UNIVERSITY OF AGDER

Christian Michelsen Research

The Research Council of Norway

MOBILE MOTION LAB

National Research Infrastructure

www.motion-lab.no

In cooperation with the University of Agder, Christian Michelsen Research has established a mobile 6DOF hexapod platform solution for performing motion tests and measurements as extension to the existing Motion Lab facilities at UiA in Grimstad

Example application areas include inertial measurement unit certification, ultrasonic and lidar anemometer verification, maritime landing and personnel transfer gear, and motion compensated crane validation

The platform is mounted on a car trailer, and an integrated diesel power aggregate secures operation independent from test site infrastructure

Motion patterns are fully configurable via pattern generator tools, UDP streaming or playback of recorded motions, e.g. from wave sensors

Mobile Motion Lab is funded by a national research infrastructure grant from the Research Council of Norway

The equipment is available for rent to both academic organizations and industrial parties

For inquiries contact CMR at motionlab@cmr.no

Services rendered

- **Planning and execution of experiments**
- **CAD design and interface adaptations**
- **Computer model simulations**
- **Motion pattern design and generation**
- **3rd Party verification**
- **Data processing and validation**
- **Data analysis and visualization**

6 DOF motion platform 1500 kg payload capacity

Bosch Rexroth Emotion-1500
Electrically driven linear servo actuators

Key performance specifications

Performance (operational, non-simultaneous)

Excursions	pos.	neg.
Surge	0.63 m	- 0.50 m
Sway	0.50 m	- 0.50 m
Heave	0.37 m	- 0.38 m
Roll	24 deg	- 24 deg
Pitch	28 deg	- 25 deg
Yaw	27 deg	- 27 deg

Velocity	
Surge	+/- 0.80 m/s
Sway	+/- 0.81 m/s
Heave	+/- 0.55 m/s
Roll	+/- 34.3 deg/s
Pitch	+/- 37.4 deg/s
Yaw	+/- 41.3 deg/s

Accelerations	Acceleration	Acceleration onset
Surge	+/- 0.7 g	+/- 10 g/s
Sway	+/- 0.7 g	+/- 10 g/s
Heave	+/- 1.0 g	+/- 10 g/s
Roll	+/- 250 deg/s²	+/- 600 deg/s²/s
Pitch	+/- 250 deg/s²	+/- 600 deg/s²/s
Yaw	+/- 500 deg/s²	+/- 900 deg/s²/s

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