z	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
A¹	± 38	0.1-20deg/sec	≤0.02	0.02	≤0.02	0.01
B¹	± 112	0.1-20deg/sec	≤0.02	0.02	≤0.02	0.01
C	360	0.1-50RPM	≤0.03	0.03	≤0.03	0.01

¹Manually 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

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