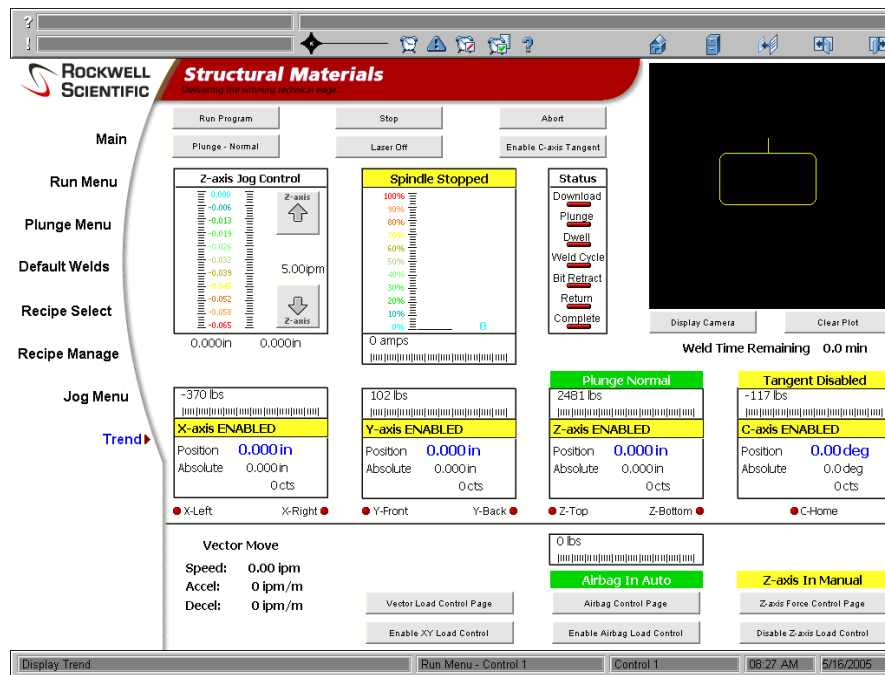


Overview

For over 40 years, Rockwell Scientific Company has embraced innovation in science and engineering. Initially, focused solely on R&D for the U.S. Government and Rockwell International Corporation, today they have expanded their customer base, and offer cutting-edge R&D services, products, and technology licensing. Part of their R&D includes significant work in friction stir welding, a process where a rotating pin penetrates the joint and rapidly friction heats and softens a column of metal while the shoulder creates additional frictional heat containing the weld. Enterprise Automation was hired to re-engineer the control system for an existing friction stir welding machine. Enterprise Automation implemented a new motion control package to provide for more accurate and flexible motion profiles.

Solution

Think and Do, from Phoenix Contact, was used to control this system. It was chosen for its ability to interact with the many different types of I/O involved in this job. CitectSCADA was utilized for enhanced visualization, trending capabilities, and recipe handling. The motion control package, 5-axis servo, utilized a Galil motion control card controlled by Think and Do which was programmed for multiple weld profiles/recipes. The customer required these tests be flexible enough to allow the operator to change many of the weld parameters. In addition to the standard weld recipes, the CitectSCADA/Think and Do software solution allowed for Rockwell to create new welds by importing AutoCAD drawing files directly.



Technology

CitectSCADA communicated to Think and Do's OPC server which communicated via Ethernet to the Automation Direct I/O and controlled the 5 servo PCI based Galil motion controller card. A workstation computer with mirrored hard drives was used for the CitectSCADA and Think and Do software. This unit was placed in service 1st Quarter 2004 and continues to be used today.