



**POTVRDA O TIPNOM ODOBRENJU SUSTAVA ZA OBRADU
BALASTNIH VODA**
*TYPE APPROVAL CERTIFICATE OF BALLAST WATER MANAGEMENT
SYSTEM*

REPUBLIKA HRVATSKA

REPUBLIC OF CROATIA

Izdana u ime Vlade REPUBLIKE HRVATSKE od HRVATSKOG REGISTRA BRODOVA

Issued under the authority of the Government of the REPUBLIC OF CROATIA by the CROATIAN REGISTER OF SHIPPING

Br. / No.

02-003510/025477

Potvrđuje se da je ovaj sustav za obradu balastnih voda pregledan i ispitan u skladu sa zahtjevima specifikacija sadržanih u Kodeksu za odobrenje sustava za obradu balastnih voda (Rezolucija MEPC.300(72)). Ova Potvrda vrijedi samo za ovaj sustav za obradu balastnih voda.

This is to certify that the ballast water management system listed below has been examined and tested in accordance with the requirements of the specifications contained in the Code for Approval of Ballast Water Management Systems (Resolution MEPC.300(72)). This certificate is valid only for the ballast water management system referred to below.

Naziv sustava za obradu balastnih voda: **SEASCAPE BWMS (Model 80-5000)**
Name of ballast water management system:

Sustav za obradu balastnih voda proizveden od: **ELITE MARINE CORPORATION**
Ballast water management system manufactured by: No.1, Xinhai Rd, Gangzha District
NANTONG, CHINA

Oznaka tipa i modela, uključujući:
Under type and model designation and incorporating:

Seascape (veličina 80-5000)– sustav za obradu balastnih voda koji koristi filtraciju i UV zračenje.
Seascape (model range 80-5000)– ballast water management system using filtration and UV treatment.

Nakon balastiranja i de-balastiranja sustav se čisti koristeći CIP funkciju.
After ballasting or de-ballasting operation, system is cleaned using Cleaning in Place (CIP) function.

Vidi Tablicu 1 - Popis odobrenih BWMS
See Table 1 - List of certified BWMS

Prema nacrtu opreme/sklopnom nacrtu br.:	Piping instrument diagram 21-3-54, Rev.4.0	datum	13 May 2020
<i>To equipment / assembly drawing No.:</i>	Components documents 21-3-55, Rev.1.0	<i>date</i>	13 May 2020
	Electrical drawings 21-3-56, Rev.3		13 May 2020
	General arrangement drawings 21-3-58, Rev.3.0		13 May 2020

Ostala oprema proizvedena od:
Other equipment manufactured by:

Filter

Proizvođač/Manufacturer: Elite Marine Corporation

Tip/Type: EMSLQ-serija/series

Kapacitet/Capacity: 200 do/to 1500 m³/h

Veličina mrežice/Mesh size: 35 µm

Proračunski tlak/Design pressure: 10 bar

UV-reaktor/UV-reactor module

Proizvođač/Manufacturer: Elite Marine Corporation

Veličina/Size: EME-80; EME-150; EME-300; EME-400; EME-600; EME-800; EME-1000

Najveći potvrđeni protok/Maximum certified flow: 80 m³/h do/to 1000 m³/h

Proračunski tlak/Design pressure: 10 bar

Radna temperatura/Working temperature: 0- 65 °C

UV lampa/ UV lamp: Proizvođač/Manufacturer: Alpha-Cure; Model ACP-11520

Prema nacrtu opreme/sklopnom nacrtu br.:

Components documents 21-3-55, Rev.1.0

To equipment / assembly drawing No.:

datum 13 May 2020

date

Nazivni kapacitet obrade:

80 - 5000 m³/h

Treatment rated capacity:

U vodi saliniteta < 21 PSU, nazivni kapacitet obrade (TRC) za Seascope BWMS iznosi 2/3 odobrenog kapaciteta obrade za morsku vodu.

Uređaj nadzire protok u balastnom cjevovodu pomoću regulacijskog ventila protoka koji osigurava da je protok unutar kapaciteta obrade (TRC) za određeni model, u ovisnosti o salinitetu vode.

In water with < 21 PSU, Seascope BWMS is approved with a TRC that is 2/3 of the TRC in marine water.

The BWMS controls the flow rate in the ballast line by using a flow control valve to ensure that flow rates are kept within the TRC of a specific model and according to salinity.

Označavanje proizvoda/Marking of product:

Oznaka proizvođača/ Manufacturer's name or trademark

Oznaka tipa/ Type designation

Tvornički broj/ Serial number

Ova Potvrda o tipnom odobrenju izdana je na osnovu odobrenja od norveških pomorskih vlasti, Potvrda br.: TAP000023E.

This Type Approval Certificate is issued based on approval by Norwegian Maritime Authority, Certificate No.: TAP000023E.

Kopija ove Potvrde o tipnom odobrenju mora se nalaziti na brodu opremljenom ovim sustavom za obradu balastnih voda, za pregled na brodu. Ako je Potvrda o tipnom odobrenju izdana na osnovu odobrenja od druge Uprave, potrebno je navesti tu Potvrdu o tipnom odobrenju.

A copy of this Type Approval Certificate shall be carried onboard a ship fitted with this ballast water management system, for inspection onboard the ship. If the Type Approval Certificate is issued based on approval by another Administration, reference to that Type Approval Certificate shall be made.

Tablica 1/ Table 1

Model	Nazivni kapacitet obrade <i>Treatment rated capacity (m³/h)</i>	Filter model	UV-reaktor/ EPT jedinica <i>UV-reactor/EPT unit</i>
Seascape-80	80	EMSLQ-200 I	EME-80
Seascape-150	150	EMSLQ-200 I	EME-150
Seascape-200	200	EMSLQ-200 I	EME-300
Seascape-300	300	EMSLQ-250 I	EME-300
Seascape-400	400	EMSLQ-250 I	EME-400
Seascape-500	500	EMSLQ-300 I	EME-600
Seascape-600	600	EMSLQ-300 I	EME-600
Seascape-800	800	EMSLQ-400 I	EME-800
Seascape-1000	1000	EMSLQ-400 I	EME-1000
Seascape-1200	1200	EMSLQ-450 I	2x EME-600
Seascape-1600	1600	2x EMSLQ-400 I	2x EME-800
Seascape-2000	2000	2x EMSLQ-400 I	2x EME-1000
Seascape-2400	2400	2x EMSLQ-450 I	3x EME-800
Seascape-3000	3000	2x EMSLQ-450 I	3x EME-1000
Seascape-4000	4000	3x EMSLQ-450 I	4x EME-1000
Seascape-5000	5000	4x EMSLQ-450 I	5x EME-1000

Granični radni uvjeti su opisani u ovom dokumentu (temperatura/salinitet):
Limiting operating conditions imposed are described in this document (temperature/salinity):

Intenzitet UV zračenja/ UV intensity

Salinitet Salinity	Nazivni kapacitet obrade (TRC) Treatment rated capacity (TRC)	Donja granica intenziteta UV zračenja pri punom protoku (TRC) UV intensity lower limit at full flow (TRC) ¹	Donja granica intenziteta UV zračenja pri pola protoka (50%TRC) UV intensity lower limit at half flow (50%TRC) ¹
Morska voda/ Marine water (≥ 21 PSU)	80-5000 m ³ /h	>1200 W/m ²	680 W/m ²
Bočata voda/ Brackish water (>5 PSU i/and <21 PSU)	53-3333 m ³ /h	>1180 W/m ²	680 W/m ²
Slatka voda/ Fresh water (≤ 5 PSU)	53-3333 m ³ /h	>1000 W/m ²	680 W/m ²

¹) Intenzitet UV zračenja ispod donje granice znači da balastna voda nije obrađena u skladu s ovom potvrdom.
UV intensity below lower limit implies that the ballast water is not treated in accordance with this certificate.

Ostala ograničenja uključuju slijedeće:
Other restrictions imposed include the following:

Temperatura i salinitet balastne vode nisu ograničenje za rad sustava za obradu balastnih voda.
Temperature and salinity of the ballast water are not a limiting condition for the ballast water management system.

Vrijeme zadržavanja/Hold time:

Najmanje vrijeme zadržavanja od 48 sati zahtijeva se za bočatu i slatku vodu (<21 PSU), i najmanje vrijeme zadržavanja od 24 sata zahtijeva se za morsku vodu (≥21 PSU).

A minimum holding time of 48 hours is required for brackish and fresh water (<21 PSU), and a minimum holding time of 24 hours is required for marine water (≥21 PSU).

Uređaj je tipno odobren sa slijedećim sigurnosnim instrumentima/ The BWMS is type approved with the following instruments related to safety:

Osjetnik nivoa tekućine u EPT jedinici/ Liquid level sensor (mounted in EPT unit)

Osjetnik temperature u EPT jedinici / Temperature sensor (mounted in EPT unit)

Dva osjetnika tlaka (na ulazu/ izlazu iz uređaja)/ Two pressure sensors (mounted in BWMS inlet/outlet)

Osjetnik diferencijalnog tlaka za filtersku jedinicu/ Filter differential pressure sensor (mounted in Filtration unit)

Sigurnosni ventil ugrađen na izlazu iz EPT jedinice, s tlakom otvaranja od 10 bar/ Safety relief valve mounted in EPT unit outlet, with opening at 10 bar

Ova oprema je projektirana za rad u slijedećim uvjetima:*

This equipment has been designed for operation in the following conditions:*

Najveći radni tlak/Maximum working pressure: 10 bar

Temperatura okoline/Ambient temperature: 0°C do/to 55°C

Mjesto pečata Official stamp	Potpis Signed Marinko Popović, dipl.ing.		
	Uprava Administration of Republika Hrvatska Republic of Croatia		
	Izdana Issued this	28. 28 th	dana day of	veljače 2022. February 2022
	Valjana do Valid until this	28. 28 th	dana day of	veljače 2026. February 2026

* Unesi projektna ograničenja sustava
Insert system design limitations