

Product Name: Torque/Leak Test Machine

Product Description: Design and build a machine base, with controls, to operate interchangeable torque / leak test fixtures. Fixtures required to be easily and quickly changed

Overall Part Dimensions: Machine Base: 40 wide x 36 deep
Fixture Base: 30 wide x 16 deep

Operational Cycle Times: Tooling Operation: 2 Seconds
Leak Test Cycle: 10 Seconds
Operator Duties: 8 Seconds

Torque Value: Adjustable by changing the parameters set in the torque controller

Leak Test Value: Adjustable by changing the parameters set in the Leak Test controller

Machine Controls: Machine Controls Operator interface: Maple Systems Programmable Interface
PLC : Allen Bradley
Pneumatic Valves: Festo
Torque Controller: Atlas Copco - Power Focus Controller
Leak Test Controller: Cincinnati Test Systems - Sentinel I28

Engineering & Fabrication

Processes Applied:

Primary:

Engineering/Design
Product Development
Fabrication
CNC Milling
Welding
Grinding

Secondary:

Powder Coating
Painting
Black Oxide
Assembly

Equipment Used to Manufacture machine and fixtures:

CNC Mill
Manual Mills
Manual Drills
Manual Grinders
Automatic Grinders
Manual Lathe
Inspection Tools

Hand Tools
Gage Pins
Gage Blocks
Height Gages
Micrometers
Dial Caliper

Material Used:

Machine Base

Square Tubing
2" x 2" x 3/16 wall

Hot Rolled Steel Base Plate
Thickness: 5/8"

Guarding

Sheet Metal: 16 GA
Outside Panels: 16 GA Expanded Metal framed with C-Channel

Fixture Base

Aluminum

Fixture Tooling: made from a combination of material

Hot rolled steel

1018 steel

A2 steel

S7 Tool steel

All tooling subject to wear is heat treated for longevity

Material Finish:

Machine Base: Powder Coated

Guarding: Paint Yellow and Black

Fixture Details: Black Oxide

Inspections / In Process testing:

Dimensional Inspection, Gage Inspection, Functionality Tests

Standards Met:

Customer Specifications, CAD Drawing

Industry for Use:

Automotive Industry

Aerospace Industry

Appliance Industry

Agricultural Industry

Delivery Location:

Bloomington, Illinois