



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.  
FS21PTB00026\_01

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

潘亚株式会社  
Panasia Co., Ltd.

地址/Address

55, Mieumsandan3-ro, Gangseo-gu, Busan, Korea

产品名称/Product

压载水处理设备  
Ballast Water Management Equipment  
压载水管理系统  
Ballast Water Management System

附加标志/Notations

无/Nil.

认可标准/Approval Standard

- 2004年国际船舶压载水及沉积物控制和管理公约  
International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004
- 国际海事组织 MEPC. 300 (72) 决议 《压载水管理系统认可规则》  
IMO Resolution MEPC.300(72) Code for approval of ballast water management systems (BWMS Code)
- 中国船级社《钢质海船入级规范》(2021) 及其修改通报第3篇第1, 2章, 第4篇第1, 2, 3章, 第8篇第26章  
Chapter 1&2, Part Three and Chapter 1&2&3, Part Four and Chapter 26, Part Eight of China Classification Society Rules for Classification of Sea-going Steel Ships (2021) and its Amendments

用于/Intended for

国内航行海船/Domestic sea-going ship , 国际航行海船/International sea-going ship

证书有效期至/This Certificate is valid until 2025年09月08日/ Sep. 08, 2025

发证机构/Issued by 中国船级社釜山分社  
CCS Busan Branch

签发日期/Date 2021年09月09日  
Sep. 09, 2021

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Form No: T01.

联系方式/Contact Us, 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P021-88792613

**产品明细/Product Description****压载水管理系统/Ballast Water Management System (M0001)**

名称/Name	属性 (值) /Value	单位/Unit
商标/Trademark	GloEn-Patrol 2.0	
型号/Type	GloEn-P50, GloEn-P150(-Ex), GloEn-P250(-Ex), GloEn-P300(-Ex), GloEn-P350(-Ex), GloEn-P500(-Ex), GloEn-P700(-Ex), GloEn-P750(-Ex), GloEn-P800(-Ex), GloEn-P900(-Ex), GloEn-P1000(-Ex), GloEn-P1200(-Ex), GloEn-P1500(-Ex), GloEn-P2000(-Ex), GloEn-P2500(-Ex), GloEn-P3000(-Ex), GloEn-P3500(-Ex), GloEn-P4000(-Ex), GloEn-P4500(-Ex), GloEn-P5000(-Ex), GloEn-P6000(-Ex)	
图号/Drawing No.	PAD-USCG-03, PAD-USCG-02-2, PAD-USCG-02-1, PAD-USCG-05, PAD-USCG-01, Appendix A & 1/2/3/4/5/6	
额定处理能力/Treatment Rated Capacity	50~6000	m3/h
系统组成/System Component	Control Panel, UV Power Supply Panel, Repeat Panel for Remote Control, UV Intensity Transmitter, Filter Unit, etc.	

**批准的图纸/Approved Drawings**

图纸批准号/ Drawings Approval No. : NP19PPP04720

**产品认可试验报告/ Approval Test Report**

试验报告编号/ Test Report No. : KOMERI-0306-18T1376-1

试验报告日期/ Test Report Date : 2018-05-18

试验报告编号/ Test Report No. : KOMERI-0307-18T1379

试验报告日期/ Test Report Date : 2018-05-18

试验报告编号/ Test Report No. : KOMERI-0311-18T1367

试验报告日期/ Test Report Date : 2018-05-18

试验报告编号/ Test Report No. : KOMERI-0314-18T1370

试验报告日期/ Test Report Date : 2018-05-17

试验报告编号/ Test Report No. : KOMERI-0602-18T1373

试验报告日期/ Test Report Date : 2018-05-17

试验报告编号/ Test Report No. : KRISS-1801-00540-001

试验报告日期/ Test Report Date : 2018-05-14

试验报告编号/ Test Report No. : SGS-R21-1333-EN00

试验报告日期/ Test Report Date : 2021-05-31

试验报告编号/ Test Report No. : SGS-R21-1336-EN00

试验报告日期/ Test Report Date : 2021-05-31

试验报告编号/ Test Report No. : SGS-F690501--RF-EMH001259

试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001260

试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001265

试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001266

试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001272  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001273  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001281  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001282  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001294  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001295  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001309  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001310  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001314  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001315  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001325  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001346  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001347  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-F690501-RF-EMH001377  
试验报告日期/ Test Report Date : 2021-06-23

试验报告编号/ Test Report No. : SGS-R15-2279-EN00  
试验报告日期/ Test Report Date : 2015-12-24

试验报告编号/ Test Report No. : SGS-R15-2280-EN00  
试验报告日期/ Test Report Date : 2015-12-24

试验报告编号/ Test Report No. : SGS-R15-2292-EN01  
试验报告日期/ Test Report Date : 2016-01-06

试验报告编号/ Test Report No. : SGS-R15-2293-EN01  
试验报告日期/ Test Report Date : 2016-01-06

试验报告编号/ Test Report No. : KOMERI-P-24-03 (9)  
试验报告日期/ Test Report Date : 2014-11-18

试验报告编号/ Test Report No. : STA-R18-0001  
试验报告日期/ Test Report Date : 2018-03-12

试验报告编号/ Test Report No. : STA-R16-0001  
试验报告日期/ Test Report Date : 2017-12-21

试验报告编号/ Test Report No. : SGS-E19-0049  
试验报告日期/ Test Report Date : 2019-07-08

试验报告编号/ Test Report No. : SGS-E19-0050

试验报告日期/ Test Report Date : 2019-07-08

试验报告编号/ Test Report No. : SGS-E19-0057

试验报告日期/ Test Report Date : 2019-08-05

试验报告编号/ Test Report No. : SGS-E19-0058

试验报告日期/ Test Report Date : 2019-08-05

试验报告编号/ Test Report No. : SGS-R19-1719-EN00

试验报告日期/ Test Report Date : 2019-07-29

试验报告编号/ Test Report No. : SGS-R19-1720-EN00

试验报告日期/ Test Report Date : 2019-07-29

试验报告编号/ Test Report No. : SGS-R19-1736-EN00

试验报告日期/ Test Report Date : 2019-07-30

试验报告编号/ Test Report No. : SGS-R19-1737-EN00

试验报告日期/ Test Report Date : 2019-07-30

试验报告编号/ Test Report No. : SGS-R18-1520-EN00

试验报告日期/ Test Report Date : 2018-08-08

试验报告编号/ Test Report No. : KOMERI-0906-15T1587

试验报告日期/ Test Report Date : 2015-12-23

试验报告编号/ Test Report No. : Final Land-based Report 19 December 2017

试验报告日期/ Test Report Date : 2017-12-19

试验报告编号/ Test Report No. : Final report 11820902 / 2018. 03. 27

试验报告日期/ Test Report Date : 2018-03-27

试验报告编号/ Test Report No. : Revised Final Report 11820902 / 2019-03-04

试验报告日期/ Test Report Date : 2019-03-04

试验报告编号/ Test Report No. : Final report - 11818185 / 2018. 03. 28

试验报告日期/ Test Report Date : 2018-03-28

试验报告编号/ Test Report No. : PAQI-03-13-CCS-TA

试验报告日期/ Test Report Date : 2021-08-12

## 认可后的产品检验方式/ Method of Product Inspection after Approval

按规范认可后应进行产品检验的产品/The product should be inspected in term of the rules:

认可后的产品检验应由本社验船师根据本社规范规定按批准的产品检验计划进行检验, 经检验合格后由本社颁发船用产品证书。

After approval, product inspection should be carried out by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Marine Product Certificate will be issued by the Society upon satisfactory inspection.

## 认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's

approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

#### 备注/Remarks

1. 本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。

The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

2. 船上安装应满足 IACS UR M74相关要求。

Onboard installation shall meet the relevant requirements of IACS UR M74 Installation of Ballast Water Management System.

3. 同时颁发压载水管理系统型式认可证书 (IMO 格式: CP384.2)

Certificate of Type Approval (IMO) for Ballast Water Management System (Form CP384.2) is issued by CHINA CLASSIFICATION SOCIETY together with this certificate.

中国船级社釜山分社

**CCS Busan Branch**

注: 本证书含有附页, 共3页

Note: The certificate is attached with additional 3 page(s)

## 产品明细/Product Description

## 压载水管理系统/ Ballast Water Management System

## 1. Product particulars:

**Name of product:** GloEn-Patrol 2.0 Ballast Water Management System

**Treatment sequence:**

- Ballast water uptake: Filter and UV disinfection
- Ballast water discharge: UV disinfection

**Type and model designations:**

GloEn-P50, GloEn-P150(-Ex), GloEn-P250(-Ex), GloEn-P300(-Ex), GloEn-P350(-Ex), GloEn-P500(-Ex), GloEn-P700(-Ex), GloEn-P750(-Ex), GloEn-P800(-Ex), GloEn-P900(-Ex), GloEn-P1000(-Ex), GloEn-P1200(-Ex), GloEn-P1500(-Ex), GloEn-P2000(-Ex), GloEn-P2500(-Ex), GloEn-P3000(-Ex), GloEn-P3500(-Ex), GloEn-P4000(-Ex), GloEn-P4500(-Ex), GloEn-P5000(-Ex), GloEn-P6000(-Ex)

**System design limitations:**

Ambient Temperature: 0 to 55°C

Water Temperature: -2 to 40°C

Salinity of water to be treated: 0~37PSU;

Inlet Pressure: > 1 bar

Differential Pressure (Back-flushing):  $\geq 0.1$  bar

Maximum Working Pressure: 10 bar

**Operational Performance Range ( UVI mW/cm<sup>2</sup> /UVT%)**

Salinity condition	Type		USCG HT≥2day	USCG HT<2day	IMO G8
Marine/Brackish Water	Full	UVI	x> 90	x>90	x>70
		UVT	x> 70	x>70	x> 60
	Half	UVI	60 < x < 90	60 < x < 90	60 < x < 70
		UVT	55 < x < 70	55 < x < 70	55 < x < 60
*Fresh Water	Full	UVI	x> 90	x> 110	x> 90
		UVT	x> 70	x> 75	x> 70
	Half	UVI	60 < x < 90	82 < x < 110	60 < x < 90
		UVT	55 < x < 70	63 <x<75	55 < x < 70
Holding time			2days	1day	N/A
Remark			"x": measured value *Fresh Water means when the salinity is ≤1 PSU		

**Treatment Rated Capacity (TRC) of the BMWS**

Model name	TRC	UV unit (number of lamps)	Filter unit
GloEn-P50	50 m <sup>3</sup> /h	PU50 (2)	PF50
GloEn-P150 (-Ex)	150 m <sup>3</sup> /h	PU250 (6)	PF250
GloEn-P250 (-Ex)	250 m <sup>3</sup> /h	PU250 (8)	
GloEn-P300 (-Ex)	300 m <sup>3</sup> /h	PU250 (12)	PF500
GloEn-P350 (-Ex)	350 m <sup>3</sup> /h		
GloEn-P500 (-Ex)	500 m <sup>3</sup> /h	PU500 (18)	

Model name	TRC	UV unit (number of lamps)	Filter unit
GloEn-P700 (-Ex)	700 m3/h	PU500 (24)	PF750
GloEn-P750 (-Ex)	750 m3/h	PU1000 (22)	
GloEn-P750-1 (-Ex)	750 m3/h	PU250 (8) + PU500 (18)	
GloEn-P800 (-Ex)	800 m3/h	PU1000 (22)	PF900
GloEn-P800-1 (-Ex)	800 m3/h	PU250(12)+PU500(18)	2 x PF500
GloEn-P900 (-Ex)	900 m3/h	PU1000o2)	PF900
GloEn-P900-1 (-Ex)	900 m3/h	2 x PU500 (18)	2 x PF500
GloEn-P1000 (-Ex)	1.000 m3/h	PU1000 (22)	PF1200
GloEn-P1000-1 (-Ex)	1 000 m3/h	2 x PU500 (18)	2 x PF500
GloEn-P1200 (-Ex)	1.200 m3/h	PU1250 (26)	PF1200
GloEn-P1200-1 (-Ex)	1 200 m3/h	2 x PU500 (24)	2 x PF750
GloEn-P1500 (-Ex)	1.500 m3/h	PU1500 (32)	PF1500
GloEn-P1500-1 (-Ex)	1 500 m3/h	3 x PU500 (18)	3 x PF500
GloEn-P2000 (-Ex)	2.000 m3/h	2 x PU1000 (22)	PF2000
GloEn-P2000-1 (-Ex)	2 000 m3/h	3 x PU500 (24)	3 x PF750
GloEn-P2500 (-Ex)	2.500 m3/h	2 x PU1250 (26)	PF2500
GloEn-P2500-1(-Ex)	2.500 m3/h	4 x PU500 (24)	PF2500
GloEn-P3000 (-Ex)	3 000 m3/h	2 x PU1500 (32)	PF3000
GloEn-P3000-1 (-Ex)	3.000 m3/h	6 x PU500 (18)	PF3000
GloEn-P3500 (-Ex)	3 500 m3/h	3 x PU1250 (26)	3 x PF1200
GloEn-P4000 (-Ex)	4.000 m3/h	3 x PU1500 (32)	3 x PF1500
GloEn-P4500 (-Ex)	4 500 m3/h	3 x PU1500 (32)	3 x PF1500
GloEn-P5000 (-Ex)	5.000 m3/h	4 x PU1250 (26)	2 x PF2500
GloEn-P6000 (-Ex)	6 000 m3/h	4 x PU1500 (32)	2 x PF3000
NOTE: This table shows general system configuration as recommended by the manufacturer. A GloEn-Patrol 2.0 BWMS model may be used with a larger filter unit than specified above. The maximum TRC of any configuration is determined by either the maximum capacity of the UV unit or the filter unit whichever is smaller			

**Filter Unit**

Type of filter	Capacity	Filter element	Design pressure
PF50	50 m3/h	50µm	10bar
PF250	250 m3/h	50µm	10bar
PF500	500 m3/h	50µm	10bar
PF750	750 m3/h	50µm	10bar
PF900	900 m3/h	50µm	10bar
PF1200	1200 m3/h	50µm	10bar
PF1500	1500 m3/h	50µm	10bar
PF2000	2000 m3/h	50µm	10bar
PF2500	2500 m3/h	50µm	10bar
PF3000	3000 m3/h	50µm	10bar

**UV Unit**



Model Name	Application	Number of Lamps	Maximum Capacity (TRC)
PU50(2)	Standard model	2	50 m3/h
PU250(6) (-Ex)		6	150 m3/h
PU250(8) (-Ex)		8	250 m3/h
PU250(12) (-Ex)		12	350 m3/h
PU500(18) (-Ex)		18	500 m3/h
PU500(24) (-Ex)		24	700 m3/h
PU1000(22) (-Ex)	High Capacity model	22	1000 m3/h
PU1250(26) (-Ex)		26	1250 m3/h
PU1500(32) (-Ex)		32	1500 m3/h

Note:  
 (1) PU### model is used in non-hazardous area(s);  
 (2) PU### -Ex (explosion-proof) model is IEC-Ex certified and used for hazardous area (Zone 1).  
 Explosion proof type (Optional)  
 a. IEC-Ex : Ex px IIC T4 Gb (-20℃ ≤ Ta ≤ 60 ℃)  
 b. ATEX : II 2 G Ex px IIC T4 (-20 ℃ ≤ Ta ≤ 60℃)

**Electrical and electronic components**

Component name	Manufacturer	Model(s)
Control panel	PANASIA	PCP-8W PCP-8S PCP-14S
UV power supply panel	PANASIA	PBP-7XEB PBP-10 XEB PBP-14XEB PBP-20XEB
Repeat panel for remote control	PANASIA	PRP
UV intensity transmitter	IL Metronic	SUV20.2 Y2 C

**Ex-proof:**

It means Explosion-proof type when "-Ex" was added after the type of ordinary products.

The Explosion-proof part of Ballast Water Management System is approved for use in hazardous area. Explosion-proof of grade of electrical control parts should meet the classification society requirements of the installation position in ship.

The Ex-Proof parameters of the approved/inspected products originate from Ex- Certificate received from manufacturer, not approved/inspected by CCS. This Type Approval Certification will be invalid if the approved products do not hold valid Ex- Certificate. Ex-Certificate refer to document No. Appendix. A dated on August 21, 2020.

**Remark:**

This certificate is transformed from DNVGL Cert (No.TAP00001VN, dated on August 16, 2019) and test report.

--End of Text--