Certificate No : CPH04968-BW001

Type Approval Certificate

[Bearing Wear Sensor]

Initial Approval	27 December 2022
Manufacturer	Kongsberg Maritime AS, Trondheim Skonnertvegen 1, NO-7053 Ranheim, Norway
Product Description	- Type : Bearing Wear Sensor PSS11 - Place of manufacturing: MICRO-EPSILON MESSTECHNIK GmbH & Co. KG, on behalf of Kongsberg Maritime AS Norway. MICRO-EPSILON Czech Republic, spol. s r. o., MEL Na Libusi 891 CZ 39165 Bechyne " See Appendix 1 "
Approval Condition	" See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 26 December 2027

Issued at Busan, Korea on 27 December 2022

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME22038854857) and certificate No.(CPH04968-BW001).

KOREAN REGISTER

General Manager of
Marine & Ocean Equipment Team

Note : *1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.*
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 27 December 2022

A. Product Description

1. Product Specification

The PSS11 bearing wear sensor is an eddie current proximity sensor supplied in a kit complete with nuts and washers for correct mounting. The name of the kit is PS-11 and the PS-11 kit is used in a Bearing Wear Condition Monitoring system (BWCM) to monitor the wear down of crank train bearings. The BWCM system is supplied as a standalone or as an integrated part of the K Chief and/or Auto Chief Automation System manufactured by Kongsberg Maritime.

1) Power supply: 18 ~ 32 V DC
2) Power consumption: Nominal 0.8 W Max. 1 W
3) Output signal: CANOpen

2. Approved Drawings and Documents

- PSS11, 430555A, rev. A, dated 2017-10-30
- PSS11 Signal Processing Block Diagram, Ver. A
- Bearing Wear Installation Manual P-BWS/FE Rev. B, dated 2009-07-20

3. Test Reports, etc.

- Nemko EMC Report PS-11 no.: 129871/3, dated 2009-06-24
- Nemko ENV Report PS-11 no.: 129871/Env01 rev. 00, dated 2009-07-28
- Nemko ENV Report PS-11 no.: 22094.00 Rev.00, dated 2022-04-22

B. Approval Condition

1. Application & Limitation

1) This approval is granted on the basis of the test reports and the approved documentation.
2) Degree of protection shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2.(5).
3) The manufacturer should inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect the functionality of the approved equipment, a type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
4) This certificate covers hardware listed under Product specification.

2. Individual Product Cert. and Drawing Approval Requirement

1) Individual product certification is not required.

3. Marking

1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

1) Test condition (IACS UR E10 Rev.8 basis)

Test	Condition	Remark
EMC	All locations excluding the bridge and deck zone	-
Temperature	5℃ ~ +80℃	-
Vibration	7.79mm(3~25Hz)/10g(25-100Hz)	-
Ingress protection	IP67	-

< End of Certificate >