

**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:

Name of ballast water management system:

GloEn-Patrol 2.0/ GloEn-Patrol 2.01

Sustav za obradu balastnih voda proizveden od:

Ballast water management system manufactured by:

PANASIA CO. LTD.

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/ 2.01 (veličina P50-P6000), GloEn-Patrol 2.0/ 2.01 EX (veličina P150-P6000)–
sustav za obradu balastnih voda koji koristi filtraciju i UV zračenje.

*GloEn-Patrol 2.0/ 2.01 (model range P50-P6000), GloEn-Patrol 2.0/ 2.01 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.:

To equipment / assembly drawing No.:

datum:

date:

Piping & instrument diagram

PAD-GPC-D04 Rev.A

2023-02-01

BWMS all model drawings

PAD-GPC-D03 Rev.A

2023-02-01

Detailed drawings of all main components

PAD-GPC-D02 Rev.A-1

2023-09-01

Electrical wiring diagram

PAD-GPC-D05 Rev.A

2023-02-01

Bill of material

PAD-GPC-D01 Rev.A-1

2023-09-01

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

Električna i elektronička oprema/ Electrical and electronic equipment:

Upravljački panel/ Control panel

Proizvođač/Manufacturer: Pansia

Model: PCP-8W; PCP-8S; PCP-14S

Panel za napajanje UV/ UV power supply panel

Proizvođač/Manufacturer: Pansia

Model: PBP-7XEB; PBP-10XEB; PBP-14XEB ; PBP-20XEB

Panel za daljinsko upravljanje/ Repeat panel for remote control

Proizvođač/Manufacturer: Pansia

Model: PRP

Pretvornik intenziteta UV zračenja / UV intensity transmitter

Proizvođač/Manufacturer: IL Metronic

Model: SUV20.2 Y2 C

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

datum
date

Označavanje opreme:

Marking of equipment:

- Oznaka proizvođača/ Manufacturer's name or trademark
- Tip i model/ Type and model designation
- Serijski broj/ Serial number

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, Rev.9.

This Type Approval Certificate is issued based on approval by Norwegian Maritime Authority, Certificate No.: TAP00001VN, Rev.9.

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 (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

Sustav primjenjuje količinu UV zračenja upravljaju protokom i intenzitetom UV zračenja.
System applies an UV dose controlled by flow and UV intensity.

Model/ Veličina UV-reaktora <i>Model/ 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>
GloEn-Patrol 2.0/ 50-6000	700 W/m ²	900 W/m ²	600 W/m ²
GloEn-Patrol 2.01/ 50-6000	900 W/m ²	900 W/m ²	600 W/m ²

¹⁾ Intenzitet UV zračenja 700 W/m² pri punom protoku u morskoj i bočatoj vodi, koji odgovara UV transmitanciji od približno 55-60%. Intenzitet UV zračenja 900 W/m² pri punom protoku u morskoj i bočatoj 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 700 W/m² for full flow treatment in marine and brackish water, corresponding to an UV transmission of approximately 55-60%. UV intensity set point 900 W/m² for full flow treatment in marine and brackish 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.

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 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:* nije potrebno/*not required*

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 <i>Official stamp</i>	Potpis <i>Signed</i> Marinko Popović, dipl.ing.		
	Uprava <i>Administration of</i> Republika Hrvatska Republic of Croatia		
	Izdana <i>Issued this</i>	11. 11 th	dana day of	siječnja 2024. January 2024
	Valjana do <i>Valid until this</i>	8. 8 th	dana day of	siječnja 2028. January 2028

* Unesi projektne ograničenja sustava
Insert system design limitations