

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Miscellaneous Fittings for Pressurised Equipment

with type designation(s)

Marine Axial Flow Fans - WMOR Ex, Marine Centrifugal Fans - WPM Ex, Marine Duct Fans - WMR Ex, Marine Axial Flow Fans - WMOD Ex, Marine Jet-Cowl Fans - WGJ Ex

Issued to

**Przedsiębiorstwo ALWO Sp. z o.o.
Toruń, Poland**

is found to comply with

DNV rules for classification – Ships Pt.5 Ch.5 Oil tankers

DNV rules for classification – Ships Pt.5 Ch.6 Chemical tankers

DNV rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers

DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018

IACS UR F29, Non-sparking fans, Rev. 6, June 2005

Application :

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

Type: Temperature range: Design pressure: Operating media:

Marine Axial Flow Fans - WMOR Ex

Marine Centrifugal Fans - WPM Ex

Marine Duct Fans - WMR Ex

Marine Axial Flow Fans - WMOD Ex

Marine Jet-Cowl Fans - WGJ Ex

Issued at **Høvik** on **2022-06-30**

This Certificate is valid until **2027-06-29**.

for **DNV**

DNV local station: **Gdansk CMC**

Approval Engineer: **Ole Henrik Kverndal Pedersen**

.....
Dalibor Bukarica
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

Non-sparking fans accepted to serve hazardous areas.

The fans are designed in accordance with the requirements given in:

- DNV-RU-SHIP Pt.5 Ch.5 Sec.6 [1.2]
- DNV-RU-SHIP Pt.5 Ch.6 Sec.10 [1.2]
- DNV-RU-SHIP Pt.5 Ch.7 Sec.12 [1]
- DNV-OS-D101 Ch.2 Sec.4 [11.5]
- IACS UR F29

DNV has no requirements for product certificates for fans other than those serving hazardous spaces.

Application/Limitation

The fans are not certified to be used where cryogenic temperatures can be expected.

DNV has no requirements for product certificates for fans other than those serving hazardous spaces.

Electric fan motors shall not be installed in ventilation ducts for hazardous spaces unless the motor is certified for the same hazard zone as the space served.

Protective screens of not more than 13 mm square mesh are to be fitted in the inlet and outlet of ventilation ducts before opening.

Fans are to be suitably earthed in order to prevent electrostatic charges during operation when necessary.

Electric motors are excluded from this certificate. Electrical motors Ex-protected will have to comply with the relevant class for the ship. The certificate for the motors will be provided for the attending ship Surveyor at each classification/visit. The certificate of the complete non-sparking fan, including running test at the factory, will be provided.

Following material combinations are considered as non-sparking:

WMOR Ex, WMOD Ex and WGJ Ex:

- housing: Aluminum

- impeller: Aluminum

- housing: Stainless steel 316L

- impeller: Aluminum

Remark: With brass lining in place of rotating impeller

- housing: Steel

- impeller: Aluminum

Remark: With brass lining in place of rotating impeller

- housing: Steel / Stainless steel 316L / Aluminum

- impeller: PAG / PAGAS

WMR Ex:

- housing: Aluminum

- impeller: Aluminum

- housing: Stainless steel 316L

- impeller: Stainless steel 316L

- housing: Aluminum

- impeller: Brass (CuZn39Pb or CuZn39Sb)

WPM Ex:

- housing: Aluminum

- impeller: Aluminum



Job Id: **262.1-037643-1**
Certificate No: **TAP00002J7**

- housing: Stainless steel 316L
- impeller: Stainless steel 316L

- housing: Aluminum
- impeller: Brass (CuZn39Pb or CuZn39Sb)

- housing: Steel
 - impeller: Steel
- Remark: Gap clearance not less than 13 mm

Type Approval documentation

Tests carried out

No tests carried out

Marking of product

The products are as a minimum to be marked as follows:

- Manufacturer's name and trademark
- Part No. and Serial No.
- Fan type designation
- Motor type designation
- Additional information for fan with Ex protection used for hazardous areas.

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.