

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000010W
Revision No:
1

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

This is to certify:

That the Magnetic compass – Class A for ships

with type designation(s)
REFLECTA/3 - Type/21

Issued to

Cassens & Plath GmbH
Bremerhaven, Germany

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2020/1170**,

item No. MED/4.1. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.382(X), IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.302(87)

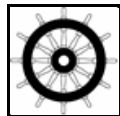
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-07-11**.

Issued at **Hamburg** on **2021-07-12**

DNV local station:
Hamburg – CMC North/East

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for DNV SE

Christine Mydlak-Roeder
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) 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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 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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Components necessary for operation:

- | | |
|---|------------------------------------|
| <p>1. Standard Compass
 Magnetic Compass Class A (N under N)
 Use alternatively with the binnacles:
 - binnacle with correcting devices card height 1200 mm</p> | <p>Type/21

REFLECTA/3</p> |
| <p>2. Steering Compass
 Magnetic Compass Class A (N under N)
 Use alternatively with the binnacles:
 - binnacle with correcting devices card height 1200 mm
 - alternatively card height between 920 and 1700 mm
 - with remote reading only, as listed under options</p> | <p>Type/21

REFLECTA/3</p> |
| <p>3. Bearing Compass
 Magnetic Compass Class A (N under N)
 Use alternatively with the binnacles:
 - binnacle with correcting devices card height 1200 mm
 - alternatively card height between 920 and 1800 mm
 - with remote reading only, as listed under options</p> | <p>Type/21

REFLECTA/3</p> |

Options:

- | | | |
|---|--|---|
| <p>Alternatively, instead of or additional to an optical transmission
 Detector (Sensor)
 Electronic Unit
 Display Unit
 or
 or</p> | <p>for the indication of true magnetic heading</p> | <p>CP 102 B
 NETcourse
 analog:magNEMAcourse
 digital:magNEMAcourse
 TRUEcourse *</p> |
|---|--|---|

Additional equipment:

The repeater compass analog:magNEMAcourse and digital:magNEMAcourse may be used as steering repeater with heading devices with standard IEC 61162-1 or IEC 61162-2 outputs.

The analog:trueNEMAcourse and digital:trueNEMAcourse repeater was tested successfully with the following GPS compasses: Furuno SC 30, SC 50, SC 110, JRC JLR 21 and JLR 31.

Heading difference alarm unit: courseCOMPARATOR
 Off heading alarm unit: SENSOCourse

*For the automatic calculation of the true magnetic heading a valid RMC data sentence from an approved Electronic Position Fixing System (EPFS) or manually input of the deviation will be necessary.

Application/Limitation

None

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation testing: IEC 62288 (2014)
- Performance testing: ISO 25862 (2019)

Note: The magnetic compass Type/21 with binnacle REFLECTA/3 does not issue alerts, hence, testing according to IEC 62923-1/-2 is deemed as not being applicable.

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.

Type Examination documentation

DNV No	Document ID	Rev.	Description
68	-	2021-06	Manual: Operation and installation of REFLECTA/3 – Type/21
67	2021/04	2021-06-03	Report: Cassens & Plath, Performance tests for compass binnacle REFLECTA/3 etc. according to ISO 25862, Annex D (incl. manufacturer statement and marking)
66	2021/02	2021-06-10	Report: Cassens & Plath, Performance tests for magnetic compass Type/21 acc to ISO 25862, Annex B (incl. manufacturer statement and marking)
65	TA-09-02-20	2020-02-20	Report: Raytheon Anschütz, Damp heat test for magnetic compass Type/21 according to IEC 60945, 8.3
58	-	2021-06	Statement on corrosion for compass binnacles REFLECTA/1 etc. according to IEC 60945, 8.12
56	21DE-00285	2021-07-09	Report: PAConsult, Damp heat and Rain & Spray test for compass binnacle REFLECTA/1 and REFLECTA/3 according to IEC 60945, 8.3 and 8.8
55	21DE-00168	2021-03-11	Report: PAConsult, Rain & spray test for magnetic compass Type/11 and Type/21 according to IEC 60945, 8.8
42	-	-	Manual: MK 2000S Compass Outfit
36	-	-	Manual: Bearing Binnacle/180
33	385	-	Manual: TRUEcourse
32	251	D	Manual: NETcourse
31	275	C	Manual: analog:mag NEMAcourse
30	293	C	Manual: digital:mag NEMAcourse
28	331	C	Manual: course COMPARATOR
27	330	C	Manual: SENSOcourse

END OF CERTIFICATE