

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Gyro compass

with type designation(s)
MFG-I Marine Optic Gyro Compass

Issued to
CSSC Marine Technology Co.,Ltd.
Shanghai, China

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773**,
item No. MED/4.3. SOLAS 74 as amended, Regulations V/18, V/19, IMO Res. A.424(XI), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.302(87)
item No. MED/4.9. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.526(13), IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)
item No. MED/4.31. SOLAS 74 as amended, Regulation X/3, IMO Res. A.694(17), IMO Res. A.821(19), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87), IMO MSC.1/Circ.1349

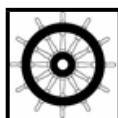
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-08-30**.

Issued at **Hamburg** on **2018-08-31**

DNV GL local station:
Shanghai

Approval Engineer:
Harald Bluhm



Notified Body
No.: **0098**

for **DNV GL SE**

Sven Dudzsus
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Product description

The fiber-optical gyro compass MFG-I consists of the following equipment:

Type	Description	Software	Software Revision
MFG- I G1- I	Main Compass	Main Compass Software	V 1.x
MFG- I G2- I	Power Box	N/A	N/A
MFG- I G3- I	Operation Display Unit	ODU Software	V 1.x
MFG- I G4- I	Interface Box	Interface Software	V 1.x

Application/Limitation

The R.O.T.I can be used with digital repeater (IEC61162-2) only.

Type Examination documentation

Tests carried out

ISO Standard 8728 (2014): Ships and marine technology – Marine gyro-compasses.
ISO Standard 16328 (2014): Ships and marine technology – Gyro-compasses for high-speed craft.
ISO standard 20672 (2002): Ships and marine technology – Rate of turn indicators.
IEC Standard 62288 (2014): Maritime navigation and radiocommunication equipment and systems – Presentation of navigation-related information on shipborne navigational displays – General requirements, methods of testing and required test results.
IEC Standard 60945 (2002): Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results.
IEC Standard 61162-1 (2016) and 61162-2(1998): Maritime navigation and radiocommunication equipment and systems, - Digital interfaces.

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

According to Article 10 of the Council Directive (MED):

- Wheel mark to be affixed visibly, legibly and indelibly to the product or to its data plate and, where relevant, embedded in its software. Where that is not possible or not warranted on account of the nature of the product, it shall be affixed to the packaging and to the accompanying documents.
- Wheel mark to be affixed at the end of the production phase.

For specific products, manufacturers may use an appropriate and reliable form of electronic tag instead of, or in addition to, the wheel mark.

END OF CERTIFICATE