Certificate no.:
TAM00001DA

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Air Compressor

with type designation(s)
KRSM (VMC) series

issued to
Zhejiang Kaishan Compressor Co., Ltd.
Quzhou, Zhejiang Province, China

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.5 Rotating machinery – driven units

Application:

Products approved by this certificate are accepted for installation on all vessels classed by DNV.
Max. working press.: from 8 to 13 bar (see apllication/limitation)
Operating media: Air / Nitrogen

Issued at **Høvik** on **2024-07-03**
This Certificate is valid until **2029-07-02**.
DNV local unit: **Ningbo FIS**

for **DNV**

Approval Engineer: **Amir Dzaferi**

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
Single stage screw air and nitrogen compressors.

Application/Limitation
The application and limitations are as described in the table below:

Compressor model	Max. Power [kW]	Min and max. rated pressure [bar]	Max. rated speed [rpm]	Max. Capacity [m³/min]	Cooling	Speed
KSRM-18 (VMC)-XY	18	8 - 13	3580	3.28	Air or water	Fixed or variable speed
KSRM-22 (VMC)-XY	22	8 - 13	3580	4	Air or water	
KSRM-30 (VMC)-XY	30	8 - 13	3580	5.8	Air or water	
KSRM-37 (VMC)-XY	37	8 - 13	3590	6.9	Air or water	
KSRM-45 (VMC)-XY	45	8 - 13	3590	8.25	Air or water	
KSRM-55 (VMC)-XY	55	8 - 13	3590	10.2	Air or water	
KSRM-75 (VMC)-XY	75	8 - 13	3590	14.2	Air or water	
KSRM-90 (VMC)-XY	90	8 - 13	3590	17.1	Air or water	

Marking of compressors:
VMC - Vestec Marine compressors – commissioning party
X – Air or Water cooled
Y – VFD or VSD
W – water cooled
VSD – variable speed drive
VFD – variable frequency drive

Example:
KRSM-37-8 represents air-cooled units,
KRSM-37-8 VSD represents air-cooled units with variable speed drive,
KRSM-37-8 VFD W represents water-cooled units with variable frequency drive.
KSRM-37–8(W)(VSD)–37 is max. power, 8 is air working pressure, W-water cooled and VSD - with variable speed drive.

Tests carried out
KRSM(VMC) 30/13W tested on 14.05.2024 and witnessed by DNV.
KRSM(VMC) 90/13W tested on 14.05.2024 and witnessed by DNV.

Marking of product
The compressors to be marked with manufacturer’s name or trademark and type number identification.

Periodical assessment
For retention of the type approval, a DNV surveyor shall perform an assessment after 2 years and after 3.5 years, both referring to the issue date of the type approval certificate to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

In cases where the type approved product is manufactured at other companies, the periodical assessment shall verify that the type approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore, periodical assessment shall be carried out randomly at these companies.

Other conditions
The approval includes only compressors and does not include driving motor, electrical enclosure, oil separator, cooler, control system and connected instrumentation.

END OF CERTIFICATE