



SEWHACNM CO., LTD
397, Seokcheon-Ro, Ojung-Gu, Bucheon-si,
Gyeonggi-Do, Korea

Reference: YKP/kt/T1437413
Project Number: 3212147
Date: 26 November 2015
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ATTN : Mr. Kyung-Duk Kim / General Manager

Review Activity : Type Approval Design Assessment (PDA) for:
"Engine Controller (KC-E102 series)"
Your Ref.: letters dated of 07 March 2015 and 21 April 2015 & email dated of 08
October 2015

Gentlemen:

We have received your declaration stating that the materials in the requested assessment are free from Asbestos and your application for ABS Type Approval dated 07 March 2015, 21 April 2015 and 08 October 2015 together with the enclosures listed below and are pleased to advise that we have completed the Product Design Assessment (PDA) phase of the type approval process. Enclosed is your original copy of the PDA. Your details are published on our web site at www.typeapproval.org and can also be downloaded there. Since you also have a valid certificate of Manufacturing Assessment we will endorse this product as Type Approved.

Please be sure that you understand the scope and conditions of the validity of the certificate. An assessment is not an approval. As applicable, the PDA is a generic assessment of materials, components, products or systems for a specific use in compliance with the Rules, Guides and recognized standards. In essence the final approval is given when an Engineer or Surveyor accepts it for a specific user and installation. Therefore, the PDAs are written assuming that the end user and installation of the product is unknown, and that the manufacturer may not apply for Manufacturing Assessment.

In particular we draw your attention to the pages attached to the PDA and the restrictions that may affect its use.

Unit Certification is not required for this product. If you or your purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

This Product Design Assessment (PDA) is intended for products to be used on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product. The use of the product in a non-ABS classed vessel, MODU or facility is to be mutually agreed between your company and your client

We recommend that you monitor the ABS Rules, Guides and other standards used in the approval. These Rules, Guides and standards often change on an annual basis, and you must comply with the new Rules, Guides and standards in order for the product to be used on an ABS classed vessel or facility contracted under the new Rules, Guides or specifications.

- Continued to next page -

PACIFIC DIVISION

8th Floor, Kyobo Life Insurance Bldg., 7, Chungjang-daero, Jung-gu, Busan, 600-737, Republic of Korea
TEL: +82-51-469-8371, FAX: +82-51-462-4830, WEBSITE: www.eagle.org



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We do caution you that the use of the ABS logo is copyrighted. However, our "Design Assessed" logo may be used as long as your PDA remains valid.

Our "Product Type Approval" Logo may be used as long as you have an ISO9001 Certified Quality System (or equivalent) and you are conducting regular ABS Manufacturing Assessment audits of your manufacturing process. Should you desire to continue with Product Type Approval, please contact the ABS Office at Busan, Tel: 82-02-6137-9330, Fax: 82-02-6137-9322. The office will arrange for the production testing as may be necessary and audit of your quality assurance and control arrangements. To find another office, please use the directory of ABS offices on the ABS Web Site at www.eagle.org. You may also ask the ABS Program staff at Tel. (281) 877-6107, Fax (281) 877-6591, or e-mail absta-programs@eagle.org.

A copy of the artwork for the Design Assessed and Type Approved logos may be requested from our email address absta-programs@eagle.org. Please be aware that both logos are not to be used at the same time. For a copy of the art work and detailed guidance on their use, please contact absta-programs@eagle.org


A PDF version of the drawing appropriately stamped and a PDF version of this letter together with PDA Certificate are being returned through the email.

Our invoice to cover the cost of the subject review will be sent separately.

We appreciate your confidence in ABS type Approval. If you should have any comments relative to the scope and conditions of the assessment of your product, or if we can be of any further assistance, please do not hesitate to contact Mr. Young-Keun Park at 82-51-460-4156 or the undersigned at 82-51-460-4109. In all communications with ABS regarding this approval please quote the Reference and the date of this letter.

Very truly yours,

K.M. Wong
Senior Vice President of Engineering
ABS Pacific Division

By: 
Kostas Tsoukas,
Senior Principal Engineer
Ship/Offshore Engineering Systems

Encl.: Enclosure List as below
cc: ABS, Seoul – O2E

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Enclosures

Drawing No	Revision No	Drawing Title
-	-	Manufacturer's type approval document (incl. description of product, technical specification)
S-KC102-H-E001, S-KCE102-E001, S-KC102-S-E001S/2S/3S/4S, S-KC102-T-E001S/2S/3S/4S, others	-	Manufacturer's drawing
-	Ver2.0	Manufacturer's manual
KC-E102_ST201501	-	Manufacturer's test report witnessed by ABS Surveyor (SE2912993)
R159R-D023, E159R-D029	-	Recognized testing laboratory's test report

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CERTIFICATE NUMBER
15-BK1437413-PDA

DATE
26 Nov 2015

ABS TECHNICAL OFFICE
Busan Engineering Services

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of
SEWHACNM CO., LTD.

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Engine Controller**

Model: **KC-E102 series**

This Product Design Assessment (PDA) Certificate 15-BK1437413-PDA, dated 26/Nov/2015 remains valid until 25/Nov/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Hyun - Dae Lee

Hyun-Dae Lee

Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

SEWHACNM CO.

SAMJEONG-DONG, BUCHEON TECHNO PARK

SSANGYONG 3RD 504-302

397, SEOKCHEON-RO, OJEONG-GU

BUCHEON

Korea, Republic of

Telephone:

Fax:

Email: kdkim@sewhacnm.co.kr

Web: www.sewhacnm.co.kr

Tier: 2 - PDA Issued

Product: Engine Controller

Model: KC-E102 series

Intended Service:

Single or twin engines for vessels less than 500 GT having a length less than 90 meters

Description:

KC-E102 series are engine controllers consist of Electronic Engine Control Driver (E102) in propulsion machinery space and Control Head (H102) in wheel house. According to the number of Engine Control Driver (E102) and Control Head (H102), KC-E102 series may be used for single or twin engines with multiple control stations in the wheel house.

Model Numbering:

KC-E102x-yS

x: S - single engine (E102 1set) / T - twin engines (E102 2 sets)

y: 1 / 2 / 3 / 4 – number of control head

Rating:

Electronic Engine Control Driver (E102)

- a) Input power: 24VDC
- b) Interface: CAN bus
- c) Output: PWM-open collector / Analog-4~20mA or 0~5V
- d) Display: 0.315inch, 5 digits
- e) Operating temperature: 5 to 55 degree C
- f) Enclosure: IP22

Control Head (H102)

- a) Input power: 24VDC
- b) Power consumption: 1.2W
- c) Interface: CAN bus
- d) Display: 0.315inch, 5 digits
- e) Handle material: Aluminum die-casting (chrome coating)
- f) Handle operating angle (forward & reverse): 80 to 20 degree
- g) Operating temperature: 5 to 55 degree C
- h) Enclosure: IP22

Service Restriction:

- a) Unit Certification is not required for this product.
- b) If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
- c) This product is not to be used for the vessels classed ACC, ACCU and ABCU notation.

Comments:

- a) Application and use are to be in accordance with the manufacturer's instructions.
- b) The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

This Product Design Assessment is based on as follows:

- a) Manufacturer's type approval document (incl. description of product, technical specification)
- b) Manufacturer's drawing no. S-KC102-H-E001, S-KCE102-E001, S-KC102-S-E001S/2S/3S/4S, S-KC102-T-E001S/2S/3S/4S and others.

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Tier: 2 - PDA Issued

- c) Manufacturer's manual for KC-E102 (Ver.2.0)
- d) Manufacturer's test report no. KC-E102_ST201501 witnessed by ABS Surveyor (SE2912993)
- e) Recognized testing laboratory's test report no. R159R-D023 and E159R-D029

Terms of Validity:

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STANDARDS

ABS Rules:

2015 Steel Vessels Under 90 Meters (295 Feet) in Length 1-1-4/7.7, 1-1/A3, 1-1/A4, 4-7-1/1, 4-7-2/Table 1, 4-7-6

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA