DNV·GL

Certificate No:
TAS00000EA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the High Holding Power Anchor

with type designation(s)
HYN-SB

Issued to
Jiangsu Xiangsheng Heavy Industries Co.,Ltd
Rugao, China

is found to comply with
DNV GL rules for classification – Ships

Application :

Approved for use as High Holding Power Anchor according to DNV GL Rules for weights from 60kg to 28875kg, with 25% weight reduction compared to ordinary stockless anchor.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2020-06-07**.

Issued at **Høvik** on **2016-06-08**

for **DNV GL**

DNV GL local station: **Nantong**

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:
Certificate No: **TAS00000EA**

Product description

Fabricated High Holding Power Anchor

Application/Limitation

According to drawing "HYN-SB-60-28875-00– HYN-SB HHP Fabricated Anchor", materials for anchor flukes are to be VL E36 for total anchor weight above 1000kg. This material has specified Charpy-V test temperature -40°C. In the test report "The high holding power test document of HYN-SB, HYT-12, HY-17 Fabricated Anchor and HY-08 (Danforth) casting steel anchor", the material is Q345C and tested at -20°C. Due to special consideration this material is approved for anchor HYN-SB.

According to drawing "HYN-SB-60-28875-00 – HYN-SB HHP Fabricated Anchor", material is to be VL D36 with specified yield strength 355MPa. It is assumed that the shank is made of cast steel, and the cast material is to have specified yield strength of 355MPa, e.g. C550AW in table 5 in the Rules Pt.2 Ch.2 Sec.8.

When DNV GL product certificate for this design is required the following will apply:

- The materials as stated on the stamped drawings to be delivered with Material Certificates documenting the chemical compositions and mechanical properties in accordance with the mentioned Rules.
- The test of the anchor to be according to our Rules for a normal anchor, except for the proof-test, in which the proof-load should correspond to the weight of a normal anchor (see Section 4.5 in the mentioned Rules).
- Welding to be carried out by approved welders and according to approved welding procedures specification. Extent of non-destructive testing of welds to comply with the Rules in question.
- Non Destructive Testing (NDT) and repairs are to be performed in accordance to the mentioned Rules Pt.2 Ch.2 Sec.8.
- The additional areas according to the agreed plan specified by the manufacturer shall be subject to NDT and to be carried out to the surveyor's entire satisfaction.

Type Approval documentation

Based on the following documentation:

Drawings No.:

Tests carried out

- Report: "Testing Plan of High Holding Power HYN-SB fabricated steel Anchors At Sea"
- Report: "The high holding power test document of HYN-SB, HYT-12, HY-17 Fabricated Anchor and HY-08 (Danforth) casting steel anchor" (dated 2007-01-25).

Marking of product

Each anchor shall be marked according to above rules Pt.3 Ch.11 Sec.1 4.7.

Periodical assessment

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

END OF CERTIFICATE