DNV·GL

Certificate No:
TAS00000RH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fairleads, Towing/Mooring

with type designation(s)
Fairlead for bow loading system

Issued to
APL Norway AS
Kolbjørnsvik, Norway

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

Application :

Fairlead to guide the mooring line from the chainstopper the point of mooring. Fairlead to be placed on the bow of the ship.

This Certificate is valid until **2021-10-12**.

Issued at **Høvik** on **2016-10-13**

for **DNV GL**

DNV GL local station: **Kristiansand S**

Approval Engineer: **Sindre Bauck Sole**

Inger-Helene Hals
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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Product description

Fairlead is part of bow loading system (BLS) of shuttle tanker. The BLS will be employed when the shuttle tanker is temporary moored to Offshore Loading Terminal when offloading crude oil. The fairlead is designed to guide the mooring chain to the chain stopper from the direction of ±110° of the ship centreline in the horizontal plane and ±30° in the vertical plane.

The fairlead is acceptable for mooring arrangements with Safe Working Load (SWL) of up to 3000 kN. A safety factor of 2.0 on the SWL is applied as recommended in fourth edition of OCIMF's recommendations.

Manufacturers

Fortaco OY
Vammaksentie 1, Fi-38210, Sastamala, Finland

IKM Årdal Mekaniske Verksted AS,
Breivikveien 17 Nordmarka, 4120 Tau, Norway

Panterra AS
Frolandsveien 6, 4847 Arendal, Norway

HSM Industrie AS
Bredstrupvej 50, 8500 Grenaa, Denmark

Application/Limitation

The manufacturers are required to have a DNVGL surveyor witness all important production and tests (NDT) as required. Based upon such witnessing the surveyor shall stamp the fairlead and issue product certificate.

APL has, as holder of the certificate, the responsibility for the product's compliance with DNVGL rules.

Fairlead foundations and associated ship supporting structure deck are not covered in this approval and is assumed covered by separate approval for each installation.

Type Approval documentation

Tests carried out
Type testing is not required.

Marking of product
The fairlead is to be marked with SWL, the manufacturer's name or trademark and type number identification. In addition, the surveyor is to stamp each unit as follows for traceability to this type approval certificate:
TAS00000RH

Initial and Certificate retention survey
For retention of Type Approval Certificate, Det Norske Veritas' surveyor shall carry out a survey every second year and before the expiry date of this certificate to verify that the conditions of the type approval are complied with.

The initial survey and the retention surveys shall be carried out at all manufacturers listed on page 2.

END OF CERTIFICATE