

**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

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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: **GloEn-Patrol 2.0**
Name of ballast water management system:

Sustav za obradu balastnih voda proizveden od: PANASIA CO. LTD.
Ballast water management system manufactured by: 55, Mieumsandan 3- ro
Gangseo-Gu, BUSAN
REPUBLIC OF KOREA

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

GloEn-Patrol 2.0 (veličina P50-P6000), GloEn-Patrol 2.0 EX (veličina P150-P6000)– sustav za obradu balastnih voda koji koristi filtraciju i UV zračenje.

GloEn-Patrol 2.0 (model range P50-P6000), GloEn-Patrol 2.0 EX (model range P150-P6000)– ballast water management system using filtration and UV treatment.

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

Prema nacrtu opreme/sklopnom nacrtu br.: **datum:**
To equipment / assembly drawing No.: *date:*

Piping & instrument diagram	PAD-USCG-03 Rev.H	2019-02-28
BWMS all model drawings	PAD-USCG-02 Rev.D	2019-08-05
Detailed drawings of all main	PAD-USCG-02 Rev.D	2019-08-05
Electrical wiring diagram	PAD-USCG-05 Rev.D	2019-02-28
Bill of material	PAD-USCG-01 Rev.G	2019-02-28

Ostala oprema proizvedena od-:
Other equipment manufactured by-:

Filter

Proizvođač/*Manufacturer:* Panasia
Tip/*Type:* PF-serija/*series*
Kapacitet/*Capacity:* 50 do/to 3000 m³/h
Veličina mrežice/*Mesh size:* 50 μm
Proračunski tlak/*Design pressure:* 10 bar
Najveća radna temperatura/*Maximum working temperature:* 55°C

UV reaktor/UV reactor module

Proizvođač/Manufacturer: Pansia

Veličina/Size: PU50; PU250; PU500; PU1000; PU1250; PU1500

Najveći potvrđeni protok/Maximum certified flow: 50 m³/h; 350 m³/h; 700 m³/h; 1000 m³/h; 1250 m³/h; 1500 m³/h

Proračunski tlak/Design pressure: 10 bar

Prema nacrtu opreme/sklopnom nacrtu br.: —
To equipment / assembly drawing No.:

datum
date

Nazivni kapacitet obrade: 50 - 6000 m³/h
Treatment rated capacity:

Ova Potvrda o tipnom odobrenju izdana je na osnovu odobrenja od Norveških pomorskih vlasti, Potvrda br.: TAP00001VN.
This Type Approval Certificate is issued based on approval by Norwegian Maritime Authority, Certificate No.: TAP00001VN.

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.

Model	Nazivni kapacitet obrade <i>Treatment rated capacity (m³/h)</i>	Filter model	UV-reaktor (broj lampi) <i>/UV-reactor (number of lamps)</i>
P50	50	PF50	PU50 (2)
P150/ P150-Ex	150	PF250	PU250 (6)
P250/ P250-Ex	250	PF250	PU250 (8)
P300/ P300-Ex	300	PF500	PU250 (12)
P350/ P350-Ex	350	PF500	PU250 (12)
P500/ P500-Ex	500	PF500	PU500 (18)
P700/ P700-Ex	700	PF750	PU500 (24)
P750/ P750-Ex	750	PF750	PU1000 (22)
P750-1/ P750-1-Ex	750	PF750	PU250 (8)+PU500 (18)
P800/ P800-Ex	800	PF900	PU1000 (22)
P800-1/ P800-1-Ex	800	2 x PF500	PU250 (12)+PU500 (18)
P900/ P900-Ex	900	PF900	PU1000 (22)
P900-1/ P900-1-Ex	900	2 x PF500	2 x PU500 (18)
P1000/ P1000-Ex	1000	PF1200	PU1000 (22)
P1000-1/ P1000-1-Ex	1000	2 x PF500	2 x PU500 (18)
P1200/ P1200-Ex	1200	PF1200	PU1250 (26)
P1200-1/ P1200-1-Ex	1200	2 x PF750	2 x PU500 (24)
P1500/ P1500-Ex	1500	PF1500	PU1500 (32)
P1500-1/ P1500-1-Ex	1500	3 x PF500	3 x PU500 (18)
P2000/ P2000-Ex	2000	PF2000	2 x PU1000 (22)
P2000-1/ P2000-1-Ex	2000	3 x PF750	3 x PU500 (24)
P2500/ P2500-Ex	2500	PF2500	2 x PU1250 (26)
P2500-1/ P2500-1-Ex	2500	PF2500	4 x PU500 (24)
P3000/ P3000-Ex	3000	PF3000	2 x PU1500 (32)
P3000-1/ P3000-1-Ex	3000	PF3000	6 x PU500 (18)
P3500/ P3500-Ex	3500	3 x PF1200	3 x PU1250 (26)
P4000/ P4000-Ex	4000	3 x PF1500	3 x PU1500 (32)
P4500/ P4500-Ex	4500	3 x PF1500	3 x PU1500 (32)
P5000/ P5000-Ex	5000	2 x PF2500	4 x PU1250 (26)
P6000/ P6000-Ex	6000	2 x PF3000	4 x PU1500 (32)

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

Veličina UV-reaktora <i>UV-reactor size</i> <i>[m³/h]</i>	Donja granica intenziteta UV zračenja u morskoj i bočatoj vodi pri punom protoku (TRC) <i>UV intensity lower limit in marine and brackish water at full flow (TRC)¹</i>	Donja granica intenziteta UV zračenja u slatkoj vodi pri punom protoku (TRC) <i>UV intensity lower limit in fresh water at full flow (TRC)²</i>	Donja granica intenziteta UV zračenja u svim salinitetima pri pola protoka <i>UV intensity lower limit in all salinities at half flow³</i>
50-6000	700 W/m ²	900 W/m ²	600 W/m ²

¹) Intenzitet UV zračenja pri punom protoku u morskoj i bočatoj vodi, koji odgovara UV transmitanciji od približno 55-60%. Kod intenziteta UV zračenja ispod ove granice balastna voda će automatski biti obrađena uz smanjeni protok od 50% TRC.

UV intensity set point for full flow treatment in marine and brackish water, corresponding to an UV transmission of approximately 55-60%. Below this UV intensity limit, ballast water will automatically be treated with the reduced flow of 50% TRC.

²) Intenzitet UV zračenja pri punom protoku u slatkoj vodi, koji odgovara UV transmitanciji od približno 70%. Kod intenziteta UV zračenja ispod ove granice balastna voda će automatski biti obrađena uz smanjeni protok od 50% TRC.

UV intensity set point for full flow treatment in fresh water, corresponding to an UV transmission of approximately 70%. Below this UV intensity limit, ballast water will automatically be treated with the reduced flow of 50% TRC.

³) Intenzitet UV zračenja pri pola protoka, koji odgovara UV transmitanciji od približno 50-55%. Kod intenziteta UV zračenja ispod ove granice balastna voda nije obrađena u skladu s ovom Potvrdom što će biti signalizirano kod intenziteta ≤ 590 W/m².

UV intensity set point for half flow treatment, corresponding to an UV transmission of approximately 50-55%. Below this UV intensity limit, the ballast water is not treated in accordance with this certificate and alarm will be triggered at ≤ 590 W/m².

Ostala ograničenja uključuju sljedeće:

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:* nije potrebno/*not required*

Ova oprema je projektirana za rad u sljedećim 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

Uprava
Administration of

Izdana
Issued this

Valjana do
Valid until this

8.

8th

8.

8th

Marinko Popović, dipl.ing.

Republika Hrvatska

Republic of Croatia

8. dana siječnja 2020.

day of January 2020

8. dana siječnja 2024.

day of January 2024

* Unesi projektne ograničenja sustava
Insert system design limitations