

# USL

Ultrasonic Sciences Ltd

## Ultrasonic immersion systems for production and laboratory

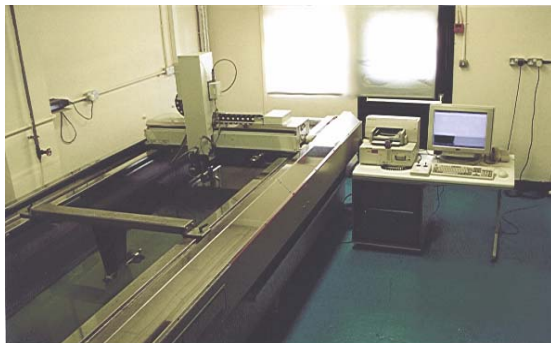


- Systems from 0.3 to over 30 metres long
- 2 to 10 axis configuration
- Contour following systems for complex curves. Auto alignment for unknown surface profiles.
- Multi probe systems for high throughput
- PC based high gain - ultra low noise ultrasonics
- Multiple gate C scan, B scan, thickness mapping, volume scan
- High speed automated production units
- Phased array capability

USL immersion units range from high frequency scanners for application in a laboratory environment, to multi channel systems over 20 metres long for inspection of aerospace plate.

Systems are designed and manufactured entirely in-house by USL, so you can be assured of a fully integrated system to meet your specific requirements.

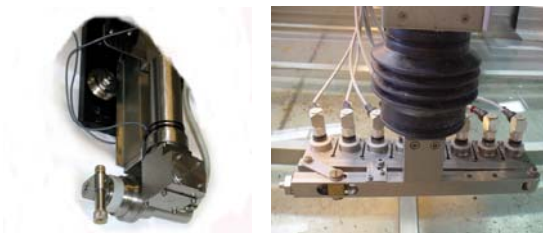
Unlike other suppliers of systems, we insist on using high quality components in both mechanical and electronic units to ensure reliable operation under arduous conditions.



6 axis system designed for pulse echo inspection of complex aerospace products - in continuous production use

Systems can range from simple 2 axis units for C scan inspection of flat parts, to multi-axis machines for automatic scanning of components with a complex shape.

A variety of different probe manipulators can be incorporated - gimbal/gimbal, gimbal/rotate or goniometric, according to the part shape and complexity.



Manipulators for multi axis contour following (left) and for high throughput using multiple probes (right)

If our existing systems don't meet your needs, we are always willing to discuss your special requirements and to propose a solution.

## System features

### Mechanical

- Systems with 2 to 10 axes
- Any combination of linear, manipulator, turntable, chuck rotate and bar rotate axes
- DC servo or stepper motor drive
- Rack and pinion, ballscrew or belt drive
- High quality linear bearings (NSK type) giving long life under arduous conditions
- Precision optical encoders on all axes
- Resolution down to 2um, repeatability down to 5um (dependent on system type and application)
- All immersed metallic components are stainless steel or titanium alloy
- Pulse echo and through transmission systems with simultaneous data acquisition
- Precision manipulators - gimbal/gimbal, gimbal/rotate and goniometric

### Ultrasonics

- Fully integrated PC-based ultrasonics, data acquisition and motion control
- Fully production hardened for noise immunity
- Exceptional S/N ratio and near surface resolution
- Digital A scan display with fast update rate
- Up to 8 independent gates per channel - amplitude, time of flight and phase monitoring
- Automated self calibration is available.
- Multi-channel, multi-gate data acquisition at PRF's up to 25kHz.
- Frequency range from <0.5MHz to >50MHz

### Software

- Windows 2000 applications.
- A, B and C scan display in real time
- Storage, recall and automatic setup for all test parameters
- Programmed gate changes and auto gate setting ("elastic gates")
- Display of images from multiple gates simultaneously
- Full RF data acquisition and processing
- On screen measurement and analysis
- Multi axis motion control for complex shapes
- Options for auto sensing of part shape and self teaching capability, dynamic in some cases.
- Automatic defect evaluation options
- Interfaces to factory network and mainframe computers

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