

JJF

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

JJF 2128-2024

**Calibration Specification for Marine Gyro Compasses
(English Translation)**

Issued on: June 14, 2024

Implemented on: December 14, 2024

Issued by: State Administration for Market Regulation

Table of Contents

1 Scope(1)	
2 References(1)	
3 Overview(1)	
4 Metering characteristics (2)	
4.1 Startup time adjustment (2)	
4.2 Static heading angle indication error (2)	
4.3 Static heading angle indication drift (2)	
4.4 Dynamic heading angle tracking error (2)	
4.5 Dynamic True Heading Angle Indication Drift (2)	
4.6 Gyrocompass installation positioning error (2)	
5 Calibration conditions(2)	
5.1 Environmental conditions(2)	
5.2 Main standards and supporting equipment (3)	
6 Calibration methods (3)	
6.1 Startup time adjustment (3)	
6.2 Static heading indication error (3)	
6.3 Static heading indication drift (5)	
6.4 Static heading angle tracking error (5)	
6.5 Dynamic heading angle indication drift (6)	
6.6 Gyrocompass installation positioning error (6)	
7 Expression of calibration results (6)	
8 Recalibration interval (6)	
Appendix A Uncertainty evaluation of the measurement results of the azimuth indication error of the marine gyrocompass (static) (7)	
Appendix B Measurement of azimuth of bow and stern line of ship (9)	
Appendix C Shore-based azimuth baseline measurement (10)	

8 Recalibration interval (6)

Appendix A Uncertainty evaluation of the measurement results of the azimuth indication error of the marine gyrocompass (static) (7)

Appendix B Measurement of azimuth of bow and stern line of ship (9)

Appendix C Shore-based azimuth baseline measurement (10)

Specification for calibration of marine gyrocompass

1 Scope

This specification applies to azimuth (also known as heading angle) measurement range of $0^{\circ}\sim 360^{\circ}$, and the maximum allowable error of the indication is $\pm 0.25^{\circ}$ marine gyrocompass calibration for ship navigation purposes.

2 References

This specification references the following documents.

JJF 1001-2011 General metrological terms and definitions JJF 1059.1-2012 Evaluation and Expression of Measurement Uncertainty JJF 1071-2010 Rules for writing national metrology and calibration specifications JJF 1350-2012 Gyrotheodolite Calibration Specification JJF 1675-2017 Inertial technology metrology terms and definitions GB/T 17943-2000 Specification for geodetic astronomy GB/T 24955.1-2010 Ships and marine technology Heading transmission devices (THDs) Part 1.

Spiral Compass

GB/T 42176 Wave Grade GJB1723-93 General Specification for Ship Gyrocompass for any referenced document with a date, only the version with the date is applicable to this specification; for any referenced document without a date, the latest version (including all amendments) shall apply to this specification.

3 Overview

The marine gyrocompass is a precision navigation instrument used to indicate the ship's heading and determine the ship's position.

It is used on various ships, ocean transport ships, port ships, ocean engineering ships, survey ships and other ships, which can meet the navigation requirements.

It can not only meet the requirements of various other heading information equipment and systems.

The gyrocompass relies on the spatial axis stability of the gyroscope, and with the help of its control equipment and damping equipment, it can automatically point to the north and accurately the ship can accurately track the meridian plane of the earth and always point to the geographic North Pole.

Determine your heading.

The marine gyrocompass was originally based on the principle of a mechanical gyro. With the advancement of science and technology, it has developed into an electric compass.

The size and mass of the compass, optical fiber compass and laser compass are greatly

reduced, and the error and drift of the instrument indication are getting smaller and smaller.

Small, dynamic performance is greatly improved.

The typical structure of the instrument is shown in Figure 1 for the electric compass and Figure 2 for the fiber optic compass.