



**LSIS CO., LTD.**  
**56, SAMSUNG4-GIL, MOCKCHEON-EUP,**  
**DONGNAM-GU, CHEONAN-SI,**  
**CHUNGCHONGNAM-DO, KOREA**

**Reference: YKP/kt/T1291913**  
**Project Number: 2795349**  
**Date: 08 January 2015**  
**Page: 1 / 3**

**ATTN : Mr. In-Sik Choi / General Manager of Design Department of AC Drive**

**Review Activity : Type Approval Design Assessment for:**  
**“Frequency Converter (SV-IS7 series)”**  
**Your Ref.: Letter dated 23 Oct. 2014 & Email dated 28 Nov. 2014**

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 23 October 2014 and 28 November 2014 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](http://www.typeapproval.org) and can also be downloaded there.

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.

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.

- 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](http://www.eagle.org)



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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: 82-2-6137-9330, Fax: 82-2-6137-9322. 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](http://www.eagle.org). You may also ask the ABS Program staff at Tel. (281) 877-6107, Fax (281) 877-6591, or [absta-programs@eagle.org](mailto: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](mailto: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](mailto:absta-programs@eagle.org).

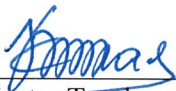
A PDF version of the drawing appropriately stamped and a PDF version of this letter together with PDA Certificate are being returned through the Email.

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 Specification for Frequency Converter (dated February 2012)
DS632-DNV202	-	Manufacturer's Test Report (dated 27 April 2012)
E205705 E124949	- -	UL Test File no. (dated 26 June 2009 and 20 October 2010)
07/32006321 07/32006319 07/32005737 09/34600041 11/31702333 11/31702069	- - - - - -	UL Test Report (dated 15 June 2007, 29 January 2009 and 28 October 2011)
13-10054989-1-BV 13-10054989-2-BV 13-10054989-3-BV	- - -	UL EMC Test Report (dated 08 November 2013)

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CERTIFICATE NUMBER  
14-BK1291913-PDA

DATE  
23 Dec 2014

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  
**LS IS CO., LTD. - CHEONAN PLANT**

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: **Frequency Converter**

Model: **SV-IS7 series**

This Product Design Assessment (PDA) Certificate 14-BK1291913-PDA, dated 23/Dec/2014 remains valid until 22/Dec/2019 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

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).

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Web: http://eng.lsis.biz

**Tier: 5 - Unit Certification Required**

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**Product:** Frequency Converter**Model:** SV-IS7 series**Intended Service:**

For electrical drive for motors installed on Vessels and Offshore Units

**Description:**

A. 200~230VAC, 3Phase

SV0008IS7 (0.75kW), SV0015IS7 (1.5kW), SV0022IS7 (2.2kW), SV0037IS7 (3.7kW), SV0055IS7 (5.5kW), SV0075IS7 (7.5kW), SV0110IS7 (11kW), SV0150IS7 (15kW), SV0185IS7 (18.5kW), SV0220IS7 (22kW), SV0300IS7 (30kW), SV0370IS7 (37kW), SV0450IS7 (45kW), SV0550IS7 (55kW), SV0750IS7 (75kW)

B. 380~480VAC, 3Phase

SV0008IS7 (0.75kW), SV0015IS7 (1.5kW), SV0022IS7 (2.2kW), SV0037IS7 (3.7kW), SV0055IS7 (5.5kW), SV0075IS7 (7.5kW), SV0110IS7 (11kW), SV0150IS7 (15kW), SV0185IS7 (18.5kW), SV0220IS7 (22kW), SV0300IS7 (30kW), SV0370IS7 (37kW), SV0450IS7 (45kW), SV0550IS7 (55kW), SV0750IS7 (75kW), SV0900IS7 (90kW)

**Rating:**

A. Rated input voltage: 200~230VAC or 380~480VAC

B. Voltage variation: -15%~+10%

C. Rated input frequency: 3 phase, 50~60Hz

D. Frequency variation: -5%~+5%

E. Rated output voltage: 200~230VAC or 380~480VAC

F. Rated output frequency: 0.1~400Hz

G. Protection structure

a. 0.75~75kW (200~230VAC &amp; 380~480VAC): Open type (IP21), UL enclosed type 1

b. 90kW (380~480VAC): Open type (IP00)

c. Separated product (0.75~22kW (200~230VAC &amp; 380~480VAC)): sealed IP54, UL enclosed type 12

H. Operating temperature

a. CT (heavy duty) load: -10~50 (with no ice or frost)

b. VT (normal duty) load: -10~40 (with no ice or frost, VT load at 50 is recommended)

c. IP54 product: -10~40

I. Humidity: below 90% RH (with no dew formation)

J. Altitude & Vibration: below 1,000m and 9.8/m/sec<sup>2</sup>**Service Restriction:**

A. Unit Certification is not required for this product. 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.

B. Where used in machinery space (i.e. engine room), it is to be operable at ambient temperature 45°C.

C. This unit is to be installed in an enclosure (i.e. drive, starter panel) in accordance with 4-8-3/Table 2 of Steel Vessels Rules.

**Comments:**

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

**Notes/Drawing/Documentation:**

This Type Approval Design Assessment is based on as following.

-Manufacturer's Specification for Frequency Converter dated February 2012.

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**Tier: 5 - Unit Certification Required**

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-Manufacturer's Test Report, "DS632-DNV202" witness by DNV Surveyor dated 27 April 2012.  
-UL Test Report, file no. "E205705" dated 26 June 2009 and "E124949" dated 20 October 2010.  
-CE Test Report, file no. "07/32006321, 07/32006319, 07/32005737" dated 15 June 2007, "09/34600041" dated 29 January 2009 and "11/31702333, 11/31702069" dated 28 October 2011.  
-EL EMC Test Report no. "13-10054989-1-BV, 13-10054989-2-BV, 13-10054989-3-BV" dated 08 November 2013.  
For further details, see ABS O2E Task no. T1291913.

**Terms of Validity:**

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**STANDARDS****ABS Rules:**

2014 Steel Vessels Rules 1-1-4/7.7,1-1/A3,1-1/A4,4-1-1/Table8,4-8-3/8 and Table2,4-9-8/Table1  
2014 Steel Vessels Under 90 Meters (295 Feet) in Length 1-1-4/7.7,1-1/A3,1-1/A4,4-1-1/Table3C,4-6-3/Table1,4-6-4/10,4-7-2/Table2  
2014 Offshore Support Vessels 1-1-4/7.7,1-1/A3,1-1/A4,4-1-1/Table8,4-8-3/8 and Table2, 4-9-8/Table1  
1975 Aluminum Vessels 1-1-4/7.7,1-1/A3,1-1/A4  
2014 Steel Vessels for Service on Rivers and Intracoastal Waterways 1-1-4/7.7,1-1/A3,1-1/A4  
1978 Bulk Carriers for Service on the Great Lakes 1-1-4/7.7,1-1/A3,1-1/A4  
2014 Facilities on Offshore Installations 1-1-4/9.7,1-1/A2,1-1/A3  
2014 Mobile Offshore Drilling Units Rules 1-1-4/9.7,1-1/A2,1-1/A3

**National:**

NA

**International:**

NA

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA