ScanMaster

Industrial Ultrasonic Scanning Systems

LS-200 SERIES

High-resolution C-scan imaging systems for the most demanding production and laboratory inspection

LS-200 SERIES

ScanMaster Systems Offers

Fully integrated imaging systems, including ultrasonic electronics, scanning mechanics, data acquisition and processing software.

Rugged, reliable systems for two and three-shift operation in an industrial environment.

Accurate scanning mechanics, with exceptional resolution and repeatability on all axes.

High immunity against electromagnetic noise.

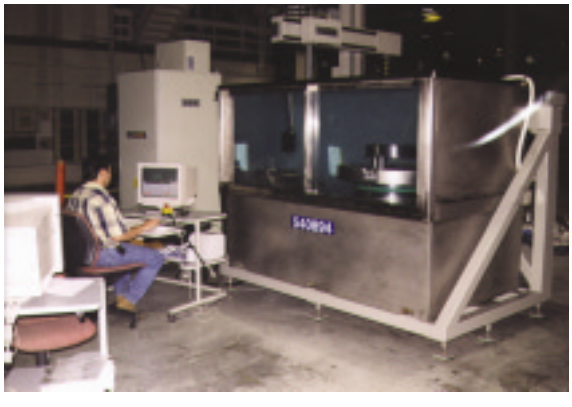
ScanMaster Systems CSI software for Windows 2000/XP® with advanced file management for efficient inspection of complex parts.

Excellent near-surface flaw resolution combined with exceptional penetration power.

Multiple gate C-scan and B-scan imaging with real-time view on monitor display.

Extensive post-scan data processing and analysis, including utilities for advanced flaw evaluation.

Documentation of inspection setup and results, with customized report generation.



LS-200L scanner with two-tiered turntable leveling

LS-200 AB manipulator

◄ Cover: LS-200L scanner with lift platform

LS-200 SERIES

Product Description

Introducing the LS-200 Series

LS-200 Series industrial scanners are C-scan inspection machines distinguished by a unique robotic design, combining precision scanning motion with exceptional ease of parts loading and unloading.

Architecture

Each system includes an integrated **usc-100** ultrasonic instrument with search-tube mounted RPP3 square wave pulser preamplifier, precision servo motion control for each axis and **ScanMaster CSI** software for part set-up, scan, inspection analysis and data archiving.

Sizes

Three scanning platforms are available:

- The **LS-200S** - (X, Y, Z) maximum motion envelope of 1200 x 600 x 600mm (48" x 24"x 24") with parts turntables up to 600mm (24") in diameter.
- The **LS-200L** - (X, Y, Z) maximum motion envelope of 1800 x 900 x 1000mm (72" x 36" x 40"), including parts turntables up to 1000mm (40") in diameter with optional motorized lift platform or two-tiered leveling.
- The **LS-200LP** - (X, Y, Z) maximum motion envelope of 1400 x 900 x 1000mm (55" x 36" x 40"), including parts turntables up to 1200mm (48") in diameter and motorized lift platform for easy part loading and unloading.

Inspection tank

Stainless steel construction with expansive 'fish-tank' viewing window, high-capacity water conditioning system and water skimmer.

Scanning robot

Rugged beam-mounted search tube design for high-speed inspection within tight tolerance limits for accuracy, repeatability and resolution.

Inspection technique

Immersion inspection in pulse-echo mode. Thru-transmission mode with range of optional transducer yokes.

Transducer manipulators

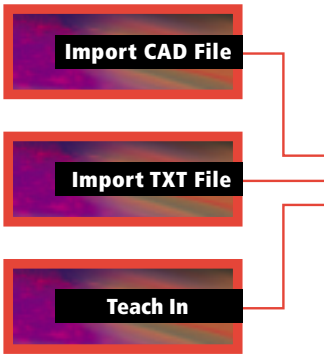
RESOLVE Series high-resolution dual-gimbal (A,B-axis) manipulator including sealed, direct-drive servo motors with low-backlash drive train.

Transducers

Any 1-25MHz immersion-type probe with standard UHF connector.

Parts turntable

High-performance **RESOLVE Series** turntables with sealed servo drive. Oversize, zero-maintenance stainless steel central bearing maintains alignment even in the presence of off-center loads.



Rated loads

400mm or 600mm (16" or 24") diameter turntables with 200kg (440lb) rated load for LS-200S. Up to 1000mm (40") diameter turntable with one ton rated load for LS-200L. 1000mm (40") or 1200mm (48") diameter turntable with one ton rated load for LS-200LP.

Table for reference standards

Large table, up to 500 x 600mm (20" x 24") for LS-200S or LS-200L, and up to 560 x 200mm (22" x 8") LS-200LP, for locating reference standards. Includes two 90deg reference edges.

Two-tiered turntable leveling

Optional two-tiered leveling 'legs' for the LS-200L scanner, providing the operator with a second inspection height, up to 375mm (15") from the tank floor.

Lift platform

Optional servo-driven lift platform allows for ease of loading, centering, and unloading of parts. Controlled from the virtual control panel, the lift platform may be positioned variably vertically at any position in the inspection tank for scanning at any desired level.

Water circulation

High capacity water circulation with surface skimmer and filtering to 20 microns. Optional water heater with temperature control to ±2 deg C (±5 deg F).

Tank volume illumination

Powerful H.I.D lamp enclosed in protective fixture, for illuminating tank volume. Lamp is rated at 12,000 hours and is easily replaced without having to drain the water from the tank.

LS-200 SERIES

Ultrasonic hardware — One to eight-channel **usc-100** (upgradeable to 32 channels) rack-mount ultrasonic instrument with RPP3 programmable square wave pulser preamplifier for each channel.

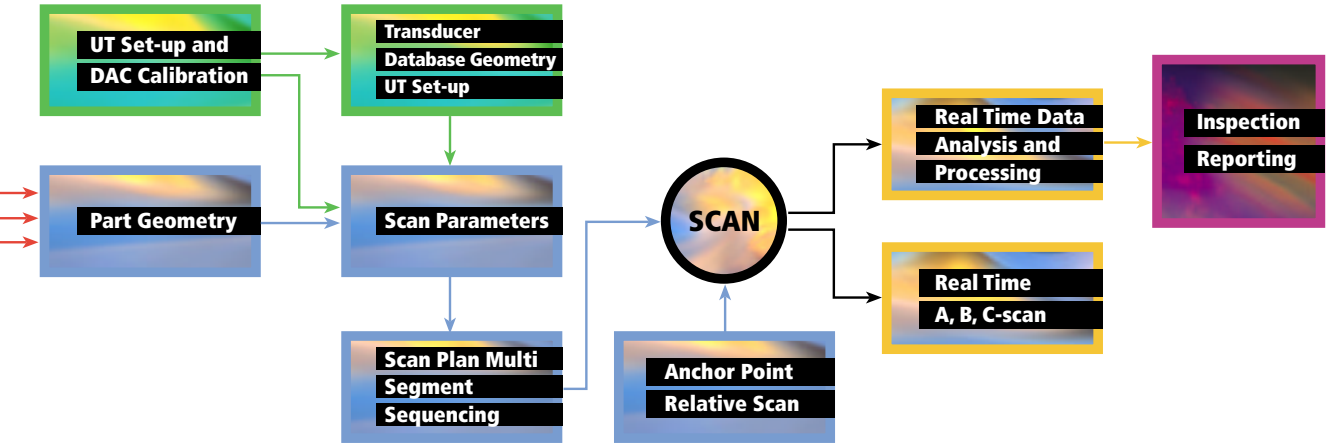
Operator control console — Desktop mounted monitor, keyboard and mouse pointing device. Complete system control from virtual control panel. Selection of optional remote control devices.

Motion control — **SC-4m** servo motion control, with encoder feedback and RF noise suppression circuitry for all axes. Hardware housed in environment-protected cabinet.

Data acquisition interface — B and C-scan imaging software, with up to 128K peak amplitude and TOF measurements/sec, **'FULL'** and **'SMART'** threshold based A-scan signal capture.

Parts or machine coordinates — ScanMaster CSI software allows for programming in parts or machine coordinates. Import part geomtry from CAD or TXT files. Complete off-line programming.

Data analysis and processing — 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.



Advanced file management — **ScanMaster CSI** software architecture is designed for high-throughput inspection of parts with complex cross-sections and part-to-part geometrical tolerances. Scans are executed with one instrument set-up file, one calibrated DAC file and one part set-up file, with accumulated inspection data automatically transmitted to an archiving directory.

Inspection documentation — Standard documentation tools include: Color ink jet printer, operator annotations on screen, storage and screen dump of any A-scan display in Set-up mode, generation, storage and printout of all standard graphic image files of any screen display.

System access control — Five levels of programmable authorized access.

Scanning accessories — **RESOLVE Series** bar rotator for inspection of round bars, tubes and head & tail stock for inspection of thin-walled metallic and composite tubes.

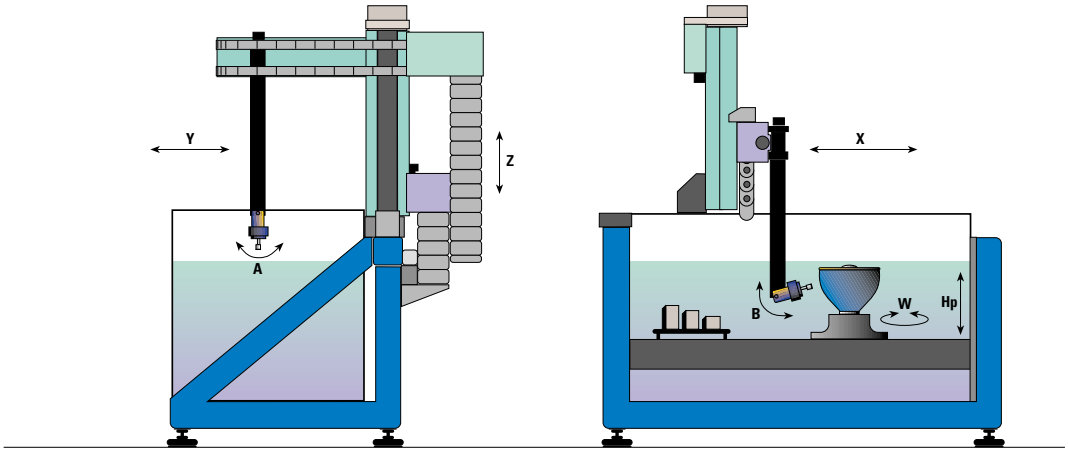
Remote data processing — Optional remote data processing and analysis station connected by LAN to the control console.

LS-200 SERIES

Performance Envelope

Axis	Inspection Envelope		Speed Range	Resolution	Repeatability	Accuracy	Backlash	Min. motion
	deg			deg	±deg	±deg	±deg	deg
A	±40		0.1-20deg/sec	0.01	≤0.02	0.03	≤0.02	0.02
B	±112		0.1-20deg/sec	0.01	≤0.02	0.03	≤0.02	0.02
W[1]	360		0.1-50RPM	0.01	≤0.03[1]	0.03	≤0.03	0.03
	mm (in)		mm/sec (in/sec)	mm (in)	±mm (in)	±mm/300mm (in/12in)	±mm (in)	mm (in)
	LS-200S	**LS-200L**						
X	1200/1500 (48/60)[2]	1800 (72)[3]	0.1-150 (0.01-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	≤0.05 (0.002)	0.05 (0.002)
Y	600 (24)[2]	900 (36)	0.1-150 (0.01-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	≤0.05 (0.002)	0.05 (0.002)
Z	600 (24)	1000 (40)	0.1-150 (0.01-6)	0.025 (0.001)	≤0.05 (0.002)	0.025 (0.001)	≤0.05 (0.002)	0.05 (0.002)
L_P	–	860 (34)	0.1-10 (0.01-0.4)[1]	0.05 (0.002)	≤0.25 (0.01)	0.2 (0.01)	≤0.05 (0.002)	1.0 (0.04)

[1]At rated load • [2]Selection of sizes • [3]1400 (55) with optional lift platform



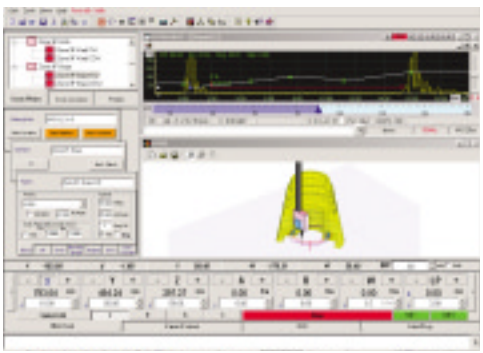
SAFETY STANDARDS AND APPROVALS

LS-200 systems are CE rated for safety and RFI/EMI interference. Approved by major manufacturers for C-scan inspection of forged jet engine discs.

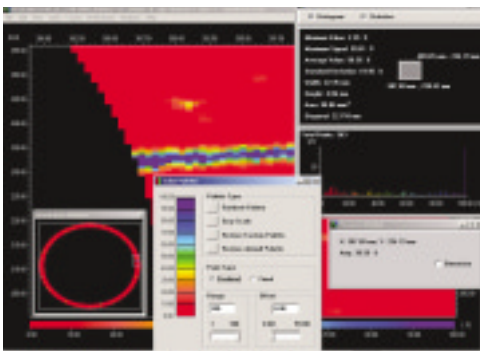
Plan view of LS-200LP scanning facility

LS-200 SERIES

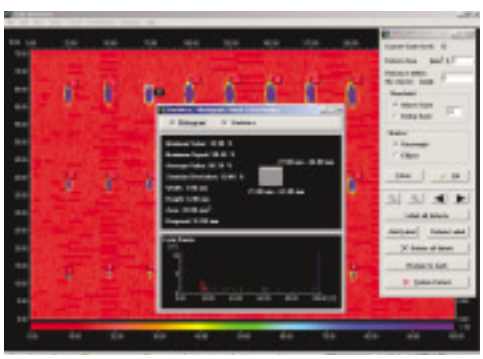
CSI Scan and Evaluation Software for Windows 2000/XP®



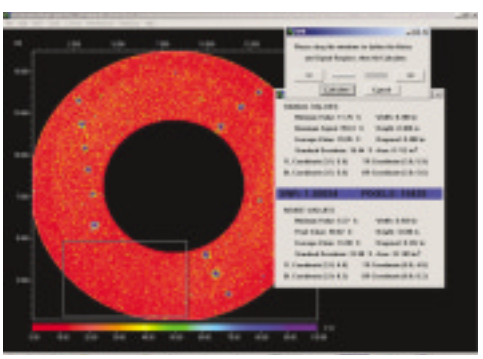
ScanMaster virtual control panel for scan set-up



Tools for evaluating C-scan



Automatic flaw identification, marking and statistics



Noise statistics as per major engine manufacturers specifications

Inspection report

C O R P O R A T E O F F I C E S

ScanMaster Systems (IRT), Ltd
5B Ha'Nagar St. Neve Ne'Eman B
Hod Ha'Sharon 45800, Israel
Phone: 972-9-7475400
Fax: 972-9-7475444
e-mail: sales@scanmaster-irt.com
Web site: www.scanmaster-irt.com

IRT ScanMaster Systems, Inc
319 Garlington Road,Suite B4,
Greenvile, SC 29615, USA
Phone: (864) 288-9813
Fax: (864) 288-9799
e-mail: irtinc@irtscanmaster.com

An EVS Company