

# Servo Hydraulic Vibration Systems



## DESIGN REQUIREMENTS PER OUR CUSTOMERS' REQUEST

- **FLEXIBILITY**  
Sizes and specifications designed to meet your particular needs
- **RELIABILITY**  
Thoroughly tested and proven by DTE before shipping to your facility
- **EASE OF USE**  
Technician friendly with clearly labeled ports and tool clearances
- **WORLDWIDE SERVICE CAPABILITIES**  
On-site availability and the use of non-proprietary components

## DTE IS THE LEADING SOURCE FOR COMPLETE SYSTEM INTEGRATION, FROM THE DEVELOPMENT OF PROJECT SPECIFICATIONS TO INSTALLATION WITH CONTINUED SUPPORT AND SERVICE

Dynamic Testing and Equipment has provided servo-hydraulic solutions to the testing industry for over 15 years! DTE's founding partners have extensive experience and a passion for servo-hydraulics and servo hydraulic test systems. This knowledge gives them the aptitude to design and build a broad range of single and multi-axis vibration systems.

DTE's servo hydraulic vibration systems provide a means to evaluate product designs and materials, helping our customers develop reliable yet cost effective products quickly and easily. Many years of experience in shock and vibration testing gives DTE engineers their confidence and the ability to configure a

custom machine that meets your specifications. Our Vibration Research servo hydraulic vibration controller includes a number of ISTA, IEEE test templates for ease of test set-up. Today, vibration systems manufactured by DTE are being utilized on a global scale.

Dynamic Testing and Equipment offers a full range of complete single and multi-axial vibration systems ranging from DC to over 300 Hz. This equipment is used in applications ranging from long stroke applications such as seismic testing to high frequency resonance testing.



DYNAMIC TESTING & EQUIPMENT

# Servo Hydraulic Vibration Systems

THE MODULAR APPROACH DTE HAS DEVELOPED FOR VIBRATION SYSTEMS ALLOWS THE ABILITY TO CONFIGURE A SPECIFIC SYSTEM THROUGH THE USE OF STANDARD COMPONENTS. COMPONENT OPTIONS ARE DESCRIBED BELOW:

Today, DTE's LHB large rod hydrostatic bearing actuators are used worldwide as a result of their reputation for extreme reliability. Their robust design includes the following features generally not found in competitive brands:

- True orifice controlled hydrostatic bearings: Orifice controlled hydrostatic bearings provide higher side load resistance than hydrodynamic bearings found in some actuators.
- Larger piston rods: To provide higher off-center loading capability, DTE provides custom diameter piston rods in custom actuators.
- Practiced use of geometric tolerances insure the actuators are precision built with proper lubrication to critical areas without excessive leakage. Use of labyrinth seals provides long life in high frequency applications.
- Polymer bearings provide a non-galling wear surface in the un-likely event of operation without lubrication fluid in critical areas.
- HVOF coating: For years chrome has been the standard for piston rod surfaces. Research in multiple industries has proven other alternatives exist which provide longer life of both the piston rod and associated seals. DTE utilizes that expertise to provide the testing industry a much more robust solution which yields far longer life than standard chrome rods.



LHA Linear Actuators		
Force Rating <i>Kip</i>	Stroke Range <i>Inches</i>	Rod Diameter <i>Inches</i>
3.3	2-12	2.625
5.5	2-24	2.625
6.3	2-24	2.625
11	2-24	2.625
22	2-24	3.000
35	4-40	3.750
55	4-40	3.750
110	4-40	5.000



LHB Linear Actuators		
Force Rating <i>Kip</i>	Stroke Range <i>Inches</i>	Rod Diameter <i>Inches</i>
3.3	2-12	3.000
5.5	2-24	4.000
6.3	2-24	4.000
11	2-24	4.000
22	2-24	6.000

Reaction Mass	
Weight <i>Lb.</i>	Approximate size <i>Inch</i>
2000	30" x 30" x 8"
4000	38" x 38" x 10"
8000	50" x 50" x 12"

DTE can supply an isolated reaction mass as part of the system, or guide the user through the design and installation of an in-ground system. Our isolated reaction masses include both air bags for low frequency, and dampers for higher frequency isolation.

## Other Fatigue Rated Actuator Designs:

DTE offers a wide range of linear and rotary actuator for the testing industry. Please contact us with your specific requirements.

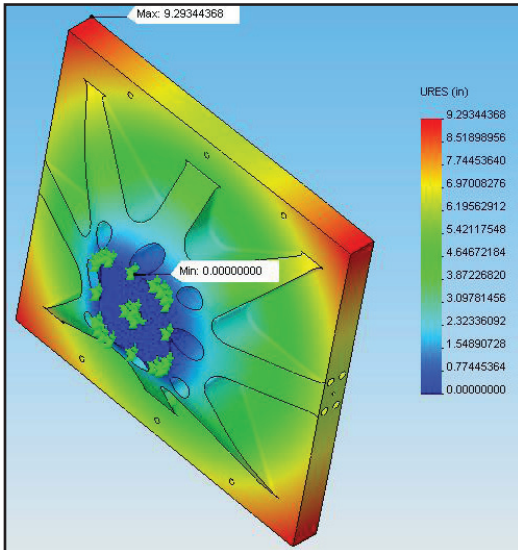
## Actuator Repairs:

As a service to customers DTE repairs fatigue rated actuators, often returning them in better than new condition at a cost far lower than a new model or OEM rebuild.



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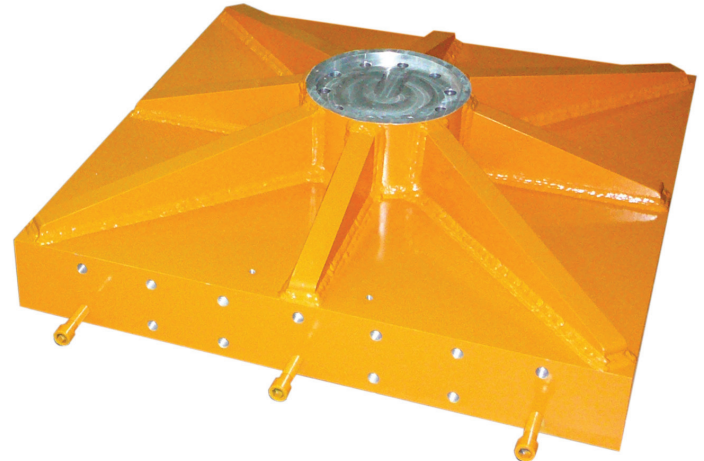


## Head Expanders:

The head expander provides a universal mounting surface for your test article. DTE has provided single and multi-axis tables for numerous applications. Choose from a standard head expander or a custom engineered head expander to suit your specific needs using aluminum or magnesium. DTE can provide either standard or metric hole patterns with inserts.

### Head Expanders

24" X 24"
36" X 36"
48" X 48"
60" X 60"



## Controllers:

### DTE3500

For less complex applications requiring the below functions the DTE 3500 is preferred:

- Sine, square, triangle, haversine waveforms.
- Linear swept sine and gaussian white noise
- External +/-10VDC input
- Time history file playback
- 5 KHz loop closure rate (*soon to be 10KHz!*)

### DTE Inner Loop Controller with VR Controller

Vibration Research (VR) specializes in control of both electro-dynamic and servo-hydraulic shakers. For especially sophisticated vibration applications, DTE interfaces the VR system with our inner loop controller. *Please visit [www.vibration-research.com](http://www.vibration-research.com) for specifications on the VR system.*

*Please contact DTE for your specific requirement. Specifications listed may change at any time.*

## Systems:

DTE configures systems ranging from simple single axis vertical to rotary vibration, and has extensive experience with multi-degree of freedom vibration systems. (See images at right.)



Pitch table for BSR testing of seats- integrated with B&K noise and analysis system



Rotary vibration system with resonant dwell tracking capabilities up to 500 Hz. For testing crankshaft dampers



DYNAMIC TESTING & EQUIPMENT