ScanMaster Ultrasonic Inspection Solutions











Defining Performance Standards Through Sound Solutions ScanMaster manufactures quality instrumentation, automated ultrasonic inspection & imaging systems and transducers. ScanMaster products are used in a wide range of industrial, laboratory and research applications in industries such as Aerospace, Train Rail and Wheel, Pipe, Plate and Automotive.

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About us

Each **ScanMaster** UT system is integrated with a number of core modules, including industrial PC-based digital ultrasonic instrumentation, production-oriented software packages and servo motion control hardware (for applications requiring robotic manipulation). These modules are integrated in application-specific configurations, which are a function of the inspection requirements i.e. speed, number of channels, on-line display and report documentation.

ScanMaster employs its own in-house electronic and software groups, as well as mechanical and application engineering teams for the design, manufacture and testing of standard or customized systems.

We are constantly working on incorporating new and innovative inspection technologies such as ultrasonic phased array systems, which offer the customer flexible and reliable high-speed inspection while reducing mechanical maintenance.

Quality is priority at **ScanMaster**. All ultrasonic instrumentation developed and manufactured by **ScanMaster** leaves the factory fully calibrated according to, and even surpassing, the most stringent industrial standards in force today. Systems are rated for safety and RFI/EMI interference and approved by renowned industry accreditation institutes. **ScanMaster** is ISO 9001 certified.

ScanMaster has installed a multitude of ultrasonic inspection systems with prime contractors and their suppliers throughout the world. **ScanMaster** has representation and service support in North and South America, Asia, Europe, Middle East, and Africa.

For the last twenty years and in the future as well, **ScanMaster** is committed to providing full service and total customer support in order to meet inspection needs in an effective, prompt and supportive fashion.

Aerospace

ScanMaster has been approved by all leading manufacturers in the Aerospace industry, for the supply of automated ultrasonic highresolution C-scan imaging systems.



Transducer beam mapping

ScanMaster's rugged and reliable immersion, squirter and contact ultrasonic inspection systems are designed for multi shift operation in industrial environments.

The integrated imaging systems consist of scanning mechanics, motion control, ultrasonic electronics and data acquisition & post processing software.

ScanMasters' high accuracy scanning mechanics have exceptional resolution and repeatability on all linear and angular axes allowing for scanning of complex part.

The ultrasonic electronics have excellent near-surface flaw resolution, exceptional penetration power and have a high immunity against electromagnetic noise.

Multiple channel and multiple data collection gates allow for real-time C-scan and B-scan imaging.



The extensive real-time and post-scan data processing software includes utilities for analysis, measurement,

signal to noise and advanced flaw evaluation. Standard reports include inspection setup and results. Customized report generation is limited only by one's imagination.

Production or in-service hardware may be inspected utilizing ScanMaster's custom designed scanning tools.

ScanMaster offers both a wide range of standard and custom designed systems per customer requirements.



LS-500 immersion scanner



LS-200 disk inspection system



Inspection report

Applications include:

- Disks
- Winglets
- Spools
- Fan Disks
- Fan Blades
- Shafts
- Honeycomb Structures
- Composites
- Bars
- Billets
- Plates



LS-200b large bar inspection system





DS-200s operator station

Automotive



ScanMaster is a leading supplier to the automotive industry, providing high-end ultrasonic solutions for the inspection of spot welds in production environments.



Hundreds of production-line installations worldwide



Full A-scan report to save, print or export

First in the world to introduce a PC-based UT inspection instrument, ScanMaster continues to lead the market with innovation and creativity. Enhanced features including automatic tools to evaluate spot weld quality:

- On-line operator feedback for probe normality and positioning
- Improved automatic classification of spot welds
- Variety of hardware configurations for various integration and budget needs

Inspections are fully documented, reports are automatically generated during inspection and can be archived as per the most stringent customer defined requirements.

Our instruments are integrated with advanced software algorithms for achieving a high tear down/UT correlation rate. Stationary systems and light weight portables are rugged and reliable. The systems are in use 24 hours per day 7 days per week. Network connectivity is standard and as an option, centralized data management is available for advanced network usage.

Other applications in the automotive industry are: glue bond inspection, motor block immersion systems, laser stitch-weld or longitudinal-weld inspection and in-line inspection of spot welds. In many cases, these solutions are applicable using the same instrument with minimal additional accessories, such as special probes and application specific software modules.

Train Rail Wheel & Axle

Fully computerized automated ultrasonic inspection systems for wheel, axle and inservice rails.



ScanMaster's integrated systems include multi-channel ultrasonics, sophisticated robots, high load capacity mechanics with multiple transducer heads and advanced software. A variety of systems are available for either wheel, axles or combined wheel and axle assemblies. These field proven systems provide fast scanning and accurate data acquisition. Inspection results are displayed and reported in standard or customized formats.

High Speed Rail Inspection System: A fully integrated ultrasonic inspection car fitted with complete mechanical hardware, a transducer sled and a sophisticated couplant system. High-speed digital data acquisition, imaging, process and evaluation modules are included. Powerful software benefits include prediction of the inspected part's degradation and defect propagation, generation of custom or standard reports and analysis.

Rail Inspection System: Mounted on a multi purpose car (Hi-Rail) or towed by a service car. The ultrasonic inspection system detects, displays and evaluates flaws.

Mobile Rail Inspector: A single rail ultrasonic inspector for manual inspection and verification of detect.





Operator's station for high-speed train rail inspection



High-speed train rail inspection system



Mobile rail inspector



Train wheel inspection system

Pipe, Plate and Bars

ScanMaster offers a wide variety of ultrasonic inspection systems for the ferrous and non-ferrous metals industry.

Fully integrated systems include sophisticated multichannel ultrasonic instrumentation, rugged and reliable mechanics, multi axis motion control and user-friendly software.

These systems are designed for continuous heavy duty operation in multi-shift settings while operating in harsh, demanding, industrial environments.

ScanMaster's innovative software provides accurate and detailed results while eliminating false indications, and allows fast, uninterrupted production throughput. A full range of inspection outputs is available including A-, B- and C-scan reports, as well as other customized displays. Our powerful decision-making software tools provide utilities for analysis resulting in accurate evaluation and benefiting customers with time and cost reductions.

ScanMaster's systems are designed in accordance with the highest safety standards, incorporating special hardware and software features to assure operator and machine safety.

Applications include:

- Steel and Aluminum hot-and cold-rolled plates
- Bars, billets, castings and forgings
- Weld and body of spiral and longitudinal SAW/LSAW pipe
- Weld and body of ERW pipe
- Seamless pipe and other tubular products
- Special forged, cast and machined parts





AS-200s off-line pipe inspection of SAW

AS-200e weld inspection in ERW pipe





AS-200 multi channel application and plate inspection

AS-200 multi channel control station

Power Generation

Efficient and reliable ultrasonic inspection of large, polarsymmetrical forgings and castings, such as forged compressor and turbine disks employed in gas turbines for electric power production.



Highly functional and rugged mechanics including a unique servo-driven part rotating platform, which allows for part chucking vertically and accessibility to all surfaces. A selection of special purpose manipulators mounted on a robotic arm can accommodate a high number of transducers allowing enhanced inspection coverage and shorter inspection time.

Specially designed transducers are supplied with the systems including: T-R probes with excellent nearsurface resolution, high-sensitivity longitudinal, angled longitudinal and shear wave probes with superior penetration and resolution.

ScanMaster systems are completely integrated and include highly reliable low noise motion control, multi-channel ultrasonic instrumentation and sophisticated motion control and data collection software. These systems permit fully automated part inspection including set-ups, data acquisition, data analysis and hard-copy reports.

Multiple data collection gates allow for real-time C-scan and B-scan imaging, and a toggle-selected A-scan presentation.

ScanMaster's software provides features such as automatic "Stop on Defect", statistical evaluation of C-scan images, custom-tailored inspection reports, true B-scans and more.

Instrumentation

ScanMaster Instruments and Accessories:



i-100 - Advanced PC based instrument for in-plant or field inspection. Based on Windows 2000/XP[®], the i-100 provides the operator with a flexible and versatile platform combining inspection reporting, networking and archiving capabilities.



upi-100 Multi-Channel - ScanMaster's full-featured ultrasonic instrument with up to 32 channels and programmable I/O ports.

The upi-100 is a full-featured PC-based ultrasonic instrument employing 32-bit PCI architecture. The instrument has a standard analog bandwidth from 1–35 MHz (optional 1-90MHz), programmable square wave pulser, 95dB true gain, 50dB dynamic range DAC, and a range of 2000mm (80") in steel at maximum sampling rates. The upi-100 is well-suited for the most challenging applications.



UT/Mate - Converts your personal computer into a powerful UT instrument by simply connecting UT/Mate to the USB port. UT/Mate innovatively incorporates powerful features, similar to those available in the upi-100 instrument. The device is ready to use by plugging it into any PC/Laptop USB port.

Transducers

ScanMaster manufactures a wide range of high performance ultrasonic transducers.

ScanMaster's standard transducer line includes probes and accessories that are suited and approved for use in the Aerospace, Train Rail and Wheel, Automotive, Pipe, Plate and other applications.

The transducers are robust and reliable and are available in a wide range of focal lengths, frequencies, beam sizes and optimum resolution/sensitivity.

We manufacture immersion, contact, paintbrush and SpotWeld type transducers. A range of incident angles is available to allow for longitudinal and shear wave inspection.

Accessories such as holder assemblies, shoes, coupling gel and cables are available for different applications.

All transducers are provided with calibration certificates and an optional beam mapping report.



SpotWeld transducer inspection - standard and extended report





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