

DNV

DET NORSKE VERITAS

EC TYPE EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2011/75/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by Det Norske Veritas under the authority of the Government of the Kingdom of Norway.

CERTIFICATE NO. **MED-B-8428**

This is to certify that the
Sewage treatment plants

with type designation(s)
Models MINI-BIOCON, BIOCON I, II & III

Manufacturer
Techni S.A.
PIRAEUS, Greece

is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/2.6 and Annex B, Module B in the Directive, Marpol 73/78 as amended, Annex IV Regulation 9, IMO Res. MEPC.159(55)

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2013-06-18
for **Det Norske Veritas AS**



This Certificate is valid until
2015-06-07


Marianne Strand Valderhaug
Head of Department

Notified Body No.: **0575**

DNV local office:
Piraeus




Liliana Castro
Senior Engineer





The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.



Certificate No.: MED-B-8428
Item No.: A.1/2.6
Job Id.: 344.1-002166-2

Product description

The equipment is intended for installation onboard ships to provide sewage treatment for the protection of the marine environment.

Application/Limitation

Sewage Treatment Plants;

Model:	MINI- BIOCON	BIOCON I	BIOCON II	BIOCON III
Designed Capacity (lt./day):	2,541	7,854	24,219	43,854
Designed Organic Load: Kg BOD ₅ / day	1.32	4.05	12.45	22.56

The figures are reflecting maximum capacity during 24 hours.

The process of the sewage treatment plant is based upon a physiochemical process.

The equipment is not permitted to be installed in spaces subject to explosion hazards.

Type Examination documentation

Model MINI-BIOCON;

Mechanical;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
04.00.01	10/2009	General Arrangement
04.00.02	10/2009	General Arrangement
04.00.03	10/2009	General Arrangement
04.00.04	10/2009	General Arrangement
04.00.05	10/2009	General Arrangement
04.00.01	2/2004	Reactor
04.00.02	2/2004	Float Pipe
08.00.01	10/2009	GA – Manual Cleaning Filter
4.3.0.0	10/2009	Filters MBF (self cleaning)

Electrical;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
3.90.01	25/3/2010	Panel Front
3.90.02	25/3/2010	Indication and Control
3.90.03	25/3/2010	Inside View
3.90.04	25/3/2010	Aux. PLC Circuit
3.90.05	25/3/2010	Power Circuit (2 shts.)
3.90.06	25/3/2010	Terminal Connections

General Document;

- Technical Documentation/ Description for the MINI-BIOCON Sewage Treatment Systems
- Specifications for electrical equipment
- Specifications for mechanical equipment

Operations Control;

The equipment will be PLC-controlled through Programmable Electronic System from Schneider Automation SAS, Twido Series, Model TWD LMDA 20DRT.





Certificate No.: MED-B-8428
 Item No.: A.1/2.6
 Job Id.: 344.1-002166-2

Model BIOCON I;

Mechanical;

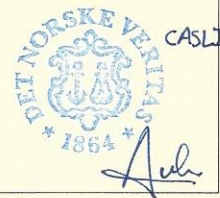
<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
05.00.01	10/2009	General Arrangement
05.00.02	10/2009	General Arrangement
05.00.03	10/2009	General Arrangement
05.00.04	10/2009	General Arrangement
01.01.01	3/2002	Macerator Pump
01.01.02	3/2002	Macerator Body
01.01.03	3/2002	Macerator Breaker
01.01.04	3/2002	Rotary Blade
01.01.05	3/2002	Macerator Impeller
01.01.06	3/2002	Minimiser Impeller
01.01.08	3/2002	Rotation Shaft
02.00.13	3/2002	Hydraulic Connections
02.00.14	3/2002	Installation Diagram – Free Space
01.02.00	3/2002	Retention Screen
01.03.00	3/2002	Level Indicator Holder
01.03.02	3/2002	Float
01.04.01	3/2002	Recycling Pump Outlet Line Piping
01.04.02	3/2002	Recycling Pump Suction Line Piping
01.04.03	3/2002	Water Spray Pump Outlet Line Piping
01.04.04	3/2002	Discharge Pump Suction Line Piping
01.05.01	3/2002	Support Frame
01.05.02	3/2002	Waterspray Pipe
01.05.03	3/2002	Treatment Tank
01.05.04	3/2002	Shock Absorber
01.06.00	3/2002	Inspection Door
08.00.01	10/2009	GA – Manual Cleaning Filter
1.3.0.0	10/2009	Filters BI F (self cleaning)

Electrical;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
3.90.01	25/3/2010	Panel Front
3.90.02	25/3/2010	Indication and Control
3.90.03	25/3/2010	Inside View
3.90.04	25/3/2010	Aux. PLC Circuit
3.90.05	25/3/2010	Power Circuit (2 shts.)
3.90.06	25/3/2010	Terminal Connections

Model BIOCON II;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
06.00.01	10/2009	General Arrangement
06.00.02	10/2009	General Arrangement
06.00.03	10/2009	General Arrangement
06.00.04	10/2009	General Arrangement
02.00.13	5/2002	Hydraulic Connections
02.00.14	5/2002	Installation Diagram – Free Space
02.01.00	5/2002	Macerator Pump – Exploded View
02.01.01	5/2002	Macerator Pump
02.01.02	5/2002	Macerator Body
02.01.03	5/2002	Macerator Breaker
02.01.04	5/2002	Rotary Blade
02.01.05	5/2002	Macerator Impeller





Certificate No.: MED-B-8428
 Item No.: A.1/2.6
 Job Id.: 344.1-002166-2

02.01.06	5/2002	Minimiser Impeller
02.01.07	5/2002	Bearing Housing
02.02.00	5/2002	Retention Screen
02.03.00	5/2002	Level Indicator Holder
02.03.02	5/2002	Float
02.04.01	5/2002	Recycling Pump Outlet Line Piping
02.04.02	5/2002	Recycling Pump Suction Line Piping
02.04.03	5/2002	Water Spray Pump Outlet Line Piping
02.04.04	5/2002	Discharge Pump Suction Line Piping
02.05.01	5/2002	Support Frame
02.05.02	5/2002	Water Spray Pipe
02.05.03	5/2002	Treatment Tank
02.05.04	5/2002	Shock Absorber
02.05.05	5/2002	Sewage Supply Pipe
02.05.06	5/2002	Macerator Discharge
02.05.07	5/2002	Air Diffuser
02.06.00	5/2002	Inspection Door
08.00.01	10/2009	GA – Manual Cleaning Filter
2.3.0.0	10/2009	Filters BII F (self cleaning)

Electrical;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
3.90.01	25/3/2010	Panel Front
3.90.02	25/3/2010	Indication and Control
3.90.03	25/3/2010	Inside View
3.90.04	25/3/2010	Aux. PLC Circuit
3.90.05	25/3/2010	Power Circuit (2 shts.)
3.90.06	25/3/2010	Terminal Connections

Model BIOCON III;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
07.00.01	10/2009	General Arrangement
07.00.02	10/2009	General Arrangement
07.00.03	10/2009	General Arrangement
07.00.04	10/2009	General Arrangement
03.00.05	5/2002	Hydraulic Connections
03.00.06	5/2002	Installation Diagram – Free Space
03.01.00	5/2002	Macerator Pump – Exploded View
03.01.01	5/2002	Macerator Pump
03.01.02	5/2002	Macerator Body
03.01.03	5/2002	Macerator Breaker
03.01.04	5/2002	Rotary Blade
03.01.05	5/2002	Macerator Impeller
03.01.06	5/2002	Minimiser Impeller
03.01.07	5/2002	Bearing Housing
03.02.00	5/2002	Retention Screen
03.03.00	5/2002	Level Indicator Holder
03.03.02	5/2002	Float
03.04.01	5/2002	Recycling Pump Outlet Line Piping
03.04.02	5/2002	Recycling Pump Suction Line Piping
03.04.03	5/2002	Water Spray Pump Outlet Line Piping
03.04.04	5/2002	Discharge Pump Suction Line Piping
03.05.01	5/2002	Support Frame
03.05.02	5/2002	Water Spray Pipe
03.05.03	5/2002	Treatment Tank
03.05.04	5/2002	Shock Absorber
03.05.05	5/2002	Sewage Supply Pipe





Certificate No.: MED-B-8428
Item No.: A.1/2.6
Job Id.: 344.1-002166-2

03.05.06	5/2002	Macerator Discharge
03.05.07	5/2002	Air Diffuser
03.06.00	5/2002	Inspection Door
08.00.01	10/2009	GA – Manual Cleaning Filter
3.3.0.0	10/2009	Filters BIII F (self cleaning)

Electrical;

<i>Drwg.No.;</i>	<i>Date/ Rev.;</i>	<i>Title;</i>
3.90.01	25/3/2010	Exrternal View of Panel
3.90.02	25/3/2010	Indication and Control (2 shts.)
3.90.03	25/3/2010	Inside View
3.90.04	25/3/2010	Aux. PLC Circuit
3.90.05	25/3/2010	Power Circuit (2 shts.)
3.90.06	25/3/2010	Terminal Connections

Common Documents Model BIOCON I, II, III;

General Document;

- Instruction Manual for the BIOCON Sewage Treatment Systems
- Specifications for electrical equipment

Operations Control;

The equipment will be PLC-controlled through Programmable Electronic System from Schneider Automation SAS, Twido Series, Model TWD LMDA 20DRT.

Tests carried out

Andreou Chemical Laboratories;

Waste Water Analysis Reports from results of test samples from prototype testing with model MINI-BIOCON during 02/11/09 through 11/11/09.

Marking of product

For traceability to this type approval, each unit is to be marked with;

- Manufacturer's name or trade mark
- Type designation
- Serial No.

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

This certificate replaces previous EC Type-Examination Certificate No. MED-B-6174.

