



HEXAPODS



TECHNOLOGY



ZEPHYR



Specialists of Hexapods technologies, SYMETRIE employs all its capabilities in calculation, mechanical designs, control software and adjustment to propose you a wide range of Hexapods standard or adapted to your special needs.

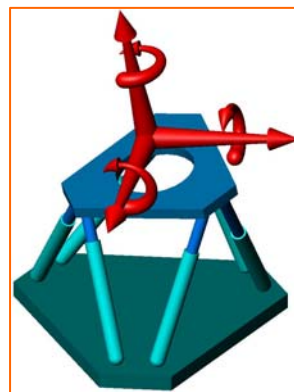
A unique system for 6 Degrees of freedom*

Six identical electro-mechanical actuators connect the mobile platform to the base. Equipped of motors and universal joints, they offers 6 degrees of freedom to the Hexapod: 3 translations (T_x , T_y , T_z) and 3 rotations (R_x , R_y , R_z). Parallel kinematics makes the system more robust (see scheme below) and reduces errors comparatively to serial kinematics.

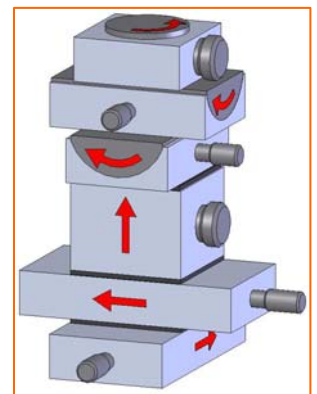
Hexapods realized by SYMETRIE can be dynamic (simulators) or precise (positioning hexapods, measurement hexapods) The low ratio weight on stiffness allows great dynamics with huge payloads.

Serial or parallel kinematics?

Hexapods: A convenient solution for your applications



- No cumulating errors
- Very low ratio weight on stiffness
- Low inertia
- Configurable motion centroid
- Extremely compact
- No moving cables



- Cumulated errors from each structure element
- Errors from the base of the system amplified on each stage.
- Low rigidity
- High ratio weight /stiffness
- Cables in motion
- Fixed motion centroid

- 6 DOF*
- Configurable motion centroid
- Dynamic
- High precision
- Intuitive command software



Symétrie

* 6 DOF : 6 degrees of freedom (T_x , T_y , T_z , R_x , R_y , R_z)



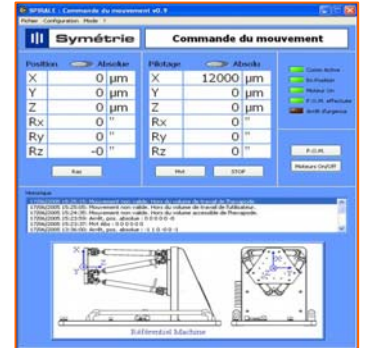
Hexapods technology

Intuitive control

An ergonomic and convivial software provides the control of the system following the six degrees of freedom ($T_x, T_y, T_z, R_x, R_y, R_z$). The control unit can be done also from an industrial automated system.

A simultaneous control of six actuators allows complex motions in real time. The software allows to reproduce accurately motions from specific algorithms. Control can be also done from the mobile platform by typing on the industrial computer simple commands of position.

The setting up of motion centroid and travel limits in the software allows high flexibility in use compared to conventional systems.



Convenient interface

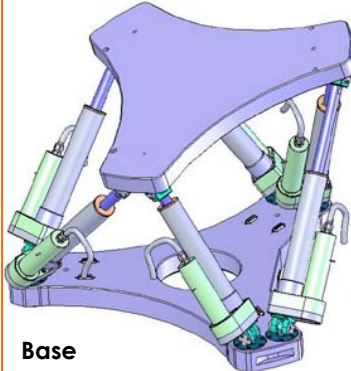
High precision, high payloads

SYMETRIE designs and realize high precision Hexapods associating experience and innovation.

A patented architecture of universal joint allows realisation of Hexapods of $1\mu\text{m}$ precision and $0.1\mu\text{m}$ resolution.

A skilled team associated to R&D actions, help us to realize powerful Hexapods with $1g$ accelerations under 2500 kg payload.

Mobile platform



Base

- **6 identical kinematics links**
- 6 spherical rolling joint
- 6 precision ball screw
- 6 driving motors
- 6 universal joints

Single controller for 6 degrees of freedom

Many applications for industry and scientific research.

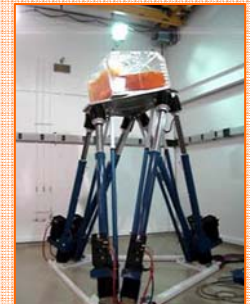
With its experiences for years on huge projects, SYMETRIE realizes HEXAPODS designed for high precision positioning applications (ZEPHYR), motion simulation (MISTRAL / SIROCCO) and positioning adjustment (SONORA). Our all range of Hexapods can be fitted with an other measurement Hexapod to guarantee the exact motion of Hexapods on their travels.



Bench Testing system for automotive industry – D2T

SPECIFIC REALISATIONS

Our wide range of Hexapods is the result of our experience. Adapted to the new needs of industry, we can propose adapted and adaptable solutions for your needs of positioning, simulation and measure. A high skilled team and well known concept allows us to provide you the best solution for your applications.



Swell simulator – GTT

