



U. S. Department of Homeland Security
United States Coast Guard
Certificate of Approval

Coast Guard Approval Number: 162.060/14/0

Expires: 14 December 2023

BALLAST WATER MANAGEMENT SYSTEM
Filtration/Ultraviolet

Panasia Co., Ltd.
#55, Mieumsandan 3-ro, Gangseo-gu,
Busan KOREA, REPUBLIC OF

GloEn-Patrol BWMS

Capacities: 50-6,000 m3/h

This is to certify that the above listed BWMS, with the listed treatment capacities, has been satisfactorily examined and tested by Independent Lab DNV GL in accordance with the requirements contained in 46 CFR 162.060. The system shall be installed and operated in accordance with the Panasia Operation, Maintenance, and Safety Manual (OMSM), Rev. 0-1, dated December 12, 2018.

Operational Limitations:

Salinity: Not Applicable
Water Temperature: -2 to 40°C
Hold Time: >48 Hours
Filter Inlet Pressure: >1.0 bar
UV-Intensity: >900 W/m² (at 100% TRC) and >600 W/m² (at 50% TRC)

The BWMS meets the requirements of 46 CFR 111.105 and may be installed in hazardous locations to which it is certified on a U.S. flag vessel. The electrical supply and control systems must remain outside of hazardous locations. The BWMS may be installed in hazardous locations to which it is certified on foreign flag vessels subject to the approval of the foreign administration.

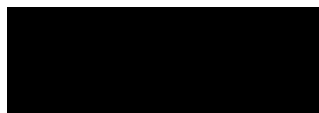
The BWMS must be marked in accordance with 46 CFR 162.060-22.

A copy of this Type Approval Certificate shall be carried on board a vessel fitted with the ballast water management system at all times.

*** End ***

THIS IS TO CERTIFY THAT the above named manufacturer has submitted to the undersigned satisfactory evidence that the item specified herein complies with the applicable laws and regulations as outlined on the reverse side of this Certificate, and approval is hereby given. This approval shall be in effect until the expiration date hereon unless sooner canceled or suspended by proper authority.

GIVEN UNDER MY HAND THIS 14th DAY OF
DECEMBER 2018, AT WASHINGTON D.C.



Chief, Engineering Division
BY DIRECTION OF THE COMMANDANT

