

# RotoArray™

The power of an immersion C-scan system in the palm of your hand



# The RotoArray is a portable, manually operated, phased array, ultrasonic inspection device which can be connected to any suitable phased array flaw detection instrument to allow rapid scanning of a wide variety of materials and components.

Well suited for scanning composite and aluminum aerospace components, the RotoArray can provide A, B & C-scan images that are achieved with the simplicity of a handheld probe and with performance rivaling that of a full immersion C-scan system.

The RotoArray can complement or replace immersion scanning systems in a manufacturing environment, while being equally functional inspecting in the field or laboratory. It is ideal for scanning aircraft on the ground for collision damage, post-repair and other inspections.

## RotoArray: Manually operated phased array ultrasonic scanning platform RotoArray Service Station

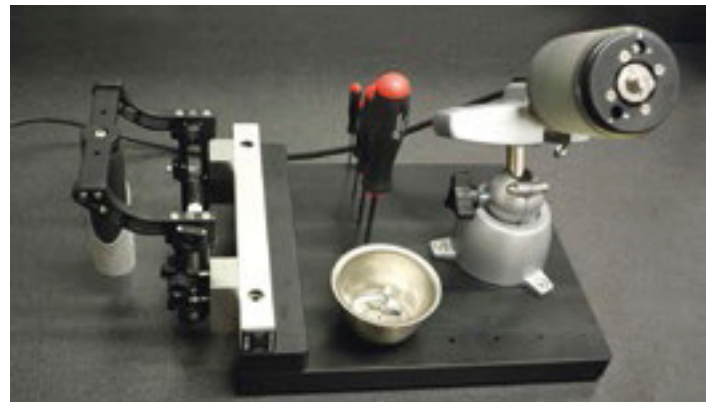
### System description

The compact and lightweight RotoArray can be configured for left or right hand operators. The RotoArray consists of a linear, 64 element ultrasonic array contained within a tire, which is inflated with a fluid to create a flexible coupling chamber between the array and the test piece. The tire is fitted within a scanning cart and the complete assembly is rolled along the surface to be inspected to scan for flaws, delaminations, or other discontinuities. An innovative direct-drive magnetic encoder, which operates without belts, pulleys or gears, provides positional data and is connected to a phased array flaw detector, such as Waygate Technologies Phasor XS, which displays and stores the results. A panel of three switches with associated cables is available to remotely operate features such as "scan-start", "scan-stop", "scan-clear", and "scan-index" on suitably equipped instruments.



RotoArray is supplied with a comprehensive digital guide, that carefully and simply explains the system's capabilities, operation and maintenance using tailored video tutorials and pictures.

In addition, the RotoArray Service Station allows users to maximize system up-time by providing a customized workbench and the relevant tools to carry out routine maintenance and repair.



RotoArray Service Station

## Key benefits

- Is so **portable** that it puts the power of an immersion C-scan system in the palm of your hand
- Is **quick and simple**, with minimal setup
- **Replaces or compliments** full immersion tank and squirter system scanning
- Provides **fast and reliable** portable scanning, with A, B and C-scan data
- Is **light weight and ergonomically** designed, with torque resistant grips which can be adjusted for left-hand and right hand operation
- Standard models are **available with 3 connectors**: Tyco (Phasor XS™), Ipex (Omniscan™) and Hypertronics™ (Tomoscan™, UTXX™, etc) and **other connectors can be custom ordered**
- Is supplied with a **Service Station** to allow users to carry out simple repairs and configuration adjustments, such as tire replacement and air purging without factory assistance
- Features **easy coupling** with no need for complicated irrigation systems
- Is supplied with a **comprehensive digital guide**
- Features a **unique, direct-drive encoder** with no belts, pulleys or gears assuring backlash-free reliability
- Platform is designed to be **scalable** and arrays can be **customized** to solve new applications.

## Rapid scanning of composite surfaces and structures

The first standard versions of the RotoArray scanning platform are designed primarily for the inspection of aerospace materials such as composite and aluminum, although the platform can be used for flaw detection and thickness measurement in a wide range of materials. Waygate Technologies will continue to support and nurture further potential applications as they are identified.

Composite and aluminum materials find their major application in the aerospace sector, where strength-weight ratios are of great importance. The automotive sector is also making increasing use of composite structures and assemblies.

The RotoArray can be used for inspection during manufacturing as well as for the inspection of damage of aircraft in service.

In manufacturing, the RotoArray can be used as an alternative to existing immersion inspection systems. Examples include inspection of smaller parts and special parts, or to quickly re-scan areas of interest, which would normally require extensive set-up in an immersion system. Also, it can be used on the flight-line to inspect aircraft which have been damaged in slight collisions, for example with baggage carts. In either case, the inspector can obtain reliable and meaningful inspection data to allow the correct decisions to be made regarding the disposition of the part or aircraft.

## Typical RotoArray applications

- Inspection of composite plates, stiffeners and cylinders to check for delaminations, porosity, disbonds, etc.
- Providing complementary inspection for composite panels that have holes through which bubbler or squirter water can leak causing couplant problems
- Providing enhanced capabilities to scan from the “rougher side” of composites
- Inspection of composite wind turbine blades
- Inspection of composite aerospace structures, both during manufacture and in service
- Inspection of some components which are conventionally inspected by immersion/bubbler systems
- Inspection of aluminium aircraft skins and other metal structures for corrosion
- Inspection for flaws and corrosion in various metals
- Utilizing the flexible rolling core of the RotoArray as the scanning head in automatic and semi-automatic scanning systems.



# Everything you want to know about RotoArray and MORE is available on our website. Please visit us and find your perfect RotoArray probe!

Complete details of the RotoArray, including access to the many videos in the RotoArray Digital Guide, the ability to select and configure your RotoArray, and the ability to electronically request information and quotations sent directly to your email address, are available on the RotoArray Tab of [UTprobes.com](http://UTprobes.com)

