

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Emergency Towing Arrangement**

with type designation(s)

EPBS 4000S-DHA (Securing type), EPBS 4000C-DHA (Combination type)

Issued to

**DHMC Co., Ltd. (Noksan Branch)
Busan, Republic of Korea**

is found to comply with

DNV GL rules for classification – Ships**IMO Resolution MSC 35 (63) of 20 May 1994****OCIMF Mooring Equipment Guidelines, Third Edition 2008****Application :****Escorting & Pull Back System and Emergency Towing System combined with Escort & Pull Back System as stated on page 2 of this certificate for tankers of 50 000 tonnes deadweight and above - Safe Working Load 2 000 kN****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL**This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2016-11-18**for **DNV GL**DNV GL local station: **Busan**Approval Engineer: **Chi Wan Bang**

**Aldo Matteucci
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id:
Certificate No: **TAS00000ST**

Product description

Escort & Pull Back System EPBS 4000S –DHA(securing type) in accordance with drawing No.: EPBS4000S-001:

- Safe Working load (SWL): 2 000kN (equivalent to 204t)
- Minimum breaking load (MBL): 4 000kN (equivalent to 408t)

The detailed information of the strong point and fairlead described in the drawing no.:EPBS4000S-001 dated 2016-11-10 as well as the detailed drawings from Type Approval Documentation.

Aft Emergency Towing System combined with Escort & Pull Back System EPBS 4000C-DHA in accordance with drawing No.: EPBS4000C-001:

- Safe Working load (SWL): 2 000kN (equivalent to 204t)
- Minimum breaking load (MBL): 4 000kN (equivalent to 408t)

The detailed information of the strong point and fairlead described in the drawing no.:EPBS4000C-001 dated 2016-11-10 as well as the detailed drawings from Type Approval Documentation.
The pick-up gear and towing pennant not shown in the submitted drawings shall be delivered from other type approved certificates.

Application/Limitation

- The connection and support of the above components to the ship's structure are to be covered by separate approvals.
- If installed on DNVGL vessels, a DNVGL product certificate is to be issued for each product and the following will apply:
 - Materials for load carrying parts are to be delivered with required material certificates in accordance with Pt.5 Ch.5 Sec.1 4.2 from the mentioned Rules.
 - Material of welded parts used in the strong point shall be Charpy V-notch tested and impact energy is to be minimum 27J at 0 deg C.
 - The manufacturer is required to have a DNVGL surveyor witness all important production and tests as required.
 - Non-destructive testing is to be carried out to the attending surveyor's satisfaction.
 - All welding is to be carried out by approved welders and according to approved welding procedures.
 - The fairlead and strongpoint are to be used with the rope in centre position in a straight line to the strongpoint.

Type Approval documentation

Tests carried out

Prototype test was carried out on 2009-09-02 with wire ø80 mm.

Marking of product

The strongpoint and fairlead are to be marked with the SWL, manufacturers name or trademark and type number identification.



Job Id:
Certificate No: **TAS00000ST**

Periodical assessment

For retention of the Type Approval, DNVGL surveyor shall perform a survey every second year and before expiry date of this certificate in order to verify that the conditions of the type approval are complied with.

END OF CERTIFICATE