



Marine & Offshore
Division

Certificate number: 22468/B0 BV

File number: ACM 180/2506/02

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
KONCAR-MES d.d.
Zagreb - CROATIA

for the type of product
ANTISPARKING AXIAL FANS
Marine Axial Flow Fans Series VAAZ B 225 - 1600

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: 01 Feb 2021

For BUREAU VERITAS,
At BV RIJEKA, on 01 Feb 2016,
Slaven Celic



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.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Marine Axial Flow Fans Series VAAZ B 225 - 1600 with adjustable blades angle and driven by electric motor

1.1 Design

Design B3, not ATEX design	Long and short casing, direct drive	N°1128388/A and A1
Design B5, B14, not ATEX design	Long and short casing, direct drive	N°1128388/B and B1
Design B3, ATEX design	Long and short casing, direct drive	N°1128388/C and C1
Design B5, B14, ATEX design	Long and short casing, direct drive	N°1128388/D and D1
Design B3, not ATEX design	Long casing, External motor, belt drive	N°1128388/F and F1
Design B3, not ATEX design	Easy of service access	N°1128388/H
Impeller type Z	Tip 4Z and 5Z	N°1128388/J and J1
Impeller type W	Tip 6W and 9W	N°1128388/K and K1
Impeller type H	Tip 3H	N°1128388/S and S1

1.2 Technical Data

Inlet size (mm)	Casing thickness (mm)	Gap (mm)	Inlet size (mm)	Casing thickness (mm)	Gap (mm)
225	2 (2-5)*	2,0	710	4 (4-8)*	3,6
280	2 (2-5)*	2,0	800	4 (4-8)*	4,0
315	2 (2-5)*	2,0	900	4 (4-8)*	4,5
355	2 (2-5)*	2,0	1000	5 (5-10)*	5,0
400	2 (2-5)*	2,0	1120	5 (5-10)*	5,6
450	2 (2-5)*	2,3	1250	5 (5-10)*	6,3
500	3 (3-6)*	2,5	1400	6 (6-12)*	7,0
560	3 (3-6)*	2,8	1600	6 (6-12)*	8,0
630	3 (3-6)*	3,2			

* on request

1.3 Air Capacity, pressure and motor power

Flow rate (m ³ /s)	Max. 70
Motor power (kW)	0,03 - 180 (IEC 63-315) @ 50 Hz 60 Hz
Static pressure (Pa)	1400
Speed (rpm)	Max. 3600
Temperature range (°C)	-20/60
Max fluid density (kg/m ³)	< 1,3
Max fluid temperature (°C)	+80

1.4 Materials

Casing	Steel St 37
Flanges	Steel St 37
Hub Impeller	Steel St 37 / Cast aluminium alloy EN AC-ALSi12Cu1(Fe)
Blade	Cast aluminium alloy EN AC-ALSi12Cu1(Fe)
Non sparking ring	CuZn39Sn, CuZnPb3, CuZn39Pb3
Shaft (belt drive)	Steel St 37

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

2. DOCUMENTS AND DRAWINGS

- Technical description N° 112838 dated 22/10/2007
- Technical description Annex 1 N° 112838 Edition.1 dated 15/10/2013
- Technical description Annex 2 N° 112838 dated 16/10/2015
- Drawings N°1128388/A and A1 Axial flow fan, series VAAZ design B3 Main dimensions dated 31/05/2007
- Drawings N°1128388/B and B1 Axial flow fan, series VAAZ design B5, B14 Main dimensions dated 31/05/2007
- Drawings N°1128388/C and C1 Axial flow fan, series VAAZ Atex design B3 Main dimensions dated 23/10/2007
- Drawings N°1128388/D and D1 Axial flow fan, series VAAZ Atex design B5, B14 Main dimensions dated 23/10/2007
- Drawings N°1128388/F and F1 Axial flow fan, VAAZ External motor, belt drive design B3 Main dimensions dated 31/05/2007
- Drawing N°1128388/H Axial flow fan, series VAAZ Easy of service access design B3 Main dimensions dated 31/05/2007
- Drawings N°1128388/J and J1 Axial flow fan, series VAAZ Impeller type Z dated 31/05/2007
- Drawings N°1128388/K and K1 Axial flow fan, series VAAZ Impeller type W dated 31/05/2007
- Drawing N°1128388/L Axial flow fan, series VAAZ Connection box dated 31/05/2007
- Drawing N°1128388/M Axial flow fan, series VAAZ Flanges round dated 31/05/2007
- Drawing N°1128388/N Axial flow fan, series VAAZ Protection wire net dated 31/05/2007
- Drawing N°1128388/O Axial flow fan, series VAAZ Cuted plates dated 31/05/2007
- Drawing N°1128388/P Axial flow fan, series VAAZ Distances for assembly B3 motor dated 31/05/2007
- Drawing N°1128388/R Axial/centrifugal flow fans, Inspection door dated 31/05/2007
- Drawing N°112838/S and S1 Axial flow fans, series VAAZ Main dimensions, Impeller type H dated 31/05/2007
- Drawing N°112838/T protection net VAAZ BT 315 - 1600 dated 16/10/2015
- Installation, operation and maintenance instructions dated September 2014

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

- 3.1 Performance test report N° 21572-07/819 EI for axial flow fan type VAAZ BT 1400-A9W26
- 3.2 Performance test report N° 21572-08/884 EI for axial flow fan type VAAZ B 710-A (L750 L1720 M112 B14 M4,5)
- 3.3 Type test reports N° HREx T 07.015, impact test report N° 15TR0121 dated 05/11/2015 issued by laboratory Ex-Agency

4. APPLICATION / LIMITATION

- 4.1 Fans used in marine and offshore 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.

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 The products are to be supplied by **KONCAR-MES d.d** in compliance with the type and the requirements described in this certificate.
- 5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.
- 5.3 BV product certificate is required for the finished product.

Place of production**KONCAR-MES. d.d.****10110 Zagreb****Fallerovo setaliste 22****CROATIA****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
- Air flow capacity
- Additional information for every fan with ex-protection used for hazardous areas
- Society's brand as relevant

7. OTHERS

This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the products and of the conditions of this approval.

This certificate supersedes the Type Approval Certificate No. 22468/A0 BV issued on 03/09/2010 by the Society.

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