DNV·GL

Certificate No:
MEDB000038V

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 Speed and distance measuring equipment (SDME)

with type designation(s)
NAVIKNOT Types: 350E, 350EE, 450D, 450DD, 550DD, 600S, 600SD, 600SDD, 600SDT, 600SE and SRD500A

Issued to
Northrop Grumman Sperry Marine B.V. - German Branch
Hamburg, Germany

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773,**
item No. MED/4.7. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. A.824(19), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

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

This Certificate is valid until **2020-08-20**.

Issued at **Hamburg** on **2018-06-25**

DNV GL local station:
Hamburg

Approval Engineer:
Jörg Rebel

Notified Body
No.: **0098**

for **DNV GL SE**

Sven Dudszus
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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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Product description

For the speed and distance measuring equipment (SDME) NAVIKNOT following types are existing:

Type: 350E, 350EE,
Single–axis water speed electromagnetic speed log system

Type: 450D, 450DD
Single–axis water speed Doppler speed log system

Type: 550DD and SRD500A
Dual–axis water and ground speed Doppler speed log system

Type: 600S
Dual–axis ground speed satellite speed log system

Type: 600SD, 600SDD, 600SDT
Single–axis water speed Doppler and dual axis ground speed satellite speed log system

Type: 600SE
Single–axis water speed electromagnetic and dual axis ground speed satellite speed log system

The SDME types 350E, 350EE, 450D, 450DD, 550DD, 600S, 600SD, 600SDD, 600SDT, 600SE and SRD500A consist of following main components:

Main component	*Type*	*Software Rev.*
Control and Display Unit	5001, 5002	2.x
Electronics Unit	5003, 5004	3.x

With following output interfaces:
6 x NMEA acc. to IEC 61162-1
5 x 10, 100, 200, 400 or 20.000 pulses/nm
Analogue speed output (0…10V and 4…20mA)
Log failure and power failure alarm (n.c.)
Speed limit relay output to limit the rudder angle on steering gear
Watch alarm trigger output for Bridge Navigational Watch Alarm Systems (BNWAS)
Bidirectional alert interface acc. to IEC 61924-2

And of following system components:

System component	*Type*	*Software Rev.*
Electronics Unit	1982770	12.x
Satellite Antenna Unit	60437	
Preamplifier D	5005, 5029	1.x
Preamplifier E	2863-AA	
Transducer	2829, 4040, 4077, 4120, 4726, 4874, FNF III 4874, 4910, 4978, 4978-4000, 4983, 5020, 0718-013, 1976121, 1981337, 1981337-VAR, 1982769-VAR, 1982809-VAR	
Adaptor flange	4978-5000	

And of following optional speed indicators:

Mounting	*Type*	*Size*	*Range*
Console mounting	60381	96x96mm	-5…+25kn
Console mounting	60382	96x96mm	-5…+40kn
Console mounting	60383	96x96mm	-5…+60kn
Console mounting	60384	144x144mm	-5…+25kn
Console mounting	60385	144x144mm	-5…+40kn
Console mounting	60386	192x192mm	-5…+25kn
In housing with bracket	60387	144x144mm	-5…+25kn

Optional speed indicator	*Type*
Universal Digital Repeater UDR	4891

Application/Limitation

Speed and distance through the water only: 350E, 350EE, 450D, 450DD
Speed and distance over ground only: 600S

Type Examination documentation

No	Document ID	Rev.	Description
24	056395	A, 2018-05-29	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5004
23	056396	A, 2018-05-29	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5003 and Preamplifier 5029
22	056394	A, 2018-05-29	Manual: Operation, installation and service manual for NAVIKNOT 450D with Preamplifier 5029
21	5029-0141-04	A, 2018-05-23	Report: Test Change Log
20	5003-0141-04	A, 2018-06-19	Report: BAM compliance tests acc. to IEC 61924-2 (Module A and C) and to CDV IEC 62923-2 (2017-09)2
19	5029-0141-03	A, 2018-04-16	Report: Environmental tests acc. to IEC60945, 8.2 to 8.4
18	5029-0141-02	C, 2018-05-16	Report: Speed accuracy tests acc. to IEC 61023, 5.12
17	066-18	1, 2018-05-08	Report: Vibration tests acc. to IEC 60945, 8.7 and DNVGL-CG-0339, 3[6.2]
16	139-18	1, 2018-05-18	Report: EMC tests acc. to IEC 60945, 9 and 10
15	056381	A, 2015-09-09	Manual: Service manual GNSS retrofit procedures for NAVIKNOT 600SDT and 600SDD
14	056380	A, 2015-09-09	Manual: Service manual GNSS retrofit procedures for NAVIKNOT 600S, 600SE and 600SD
13	056379	D, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5003 and Preamplifier 5005
12	056378	D, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 600SE with GNSS 5003
11	056377	D, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 600S with GNSS 5003
10	056354	F, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 550DD
9	056347	G, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 450DD with SRD331
8	056346	F, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 450D with SRD331
7	056366	E, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 350EE
6	056345	H, 2018-08-15	Manual: Operation, installation and service manual for NAVIKNOT 350E
5	-	A, 2015-08-14	Report: Integration and speed and distance measurement tests acc. to IEC 61023 for NAVIKNOT 600 S
4	-	B, 2015-08-13	Report: Display test acc. to IEC 62288
3	GL 07 05 01	2007-04-12	Report: Performance tests acc. to IEC 61023
2	6052b/07	2007-04-03	Report: Environmental tests acc. to IEC 60945, Sects. 8.2 to 8.4 and 8.7
1	07/7003-1-1	2007-02-08	Report: EMC tests acc. to IEC60945, Sects. 9 and 10

Tests carried out

- Performance testing: IEC 61023 (2007)
- Environmental testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Serial interface testing: IEC 61162-1 (2010 and 2016), IEC 61162-2 (1998)
- Presentation of navigational information: IEC 62288 (2014)

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