



Marine & Offshore  
Division

Certificate number: 23561/B0 BV

File number: ACM 180/2505/03

Product code: 7152I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Przedsiębiorstwo ALWO Sp. z o.o.**  
TORUN - POLAND

*for the type of product*

**ANTISPARKING AXIAL FANS**  
Series WMOR Ex and Series WMOR

### Requirements:

- Bureau Veritas Rules for the Classification of Steel Ships

*This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 31 May 2021**

For BUREAU VERITAS,  
At BV GDANSK, on 31 May 2016,  
Janusz URBAN



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=1xke7qa7ar>

BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### **Marine Axial-Flow Fans Series WMOR Ex and Series WMOR**

##### 1.1 Technical Data

Nominal Diameter (mm)	DN 200 to DN 1400
Casing thickness (mm)	3 to 10
Air gap (mm)*	2 to 13
Executions	L - light; C - heavy
Types	N - supply; W - exhaust
Impeller hub Diameter (mm)	125 to 840
Impeller pitch of blade (°)	30 to 55
Max. temperature of conveyed medium (°)	45

\* Depends on motor shaft bearing diameter for non-sparking execution

##### 1.2 Material specification

Casing, flanges	Steel S235 JR
Air guide	Steel S235 JR
Impeller	Cast aluminium alloy
Non sparking ring *	Brass

\* 1 mm thickness

*When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.*

### 2. DOCUMENTS AND DRAWINGS

- Technical specification ALWO A1-01 (sheets 1 to 4/20)
- Drawing N° W351 00-00 Axial Flow Fan 1120/670-Ex
- Drawing N° W361 00-00 Axial Flow Fan 1400/840-Ex
- Manual instruction N° DTR 250-13 dated 01/07/2001

*No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.*

### 3. TEST REPORTS

- Performance test report WO-TR 250-802 (15 sheets) dated 18/02/2005
- Performance test report WO 250-802 (17 sheets) dated 10/01/2005

### 4. APPLICATION / LIMITATION

4.1 Fans used in marine ventilation for hazardous or non-hazardous applications. Non-sparking type driven by Explosion-proof motor are approved for hazardous areas. Fans are suitable for vertical and horizontal installation.

4.2 Fans are to be suitably earthed to the hull in order to prevent electrostatic charges during operation where necessary.

4.3 Protective screens of not more than 13 mm square mesh are to be fitted in the inlet and outlet of ventilation housing to prevent any accidental contact-protection.

4.4 The installation on board is to be carried out in compliance with manufacturer's instructions and in accordance with the provisions of Requirements stated on the front page of this certificate.

4.5 Electrical 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 ship Surveyor at each classification/visit. The certificate of the complete non-sparking fan, including running test at the factory, will be provided.

*When motors for use in hazardous spaces of tankers are located within the ducts, El. motor safety class, IP enclosure and temperature class (ignition class) are to be in compliance with Pt D, Ch 7, Sec 5 [1.5.1 and 1.5.2] of the Society's rules.*

## **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 The products are to be supplied by **Przedsiębiorstwo ALWO Sp. z o.o.** in compliance with the type described in this certificate.

5.2 This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 **Przedsiębiorstwo ALWO Sp. z o.o.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

**Przedsiębiorstwo ALWO Sp. z o.o.** has declared to Bureau Veritas the following production site:

**Przedsiębiorstwo ALWO Sp. z o.o., 87-116 TORUN, ul. Na Przelaj 34, POLAND**

## **6. MARKING OF PRODUCT**

The product shall be marked with at least:

- Manufacturer's name or logo
- Serial number
- Fan type designation
- Motor type designation
- Additional information for every fan with ex-protection used for hazardous areas

## **7. OTHERS**

It is **Przedsiębiorstwo ALWO Sp. z o.o.** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*This certificate supersedes the Type Approval Certificate No. 23561/A0 BV issued on 08/04/2011 by the Society.*

**\*\*\* END OF CERTIFICATE \*\*\***