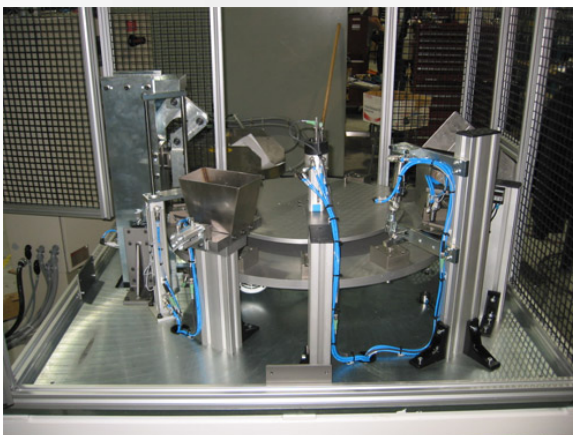


## SOAP PUMP ASSEMBLY MACHINE

### *Automation Solution for the Hygiene Industry*

Designed and built by TCA to improve the cycle-time of manufacturing operations for a customer in the hygiene industry, this 20' x 30' machine incorporates eight different stations to assemble and test the five main components of a soap pump - check valve, cylinder, piston, stack vent, and cap.



After components are loaded, the check valve is installed to the cylinder and leak tested, and then the sealed assembly is pressure tested and lubricated before the piston is inserted. This 3-part assembly is leak tested, the stack vent installed, and the now 4-piece assembly is laser marked for identification. After the cap is installed, good parts are unloaded and failed ones are diverted to a reject station. This machine incorporates pneumatic pick and place units to transfer parts from station to station during the entire operation, and the cycle time at each station is a mere 4 seconds, allowing production of up to 900 units every hour.

A full system run-off was conducted prior to shipment. Our engineers supervised the installation, including all necessary electrical work, and ensured it was precisely level for optimal operation. We also provided full documentation and operator training.

# HIGHLIGHTS

## PROJECT DESCRIPTION

We designed and manufactured this assembly machine for a soap pump assembly application.

## CAPABILITIES APPLIED / PROCESSES

Mechanical Design

- Design Assembly Machine
- Created 3-D Models

Manufactured in-house using our CAD/CAM equipment and capabilities.

Documentation

- Hard-Copy & CD-ROM of Operating Manuals
- AutoCAD Assembly Drawings, and Schematics

Supervision of Site Installation

Commissioning of System

- Electrical Installation
- Leveling

Installation

Training

Warranty

- 1 Year Warranty up to 3,000 Hours Running Time

## OVERALL SYSTEM DIMENSIONS

20 ft X 30 ft

## OVERALL LEAD TIME

18 weeks

## CYCLE TIME

Each Station is Capable of Cycling Every 4 Seconds

## ASSEMBLY MACHINE LAY-OUT

Assembles 5 Main Components of Soap Pump in 8 Stations

Station 1

- Load Station w/ Pneumatic Pick and Place

Station 2

- Check Valve Install Station w/ Pneumatic Pick and Place

Station 3

- Check Valve Leak test Station
- Cylinder to Seal The Cylinder and Pressurize and Test the Check Valve

Station 4

- Cylinder Lube Station
- Heated Lubricant Tank w/ Internal Pump
- Pumps Lubricant into an Overflow Tray
- Applicator Cycles from Tray to Lubricate the Cylinder

Station 5

- Piston Insertion/Leak Test Station
- Pneumatic Pick and Place

Station 6

- Stack Vent Install/Laser Mark Station
- Pneumatic Pick and Place to Install the Stack Vent from Bottom

Station 7

- Cap Install/Good part Unload Station
- Pneumatic Pick and Place

Station 8

- Reject Station
- Pneumatic Pick and Place
- Cycles to Remove Every Cylinder from the Nest

## ABOUT TCA TECHNOLOGIES

TCA Technologies is a leader in the design and manufacturing of custom industrial automation equipment. Building on 20 years of industry experience, TCA employs the most innovative technological solutions to conceptualize, develop, and execute cutting-edge automated manufacturing systems. A team of experienced engineers have developed manufacturing solutions for a variety of fields such as R&D prototyping, welding, assembly, leak testing, material handling, plastics and composites, vision and accuracy. Catering to some of the world's most successful manufacturers, TCA strives for excellence by developing sophisticated new or improved systems for industries such as automotive, energy, health sciences, electronics, and consumer products.