6 DOF Motion Platform

The 6 degree of freedom (DOF) Motion Platform is a variant of the classic 'Stewart Table' or 'Hexapod' and is similar to those found in flight simulators.

Description

- The top frame of the Motion Platform may be moved in a way that simulates the motion of the deck of a vessel at sea. Equipment intended for marine use may be mounted on the top frame of the platform in order to evaluate it's performance when subjected to the pitch, roll, yaw, heave surge and sway motions normally experienced at sea.

- The top and bottom frames of the Motion Platform are connected by six 'legs'. Each 'leg' consists of a hydraulic cylinder with an associated position sensor attached. The position sensors monitor the extension of the cylinder rods.

- Pressurised oil is supplied to the hydraulic cylinders via dedicated Digital Servo-proportional Directional Valves with integrated position controllers. In this way, the extension of the cylinders may be independently controlled.

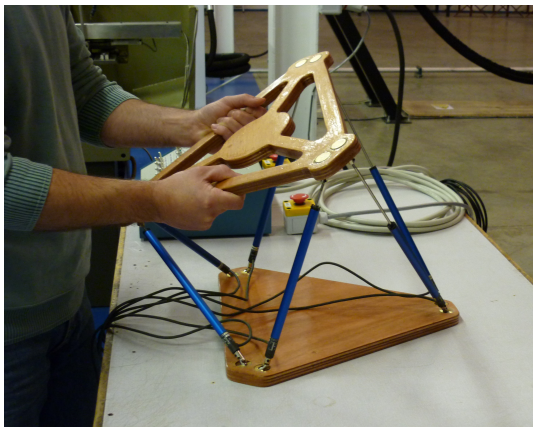
Control

The Motion Platform may be controlled using the following methods:

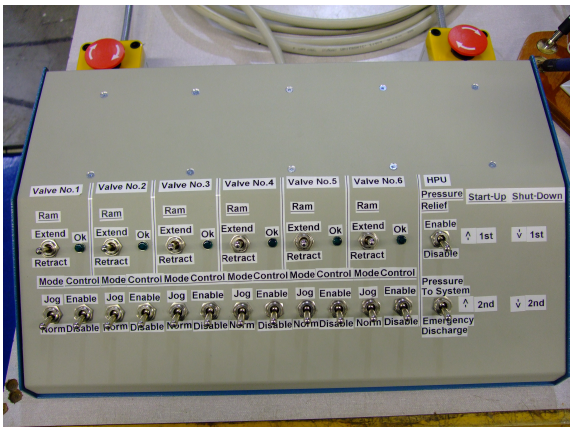
- Digital Hand Control (Open Loop)
  When using this method of control, position demands are provided by simple 'extend/retract' toggle switches mounted on a switch panel. The directional valves are operated in an open loop mode (known as 'Jog Mode').

- Analogue Hand Control (Closed Loop)
  When using this method of control, analogue position demands (variable from -10 to +10 VDC) are provided by an Analogue Hand Controller (AHC) in the form of a 'desktop' hexapod. Control is further enhanced using position feedback (-10 to +10 VDC) derived from the position sensors mounted on each hydraulic cylinder. The directional valves are operated in a closed loop mode (known as 'Normal Mode').

- Computer Control
  When using this method of control, analogue position demands (variable from -10 to +10 VDC) are provided by a Digital-to-Analogue Converter (DAC) connected to a PC running Motion Platform Control software. The directional valves are operated in a closed loop mode. Follow the link below to see a video of the Motion Platform being controlled by a PC:- https://www.youtube.com/watch?v=5cz4mamCYy0



Analogue Hand Control



Digital Hand Control

Performance Capability

• Pitch	± 20°
• Roll	± 20°
• Yaw	± 20°
• Heave	± 0.45m
• Surge	± 0.4m
• Sway	± 0.4m
• Max Payload	8 Tonnes*

* Max payload is dependent on acceleration and range of movement required. If you have a requirement for a particular combination of motions, please contact us for more information.

Size and Weight

• Footprint	2.7m x 2.7m
• Height	1.46m
• Weight of Motion Table	1.5 Tonnes

To enquire about hiring this facility or for more information please contact:
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