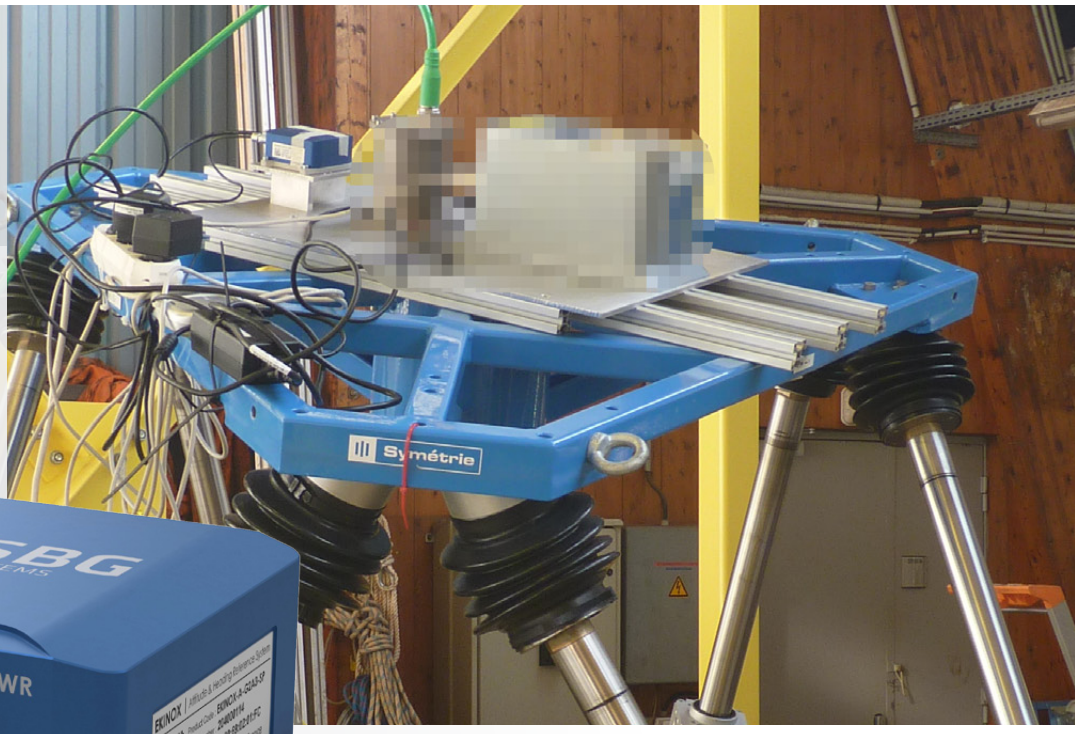
# Ekinox Test Results

TEST ENVIRONMENT

MARINE

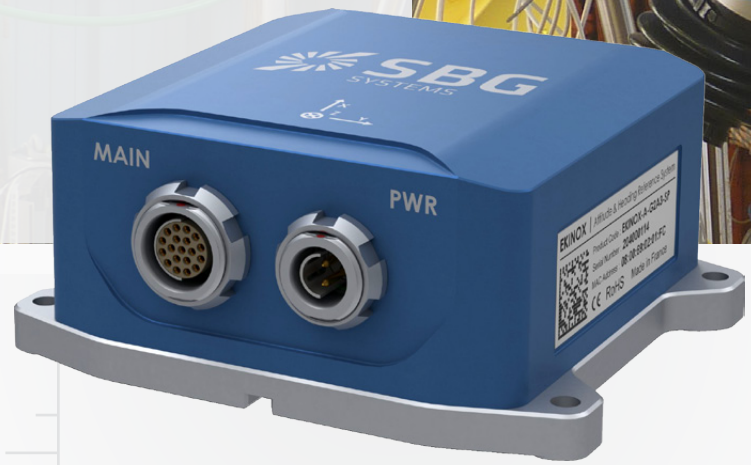



PRODUCT ON TEST

Ekinox Series

## Ekinox-A

Motion Sensor




## TEST CONDITIONS

TESTED PRODUCTS
Ekinox-A Motion Sensor

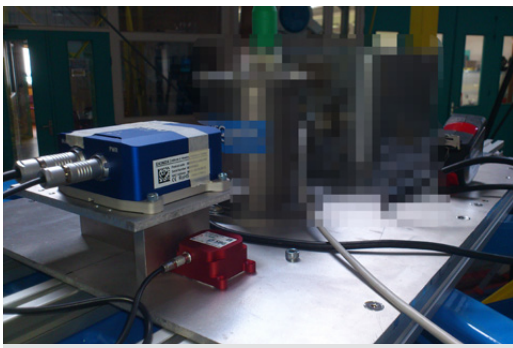
TESTED PERFORMANCE
Heave, Roll, and Pitch

PLACE
Brest (France) at the IFREMER Institute

CONDITIONS
Sea conditions simulated on a Hexapod

The test session simulated a complete 6 degrees of freedom (DOF). The hexapod reproduced various sea conditions while providing accurate reference data. A wide range of heave frequencies and amplitudes have been initiated as well as periods in the range of 5 to 12 s.

The test included eight sessions of five minutes tests and an additional fifteen minutes test to check longer operation periods.



### MOUNTING ON THE HEXAPOD

All tested sensors were mechanically strapped on the Hexapod platform which provides accurate 6 degrees of freedom.

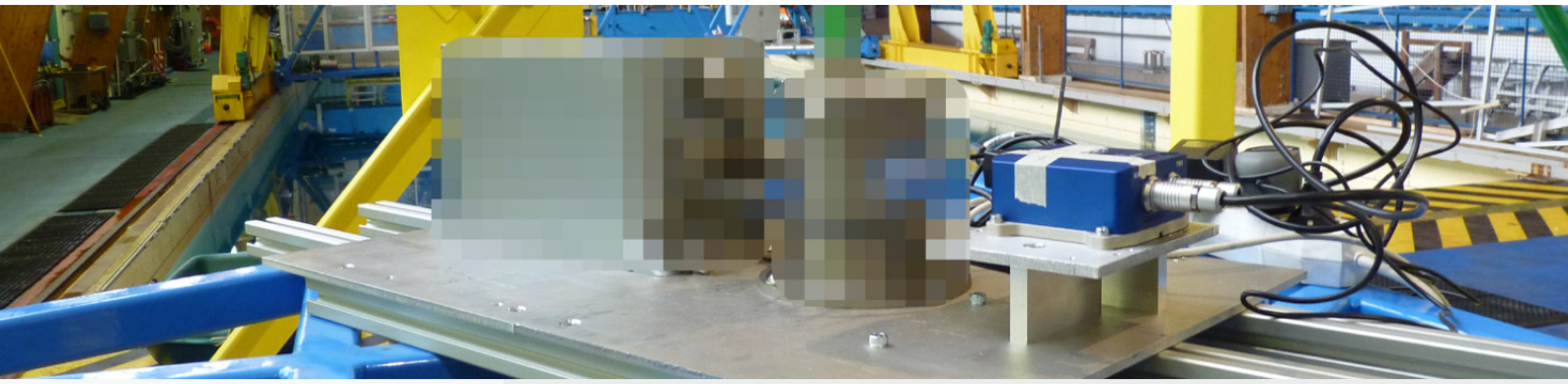
Precision alignment ensured a 0.1° alignment accuracy on roll and pitch angles.

FULL REPORT : Send an email to contact@sbg-systems.com to receive the complete version of this test.

Special thanks to IFREMER Institute and Mr. Pierre Merriaux (IRSEEM and ESIGELEC) who conducted this performance test.

SBG SYSTEMS

# TEST RESULTS



## Overall Results

### ACCURACY

| | Roll | Pitch | Heave |
|---|---|---|---|
| RMS Error | 0.028 | 0.032 | 2.3 |

*RMS errors above represent the mean error obtained during the whole fifteen minutes test session.*

### ROLL, PITCH

A 0.03° RMS accuracy is obtained in roll/pitch angles. This performance level gives a good confidence in reaching the specified 0.05° accuracy under more challenging environments such as rough sea state or vibrating environments.

### HEAVE

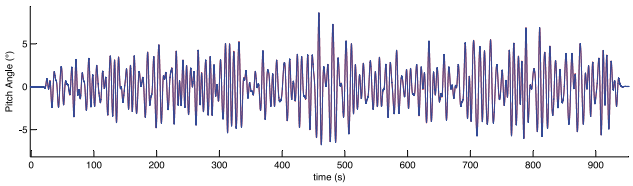
The 5 cm or 5% specification is also reached with a comfortable margin, with less than 2 cm RMS error. Automatic heave period computation ensures that the Ekinox heave filter is always correctly tuned.

## Detailed Results

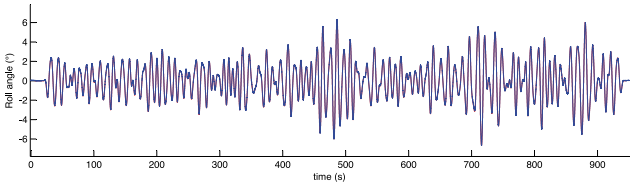
The Hexapod accuracy is much higher than the Ekinox-A. It has been used as a reference for this test.

Hexapod  Ekinox-A

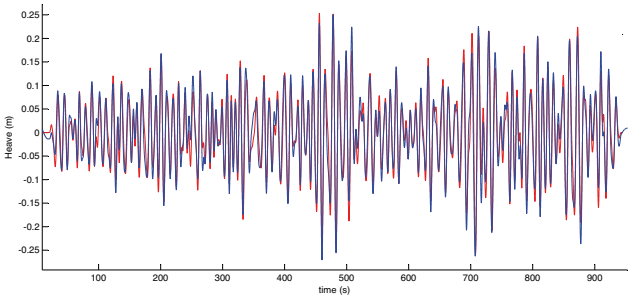
### PITCH




### ROLL




### HEAVE




**Heave Performance can be further improved with GPS Aiding.** *The whole test was performed in "Vertical Gyro" mode, where only a vertical reference is used to stabilize the attitude. In case of harsh environments, a GPS aiding can be used to improve orientation and heave accuracy, even during long term turns or accelerations, and high amplitude swell conditions.*



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