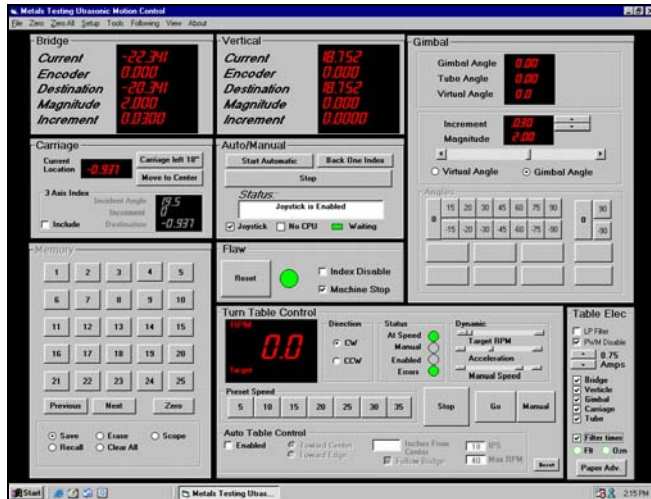


# Immersion Tank Motion Control Systems

## Overview

MTC Systems has developed an advanced motion control system that is being used on a daily basis within Metals Testing Company's production facility environment to inspect a wide range of parts. Its capabilities and features are described herein.



User Interface Display on MTC Motion Control System

## Standalone Motion Control System

The motion control system developed by MTC Systems is a self contained, standalone system. It is composed of standard off-the-shelf components from leading motion control system suppliers. The system, however, has been customized in both hardware configuration, and software control and user interface by MTC Systems.

## Types of Control Currently Available

- ❑ Simple raster scans, any 2 non-rotating axes, one scanning axis and one index axis
- ❑ Simple rotational scans, typically using turntable based scanning axis plus one index axis
- ❑ Body-of-Revolution (BOR) "silhouette profile" complex rotational scans, typically involving a turntable scanning axis and multiple axes for each index move.
- ❑ Enhanced raster scans to handle non-rectangular shapes, such as a pentagon.
- ❑ Complex Contour Following (CCF) raster scanning, the ability to change multiple axes *during a scanning stroke* in a non-rotating application.

## Basic Functions

### Common to all Scanning

- ❑ User Friendly Interface
- ❑ Ability to handle tight accuracies associated with detecting small flaw sizes. Scanning large areas on a data acquisition grid of .001" to .005" is not uncommon to be done with the MTC motion control system.
- ❑ Automated, joystick or keyboard (seek) control
- ❑ Adjustable acceleration and speeds
- ❑ Teach & Learn
- ❑ Automated Scan Areas
- ❑ Adjustable Corrections for Mechanical Variations
- ❑ Adjustable Gates
- ❑ Integrated Pulse-on-Position C-Scan data acquisition
- ❑ High speed data acquisition

### Rotational Scanning

- ❑ Turntable control and index axis control
- ❑ Stop on Defect, halts indexing
- ❑ BOR profile control mode

### Raster Scanning

- ❑ Any combination of X, Y, or Z linear axes.
- ❑ CCF capability for motion control streaming during scanning stroke, in addition to our normal multiple axes moves during indexing.
- ❑ Ability to download CAD drawing information to use with respect to motion control commands.

## Application Examples

- ❑ Flat Pentagon Bondments, enhanced raster
- ❑ Bell Shaped Disk Forgings, BOR
- ❑ Concave Aircraft Blade Forgings, CCF
- ❑ Advanced Aircraft Blade Bondlines, CCF



Third Generation CCF Interface Screen (Customer Info Blanked Out)

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