

Robotic Assembly – Ultrasonic Welding System



When to use a Robotic Assembly Solution

This type of system provides:

- Ability to assemble multiple part types
- Intricate part handling
- Small footprint
- Future part types can be added with limited additional capital
- Flexible system that allows for multiple platforms



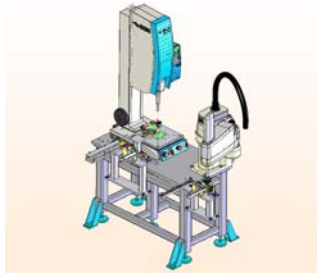
Equipment Specifications

System Requirements

- Assemble four components
- Ultrasonic weld the assembly

Production rates

- 6-second average cycle time



Part Assembly Process

- Vibratory bowls and inline both feed and orient the following parts:

- 1) Piston
- 2) Cap
- 3) Diaphragm
- 4) Housing



Piston

Cap



Diaphragm

Housing

- The parts are positioned for robot pick up



Station # 1

Drive End Cap Assembly

- SCARA robot picks and assembles the housing and diaphragm
- The piston/cap assembly is picked from staging nest
- The completed assembly is loaded to weld station



Station # 2

Robotic Pick to Ultrasonic welder

- The 180 degree dual part fixture spins the assembly to the welder
- The part is ultrasonically welded
- All rejected parts are quarantined in a reject bin under the table



Progressive Automated Systems ~

550 Trillium Drive Unit # 3 ~ Kitchener, Ontario ~ N2R 1K3

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Robotic Assembly – Ultrasonic Welding System

Controls System

- Adept 800i SCARA robot
- Allen Bradley CompactLogix™ PLC
- PanelView Plus 700 touch screen
- All programs allow full automatic and manual operation of the system
- Operator interface is programmed to display system status through color and graphical representation
- System faults are detailed with station/device description and PLC I/O address



Mechanical Quality Standards

- Welded structural steel machine frame
- Blanchard ground, nickel flashed table tops
- All machined surfaces are plated or painted to inhibit rusting
- All machined areas subject to wear will be hardened
- Main airline filter/regulator c/w quick dump and soft start
- Flow control fittings on cylinder ports
- Part present sensors at all critical locations



Machine Safety

- Third-party engineering safety inspection completed
- Perimeter guarding with access doors and safety switches
- American National Standards Institute (ANSI)
- CSA Z432-1999 - Safeguarding of Machinery Standard
- Ontario Electrical Authority Code
- CSA Z434-2003 - Industrial Robot Safety Standard
- Risk assessment completed during design (FMEA)



Progressive has experience with all types of Robotic applications

We will customize the system to your specific automation requirements

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