



Marine & Offshore  
Division

Certificate number: 39395/A0 BV

File number: ACM 217/2312/02

Product code: 8141H

*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*

**ACO Marine s.r.o.**  
Praha 5 - CZECH REPUBLIC

*for the type of product*

### SEWAGE TREATMENT PLANTS

WWTP ACO Clarimar MF Series - Waste Water Treatment Plant

**Requirements:**

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- MARPOL 73/78 as amended, Annex IV, Regulation 9
- IMO Resolution MEPC.159(55)
- IMO Resolution MEPC.227(64) excluding Section 4.2

*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: 26 Feb 2020**

**For BUREAU VERITAS,**

At BV PRAGUE, on 26 Feb 2015,

Martin Dlouhy



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](http://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 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### WWTP ACO Clarimar MF Series - Waste Water Treatment Plant

##### 1.1 Process Description

- Operates on a biological treatment process
- Manufactured out of composite material, or welded construction for retrofit in ship upgrade, replacement or conversion installations
- Compact unit, skid mounted
- Powered and controlled by Control Panel RM1, enclosure IP55 rated steel cabinet
- Main components: main tank including ACO "Bio-Sword", blower (option), effluent pump, desludge pump, fine bubble aeration, UV lamp, and a control panel RM1

##### 1.2 Technical Data - ACO Clarimar MF Series

Series	Hydraulic loading (m3/day)	Organic loading (kg/day)	Series	Hydraulic loading (m3/day)	Organic loading (kg/day)
MF 0.5	1.2	0.77	MF 1	2.1	1.31
MF 2	3.5	2.41	MF 3	5.6	3.61
MF 4	7.2	4.59	MF 6	11.2	7.22
MF 8	14.2	9.10	MF 10	18.9	12.14
MF 12	22.4	14.44	MF 16	28.3	18.16
MF 20	37.8	24.28			

##### 1.3 ACO Clarimar MF Series were tested and produced an effluent which, on analysis, produce:

Parameters	Unit	IMO MEPC.227(64)
Thermotolerant Coliform	MPN/100 ml	< 100
Total Suspended Solids (TSS)	mg/l	< 35
5-day Biochemical Oxygen Demand (BOD5)	mg/l	< 25
Chemical Oxygen Demand (COD)	mg/l	< 125
pH value	-	Between 6.0 and 8.5
Residual chlorine demand	mg/l	< 0,5

*Note: Nitrogen and Phosphorus content of the samples of effluent not analysed.*

### 2. DOCUMENTS AND DRAWINGS

- Technical Documentation WWTP ACO Clarimar MF version 2014-07-23
- General Arrangement Drawings

Series	Drawings No.	Series	Drawings No.	Series	Drawings No.
MF 0.5	TP-P019CL-S000-5-00-00	MF 1	TP-P019CL-S001-00-00	MF 2	TP-P019CL-S002-00-00
MF 3	TP-P019CL-S003-00-00	MF 4	TP-P019CL-S004-00-00	MF 6	TP-P019CL-S006-00-00
MF 8	TP-P019CL-S008-00-00	MF 10	TP-P019CL-S010-00-00	MF 12	TP-P019CL-S012-00-00
MF 16	TP-P019CL-S016-00-00	MF 20	TP-P019CL-S020-00-00		

- Electric Wiring Drawings No. T1-P321-5278-99-40 (sheets 1 to 10) dated 2014-05-21
- Installation and Operation Manual - ACO Clarimar MF version 2014-08-19

*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 The water quality analysis according to the requirements of IMO Resolution MEPC.227(64) were carried out ashore, conducted by the laboratory VÚV T. G. Masaryk Water Research Institute, p.r.i., Prague (The Czech Republic) and witnessed

by the notified body. The tests were carried out on a full scale ACO Clarimar MF 2 unit representing all the range of sewage treatment plants and all samples were taken on site, sealed and delivered to the laboratory. Test report No. 248/2014 dated 21/08/2014 and analytical test results of thermotolerant coliforms.

3.2 Environmental type tests carried out, conducted and witnessed by the laboratory Vojensky technicky ústav, s.p., Vyskov (The Czech Republic). Equipment Under Test: Control panel RM1, type ACO Clarimar MF. Type test reports No. 194200-159/2014 dated 11/08/2014 and No. 194300-399/2014 dated 11/08/2014.

3.3 Inclination test at angle of at least 22.5°.

*Note: The ACO Clarimar MF 2 is not type tested on Nitrogen and Phosphorous removal standard acc. to requirements of IMO Resolution MEPC.227(64).*

#### **4. APPLICATION / LIMITATION**

4.1 Applied to Sewage Treatment Plants compliant with the requirements of 2012 Guidelines - IMO Res. MEPC.227(64) as follows:

- Sewage Treatment Plants installed on or after 1 January 2016 [Ships, other than passenger ships, in all areas] and [Passenger ships outside MARPOL Annex IV special areas] excluding Section 4.2 on Nitrogen and Phosphorous removal standard.

4.2 Not approved for ships fitted with an Advanced Wastewater Treatment installation complying with the Society's rules requirements in Pt E, Ch 9 applicable to additional class notation (CLEANSHIP AWT or CLEANSHIP SUPER AWT).

4.3 Electrical equipment including control, safety devices and cables required to be type approved are to be in conformity with the Society Rules.

4.4 The installation on board is to be carried out in compliance with manufacturer's instructions and in accordance with the provisions of IMO Resolution in force.

4.5 A copy of the certificate of type approval shall be carried on board any ship equipped with the above described sewage treatment plant at all times.

4.6 The ship staff shall be familiarized with the operation and maintenance of the sewage treatment plant or properly trained by manufacturer's specialist.

#### **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 The sewage treatment plants are to be supplied by **ACO Marine s.r.o., Czech republic** in compliance with the type described in this certificate and in compliance with the requirements stated on the front page of this certificate. This type of product is within the category HBV of Bureau Veritas Rule Note NR 320.

5.2 **ACO Marine s.r.o., Czech republic** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR 320 for HBV products.

5.3 Each sewage treatment plant is to be supplied with its manual for installation, use and maintenance.

#### **Place of production**

**ACO Industries Tabor s.r.o.  
Prumyslova 1158  
391 01 Sezimovo Usti  
Czech Republic**

#### **6. MARKING OF PRODUCT**

A plate or durable label shall be placed on the sewage treatment plant with at least:

- Manufacturer's name or logo
- Model and serial number
- Type designation
- Hydraulic loading
- 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 method of fittings and general maintenance of the sewage treatment plant and of the conditions of this approval.

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