Certificate No:
TAS00003GK

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Cranes, gen.

with type designation(s)
AMCOVEBA MARINE Foldable Knuckle boom crane V820NM,
820NM 2S-6S,
820NM+MW32 2S-6S

Issued to
HYVA CAPITAL EQUIPMENT SRL
Poviglio, RE, Italy

is found to comply with
DNV standard DNV-ST-0377 – Standard for shipboard lifting appliances

Application :

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

Issued at **Hamburg** on **2022-08-04**
This Certificate is valid until **2027-08-03** .
DNV local unit: **Italy/Malta CMC**

for **DNV**

Approval Engineer: **Andreas Horn**

Jörg Kallies
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Deck cranes of crane group A1 according to DNVGL-ST-0377 Edition 2018 “Shipboard Lifting Appliances”

- 820NM2S (max SWL: 3520kg)
- 820NM3S (max SWL: 3420kg)
- 820NM4S (max SWL: 3340kg)
- 820NM5S (max SWL: 3200kg)
- 820NM6S (max SWL: 3080kg)
- 820NM2S+MW32 (max SWL: 2000kg SL / 2375kg DL)
- 820NM3S+MW32 (max SWL: 2000kg SL / 2250kg DL)
- 820NM4S+MW32 (max SWL: 2000kg SL / 2170kg DL)
- 820NM5S+MW32 (max SWL: 1200kg SL / 2040kg DL)
- 820NM6S+MW32 (max SWL: 1000kg SL / 1960kg DL)

Hook reeving: SL = Single Line / DL = Double Line

Application/Limitation

This Type Approval Certificate covers the basis of the design.

- Service Application: Shipboard lifting appliances
- Load handling within and outside ship while in the harbour and within ships while at sea in sheltered water
- Crane group: A1
- Design temperature: -10°C
- Hoist load coefficient (psi): max. 1.17 (hook operation, HD4)
- Winch, maximum line speed with load 15m/min
- Heel / Trim: max. 5°/2°
- Load spectrum S2
- Load cycles: max. 20.000

Rope 14mm (VEROTOP E 1960) required minimum breaking load (MBL) ≥ 103 kN

The winch “MW 32” is based on DNV type approval (TAS00002ZA) with type designation(s) MW 32-DNV-HCE.

The various components transferring the load like hook, wire, top roller etc. are to comply with international standards and are to be delivered with relevant certificates for materials and testing (CG3/CG4 or ILO form 3/4).

All materials are to be delivered with material certificate type 3.1 documenting mechanical properties in accordance with DNVGL-ST-0377 Edition 2018.

Installation on board, support to the deck structure and connection to power supply are not included in this approval and shall be evaluated in each case.

The reliable function of all safety devices according to DNVGL-ST-0377 Edition 2018, Sec.12 shall be demonstrated in the presence of our surveyor during the functional test on board.

After installation on board, the examination and load testing on board shall be carried out according to our standard DNVGL-ST-0377 “Standard for shipboard lifting appliances” 2018, Sec. 13.

These cranes have not been evaluated for personnel lifting. Any application requiring personnel lifting will require a separate design review.

This Type Approval certificate is not valid for designs, components, equipment, systems or products which are subject to classification by DNV.

Type Approval documentation

Tests and welding

The cranes shall be tested in "as installed" condition prior to first use. Functional testing shall be performed, in the presence of a DNV surveyor and in accordance with DNVGL-ST-0377 Standard for

"Shipboard Lifting Appliances", October 2018.

All welding's are assumed carried out by qualified welders and according to welding procedures acceptable to the surveyor. NDT is to be in accordance with DNVGL-ST-0377 Standard for "Shipboard Lifting Appliances", October 2018 Sec.11 [11.5.8] and to the surveyor's entire satisfaction.

The manufacturer is required to have a DNV surveyor witnessing all important production and tests as required. Based on this witnessing the surveyor should personally stamp the units, sign the reports and issue certificate.

Marking of product

Each crane shall be marked by the manufacturer with at least:
- manufacturer´s name or trademark
- serial number
- year of construction
- design load (SWL)
- self weight (WT)
- min./max. outreach
- load chart

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END of CERTIFICATE