

Dynamic Motion & Tilt Test Platform

CAPABILITY SHEET · SIX-ACTUATOR MOTION RIG · ENGINEERED TO ORDER

THE SYSTEM

WHAT	A heavy-payload motion and tilt test platform: a moving frame on six electro-mechanical linear actuators that rolls, pitches and bounces a mounted assembly to a commanded profile - so a stabilised system is tuned indoors, not in the field.
STATUS	Engineered to order. Designed, built, installed and commissioned to the customer's payload and motion specification; configuration settled at design review. Not a delivered-product claim.
BASIS	Established motion-simulation practice: multi-actuator platform kinematics, roller-screw electro-mechanical drives, synchronised load sharing, closed-loop control and real-time data acquisition.

ARCHITECTURE

ACTION	6 x electro-mechanical linear actuators - servo motor, planetary or spur gearhead and roller screw in a machined housing. Inbuilt linear position sensor per actuator, independent of motor feedback, plus manual override for recovery.
STRUCTURE	Rigid welded moving frame and base frame; base grouted to a levelled, vibration-isolated concrete foundation with locating holes and covered holding-down points. Foundation analysis submitted for design review.
LOAD SHARING	Pneumatic or hydraulic actuators, or a mass equaliser, active or passive, on a separate controller synchronised with the linear actuators - so the drives are not sized for brief acceleration peaks.

CONTROL & DATA

CONTROL	Platform-kinematics solution gives the length each actuator must take for a commanded angle. Open- and closed-loop operation, variable motion rate, limit switches, inclinometer and speed feedback, alarms, cycle counter.
DATA	Industrial real-time DAQ with modular analogue and digital I/O logs angle, speed and acceleration and stores data for analysis; system health check run before and after actuation.
SIGNALS & SAFETY	A rotary base junction carries instrumentation signals off a rotating payload. Travel limits, alarms on limit, emergency stop at prominent locations and manual actuator override.

APPLICATIONS & ENGAGEMENT

APPLICATIONS	Stabilised platform, sight and gimbal qualification; weapon-station and gun-control-system test rigs for armoured fighting vehicles; antenna and sensor mounts; heavy machinery motion qualification; terrain-profile replay.
STANDARDS	IS 919, IS 2102 and IS 8000 for limits, fits and tolerances. Controller supplied with software development kit and operating system, plus application software for open- and closed-loop operation.
ENGAGEMENT	Send payload mass and inertia, mounting interface, the motion to reproduce, instrumentation list and bay constraints to sales@neometrixgroup.com - compliance matrix within two working days.

DEFENCE PROGRAMMES DESK

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Configuration is engineered to the customer's payload and motion specification; travel, rates and capacities are set at design review. Customer configurations are not published.