Application Brief
2020

Emerging Technologies

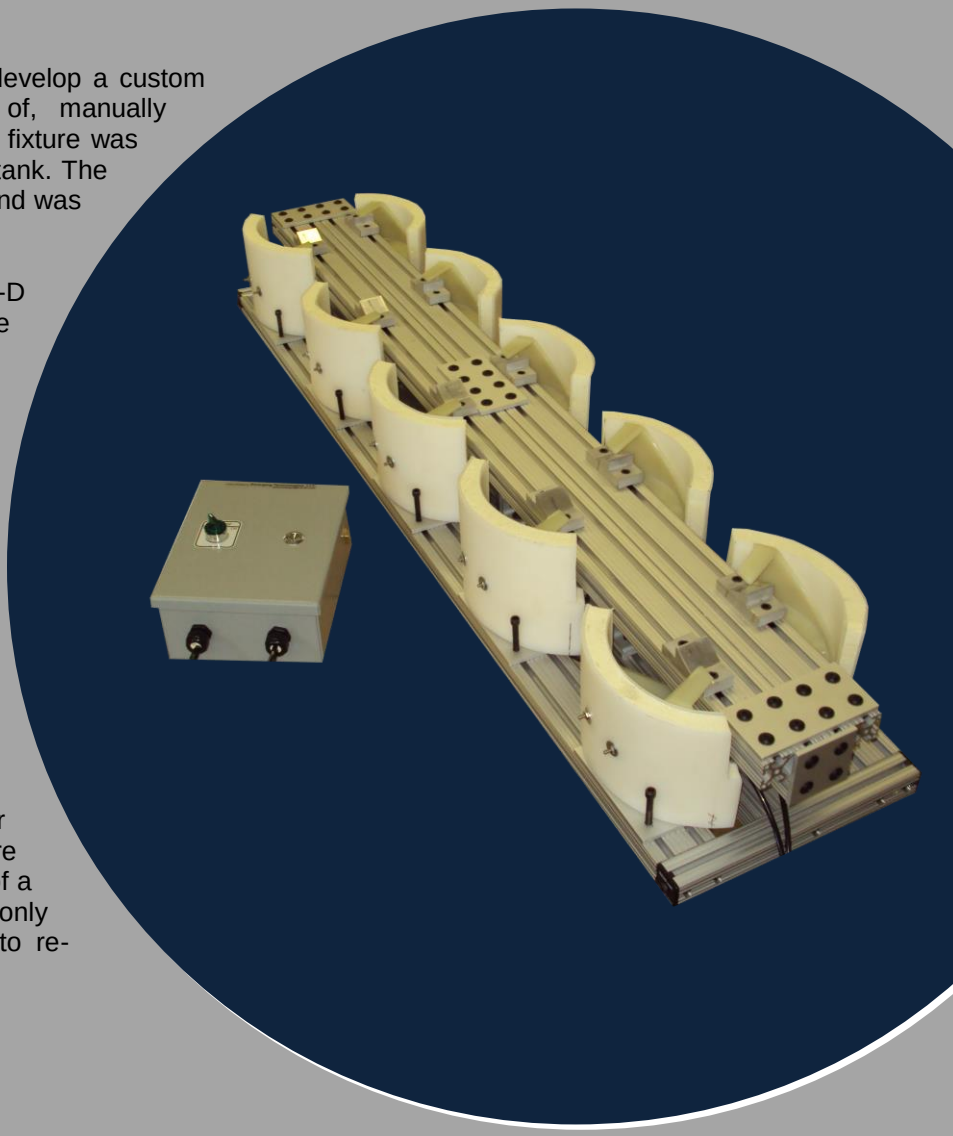
Automated Deflection Durability Test Fixture

Brief Description:

Emerging Technologies, LLC was called upon to develop a custom durability test system to create many cycles of, manually adjustable deflection, of multiple plastic parts. The fixture was to be operated while submerged in a chilled water tank. The system was to be kept as rudimentary as possible and was to be used for a single two week durability test.

The new design was created using SolidWorks for 3-D modeling. Ten DUTs were split into two banks of five to reduce the overall size of the fixture and reduce the force required to perform the tests. Each of the ten DUT stations provided mounting for the DUT with independently adjustable deflection cams. The amount of deflection of the plastic parts along with the speed of operation is adjustable. Additionally, the system keeps track of the number of operations until reset by the operator.

This system includes the adjustable and submersible mechanical fixture with actuators, and electrical controls and counting components.



Customer Benefit:

The customer is able to perform automated under water product testing in a refrigerated temperature environment. The low cost design allowed running of a single test to be feasible. The modular design not only allows for significant adjustability but lends itself to re-configuration for future testing.

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 – Cycle Counting
- Computer Based Control
- Communications
- System Integration
- ✓ Other – 3-D Modeling
- ✓ Other – Pneumatic Assist Swingarm

Special Features:
- ✓ Low Cost Simplistic Design.
- ✓ Submersible Operation.
- ✓ Per DUT Adjustable Deflection.
- ✓ Adjustable Speed Control.
- ✓ Resettable Operations Counter.

(920) 793-2782