

MGC[®] maintenance & recalibration



KONGSBERG



When to service the MGC[®]

The MGC[®] (Motion Sensor & Gyro Compass) is an IMO type-approved gyro compass designed for maintenance-free operation, requiring no field maintenance or recalibration.

If the MGC is used for purposes other than navigation, a recalibration may be recommended. The need for a recalibration will depend on the roll and pitch requirements for the specific application.

No recalibration is required for applications where only dynamic accuracy is important. Typical applications include:

- Motion compensation of GNSS antennas in dynamic positioning systems
- Heave compensation applications
- Seabed mapping with multi-beam echo sounder where patch tests are carried out
- Fishery sonar compensation
- MGC used as an Inertial Measurement Unit (IMU) in DPS or Seapath products with Automatic Online Calibration

The MGC is also recommended for applications which require high static accuracy in roll and pitch.

The table indicates the expected accuracy over time and serves as a reference for determining when a recalibration may be necessary to maintain the required static roll and pitch accuracy for your application.

MGC R1

	2 years	4 years	6 years
Roll/pitch	0.05°	0.15°	0.30°

MGC R2

	2 years	4 years	6 years
Roll/pitch	0.02°	0.05°	0.09°

MGC R3

	2 years	4 years	6 years
Roll/pitch	0.01°	0.02°	0.03°

Validity of MGC® calibration certificate

An individual Calibration Certificate is generated for each manufactured MGC. The certificate confirms performance for the MGC compared with test requirements valid for the specific type of MGC. The calibration date is printed on the Calibration Certificate. The certificate does not include an expiry date as the MGC will still be working even if there has been a long time since the last calibration.

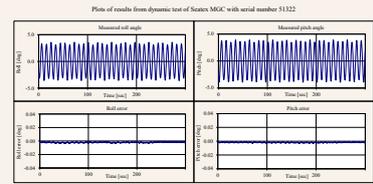
Seatex MGC Calibration Certificate



Seatex MGC model number:	R1	MGC
Serial number:	51322	
Calibration certificate number:	202400151322	

1. Roll and Pitch Accuracy Tests			
Test requirements	Roll	Pitch	Roll and Pitch
Roll rate sensor scale factor (g/s)	0.01	Passed	Passed
Pitch rate sensor scale factor (g/s)	0.01	Passed	Passed

The static accuracy was measured by sampling at 4 Hz for 30 minutes, when the Seatex MGC is stationary. The dynamic accuracy was measured in a rate table test with simultaneous sinusoidal rotation in two axes for 10 minutes.



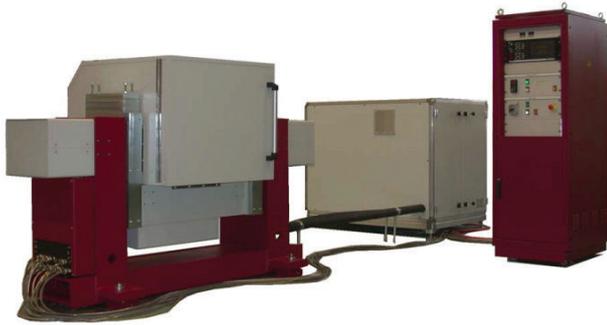
2. Rate Gyro Accuracy Tests			
Test requirements	Roll rate	Pitch rate	Roll and Pitch
Roll rate sensor scale factor (g/s)	0.01	Passed	Passed
Pitch rate sensor scale factor (g/s)	0.01	Passed	Passed

The angular rate sensor scale factor was measured by sampling at 4 Hz for 30 minutes, when the Seatex MGC is stationary. The rate gyro scale factor error was tested by single-axis rotations on a rate table at 150°/s and at 150°/s.

3. Accelerometer Accuracy Tests			
Test requirements	Roll axis	Pitch axis	Roll and Pitch
Roll acceleration sensor scale factor (g/s²)	0.002	Passed	Passed
Pitch acceleration sensor scale factor (g/s²)	0.002	Passed	Passed

The acceleration sensor scale factor was measured by sampling at 4 Hz for 30 minutes, when the Seatex MGC is stationary. The accelerometer scale factor was measured by tilting the Seatex MGC in steps of 90° around a circle.

The Calibration Certificate test requirements are the technical specification limits in the MGC User Manual. A two-axis rate table with temperature chamber (AC 2287-TCM from Acroname AG, 2011) was used to test the unit. All tests were performed at room temperature according to test procedures in the MGC Production Manual.



MGC® dispatch procedure

If a recalibration of an MGC is required, please follow these steps to ensure an efficient and smooth recalibration process:

1. Contact your local Kongsberg Discovery or Kongsberg Maritime office or directly to Kongsberg Discovery AS, Seatex. Email: support.seatex@kd.kongsberg.com. Phone: +47 815 73 700. Please inform about the MGC model and serial number of the unit you want to recalibrate. If you need a spare MGC during recalibration, please ask for a quote.
2. You will receive an RMA (Return Material Authorization) number. This number should follow your shipment.
3. Place the MGC in its original transportation box, or similar hard-shell quality box, to secure safe transportation. Contact local authorities to check if you will need an export license.

MGC® recalibration turnaround time

- In general, the turnaround time for MGC calibration service is three weeks after reception.
- The calibration may uncover the need for service that does not appear during static testing on arrival and thus delays should be expected. The unit must then undergo service followed by a new calibration cycle. The delivery time will be extended accordingly.

Specifications subject to change without any further notice.