DNV·GL

Certificate No:
TAS00000SS

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Mooring and Towing Equipment

with type designation(s)
SPM5000-DHF, SPM7000-DHF

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

is found to comply with
DNV GL rules for classification – Ships
OCIMF's Recommendations for Equipment Employed in the Bow Mooring of Conventional Tankers at Single Point Moorings, Fourth Edition May 2007

Application :

Chain stoppers and fairleads for Single Point Mooring as stated on page 2 of this certificate for ships over 100 000 but not greater than 150 000 tonnes deadweight - Safe Working Load 250 tonnes, and over 150 000 tonnes deadweight - Safe Working Load 350 tonnes

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 **2016-11-23**

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.

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Job Id:
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Product description

Forward Single Point Mooring components SPM5000-DHF with drawing No. DHF5000-100 & DHF5000-200:

- Safe Working load (SWL): 250 tonnes

The detailed information of the strong point and fairlead is described in the drawing no.: DHF5000-100 and DHF5000-200 dated 2016.09.30 as well as the detailed drawings from Type Approval Documentation.

Forward Single Point Mooring components SPM7000-DHF with drawing No. DHF7000-100 & DHF7000-200:

- Safe Working load (SWL): 350 tonnes

The detailed information of the strong point and fairlead is described in the drawing no.: DHF7000-100 and DHF7000-200 dated 2016.09.30 as well as the detailed drawings from Type Approval Documentation.

Application/Limitation

- The structural strength of the stopper, bow fairlead are based on a safety factor of 2,0 against the yield criterion when applying a load equal to SWL according to Pt.6 Ch.5 Sec.12 4.1.3 from the mentioned Rules.
- The connection and support of the above components to the ship's structure are to be covered by separate approvals.
- The arrangements and positioning of the above components shall comply with the requirements in Pt.6 Ch.5 Sec.12 4 from the mentioned Rules and OCIMF's Recommendations.
- 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.6 Ch.5 Sec.12 2.1 from the mentioned Rules.
  - Materials used for bow chain stopper shall comply with the requirements specified in Pt.3 Ch.11 Sec.1 6.2 according to Pt.6 Ch.5 Sec.12 3.1.2.
  - 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.

Type Approval documentation

Tests carried out

Type testing is not required for issuance of type approval certificate. Each chain stopper upon installation for SPM shall be load tested to the equivalent SWL and a test certificate shall be issued. Above mentioned test certificate shall be available for inspection on board the ship according to Pt.6 Ch.5 Sec.12 4.1.7 from the mentioned Rules.

Marking of product

The chain stoppers and fairleads are to be marked with the SWL, manufacturers name or trademark and type number identification.

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