

# APPLICATION BRIEF

## 2020

## PRESSURE LEAK TEST SYSTEM

### Brief Description:

Emerging Technologies, LLC was called upon to design and build a custom Pressure Leak Test System. The system was required to pressure the device under test and verify the pressure was maintained within specification over a period of time. The system was planned as standalone system to leak test two different part numbers of sheet metal product.

Two DUT halves to share a common fixture. The DUT halves were to be manually placed, and then automatically clamped in preparation for the test. Light curtain safety controls are required to protect the operator during the clamping process.

Emerging Technologies partner, Mechanical Research and Design, developed seals, seal molds, fixture and fixture clamping, while Emerging Technologies developed operator safety controls, electrical design, pneumatic design, custom test application, operator interface configuration, data acquisition, and DUT pass/fail indication.

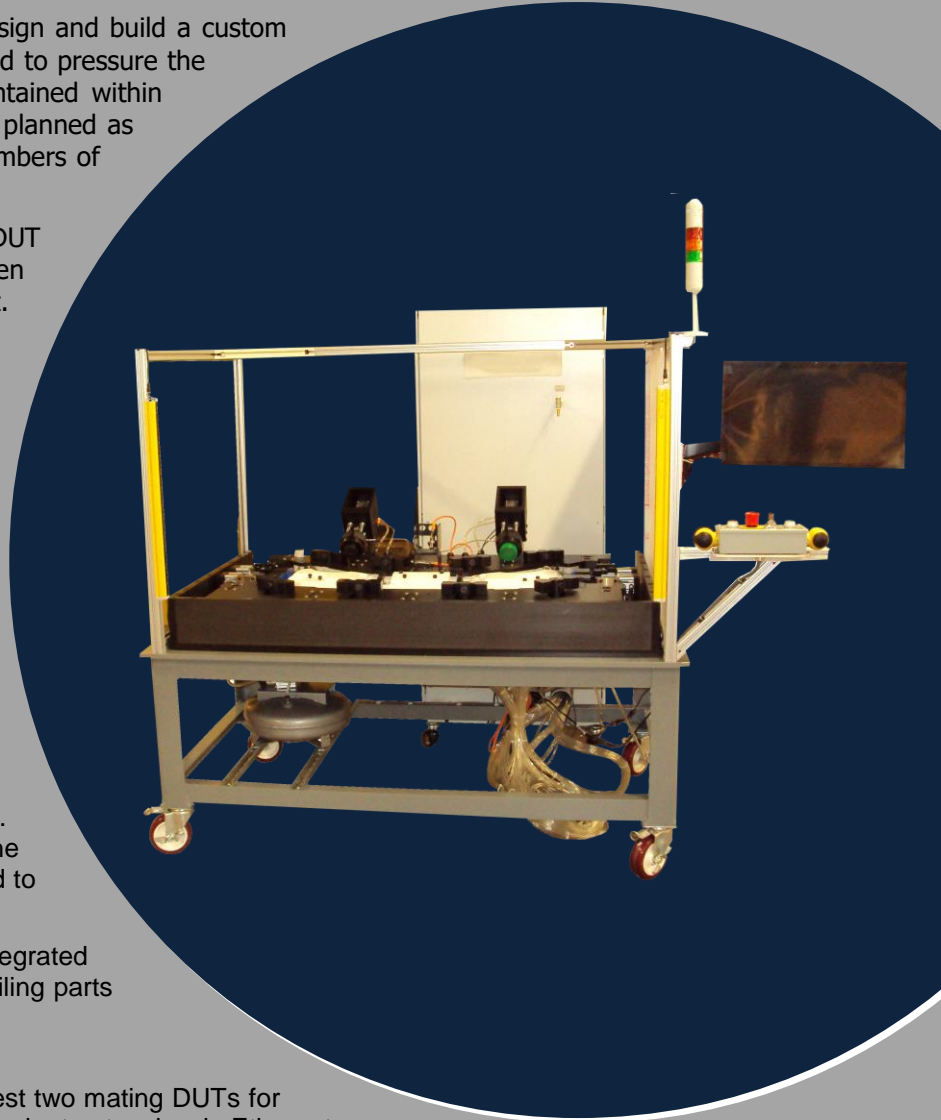
Basic guarding was required, which consisted of aluminum panels on three sides with light curtain across the front.

The complete design was prepared and reviewed with the customer prior to fabrication of the system. The system was then fabricated, installed at the customer site, validated, and modified where required to ensure compliance with the test requirements.

Additionally, a separate set of light curtains was integrated and tracked by the system to confirm passing and failing parts were stored in the correct bins post testing.

### Customer Benefit:

The operators are able to automatically individually test two mating DUTs for leaks prior to final assembly. Results are stored to the plant networks via Ethernet connection and are available for review post shipment if needed.



### ET Responsibilities:

- Functional Specification Generation
- ✓ Design / Engineering
- ✓ Fabrication
- ✓ Programming – Software
- Programming – Firmware
- Circuit & PCB Design
- ✓ On-Site Commissioning
- ✓ Post Commissioning Support
- Other

### Technologies:

- Embedded Computers
- Microcontrollers
- Visual Software
- ✓ Control Software
- ✓ Data Acquisition
- ✓ Computer Based Control
- ✓ Communications – Enet
- System Integration
- ✓ Other - Pneumatics

### Special Features:

- ✓ Custom designed and fabricated DUT mating seals
- ✓ Light curtains for easy and safe operator access
- ✓ Heavy duty machine base table
- ✓ Pressure metering hardware
- ✓ Quick air dump capability to speed testing
- ✓ Automated clamping activated vis two hand control
- ✓ Network connectivity for results storage
- ✓ Optional post-test processing hardware