



Marine & Offshore
Division

Certificate number: 25697/B0 BV

File number: ACM100/143/7

Product code: 14211

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

DALGAKIRAN MAKINA SAN. TIC. A.S.
ISTANBUL - TURKEY

for the type of product

RECIPROCATING PISTON AIR COMPRESSORS
WAVE SERIES W 52, W 64, W 108, W 166, W 210

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: 08 May 2022

For BUREAU VERITAS,

At BV ISTANBUL, on 08 May 2017,

Gurcan Yilmaz



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:

Three-Stage Air-cooled Reciprocating Piston Air Compressor
 Three cylinders - Three stages - W-form arranged cylinder 60°
 Model Wave Series : W 52, W 64, W 108,W 166, W 210

Identification and Technical Data:

File-Number	ACM100/143/7
Type	W166
First stage piston Ø (mm)	160
Second stage piston Ø (mm)	85
Third stage piston Ø (mm)	52
Maximum Outlet Design Pressure (bar)	45
Maximum rotation speed (rpm)	1470
Capacity (Cylindrical displacement) (m3/h)	167

File-Number	ACM100/143/8
Type	W52
First stage piston Ø (mm)	100
Second stage piston Ø (mm)	52
Third stage piston Ø (mm)	28
Maximum Outlet Design Pressure (bar)	45
Maximum rotation speed (rpm)	1170
Capacity (Cylindrical displacement) (m3/h)	52

File-Number	ACM100/143/9
Type	W64
First stage piston Ø (mm)	100
Second stage piston Ø (mm)	52
Third stage piston Ø (mm)	28
Maximum Outlet Design Pressure (bar)	45
Maximum rotation speed (rpm)	1470
Capacity (Cylindrical displacement) (m3/h)	65

File-Number	ACM100/143/10
Type	W108
First stage piston Ø (mm)	129,5
Second stage piston Ø (mm)	65
Third stage piston Ø (mm)	35
Maximum Outlet Design Pressure (bar)	45
Maximum rotation speed (rpm)	1470
Capacity (Cylindrical displacement) (m3/h)	109

File-Number	ACM100/143/11
Type	W210
First stage piston Ø (mm)	180
Second stage piston Ø (mm)	100
Third stage piston Ø (mm)	52
Maximum Outlet Design Pressure (bar)	45
Maximum rotation speed (rpm)	1470
Capacity (Cylindrical displacement) (m3/h)	211

Safety valves are fitted on all three stages.

2. DOCUMENTS AND DRAWINGS:

According to the following drawings

Type	Crankshaft drawing date of revision	Assembly drawing date of revision
W 52	05/02/16	24/02/12
W 64	05/02/16	24/02/12
W 108	05/02/16	23/02/12
W 166	05/02/16	17/06/11
W 210	08/02/16	28/02/12

3. TEST REPORTS:

Test report for W166 N° 312814 dated 20/09/2011 from DALGAKIRAN MAKINA SAN. TIC. A.S., Istanbul - Turkey.

Test report for W52 dated 24/01/2017 from DALGAKIRAN MAKINA SAN. TIC. A.S., Istanbul - Turkey.

Test report for W210 dated 24/01/2017 from DALGAKIRAN MAKINA SAN. TIC. A.S., Istanbul - Turkey.

4. APPLICATION / LIMITATION:

4.1 - This Certificate applies to bare compressors as per general assembly drawings. If required by the Rules, each piece of equipment (electric motor, flexible pipes...) is to be either type approved or design appraised on a case by case basis.

4.2 - Compressed air systems for main propulsion and auxiliary engines starting and general air service.

4.3 - Capacity under load to be checked on board.

4.4 - On board installation and maintenance requirements have to be in accordance with the Society's Rules requirements and the manufacturer's recommendations.

4.5 - One safety valves must be fitted at the discharge of the compressors.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The Reciprocating Piston Air Compressors are to be supplied by **DALGAKIRAN MAKINA SAN. TIC. A.S.**, 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 (Mode I).

5.3 - BV product certificate is required.

5.4 - Each compressor is to be hydraulic pressure tested to 1.5 times the maximum design pressure under witnessing of a Society's Surveyor.

5.5 - If required by the Rules, each attached piece of equipment is to be individually inspected at workshops by Society Surveyors.

5.6 - **DALGAKIRAN MAKINA SAN. TIC. A.S.**, has declared to Bureau Veritas the following production site(s):

**EYUP SULTAN MAH.
YANYOL MUMINLER DERESI MEVKII
SAMANDIRA / ISTANBUL
ISTANBUL
TURKEY**

6. MARKING OF PRODUCT:

Each compressor shall be marked with at least:

- Name of manufacturer
- Type
- Maximum working pressure
- Serial number.

7. OTHERS:

7.1 - It is **DALGAKIRAN MAKINA SAN. TIC. A.S.**'s 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.

7.2 - This Certificate supersedes the Type Approval Certificate No. 25697/A0 issued on 07 Oct. 2011 by the Society.

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