



# PT. BIRO KLASIFIKASI INDONESIA (Persero)

## HEAD OFFICE

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Website : www.bki.co.id

Reff No. : **B. 07391/PS.303/KI-21**  
Attachment(s) : 1 (one) Set of Certificate  
Subject : **BKI Type Approval Certificate**

Jakarta, 15 July 2021

**DESMI OCEAN GUARD A/S**  
Lufthavnsvej 12, Nørresundby, 9400

### DENMARK

1. We would like to thank you for your interest and commitment to have your products to be approved by PT. Biro Klasifikasi Indonesia (Persero). Following your application and completion of approval process, we are glad to inform you that your products have already met the requirements and BKI has issued type approval certificate for the following products :

Product	No. of Approval Certificate	No. of Approval	Type of Product
BALLAST WATER MANAGEMENT SYSTEM	00063.21.SP00289	00380TA21	CompactClean & Compact Clean EX

2. BKI will cancel the type approval certificate when the following conditions occur :
  - a. The approval fees are not paid.
  - b. The product is no longer meet requirements of BKI Rules.
  - c. The company doesn't not make improvement, even though BKI request to do the investigation and correction for the following conditions :
    - Non-conformance product is found after product delivery.
    - Product defect is found during manufacturing process.
    - Production and quality control system is found unsatisfactory.
  - d. Periodical surveillance and assessment is not performed annually.
  - e. When a request for withdrawal is made by manufacturer.
3. Furthermore, you are requested to fill and send the application form to BKI together with the drawings to BKI Branch Office whenever you want to make the products that will be installed in vessels with BKI class.
4. Thank you for your kind attention and cooperation. We are looking forward to productive partnership and wish you a lot of success with your products.

o.b. Operation Director  
Head of Material & Component Division

**SALVINUS PATANGKE**  
NUP : 40393 - KI



# BIRO KLASIFIKASI INDONESIA

## SERTIFIKAT PERSETUJUAN TIPE *Type Approval Certificate*

No. 00063.21.SP00289

No. Persetujuan : 00380TA21  
*No. of Approval*

Tanggal Persetujuan : 02 Juli 2021  
*Date of Approval*

Dengan ini dinyatakan bahwa produk dibawah ini telah memenuhi dan disetujui berdasarkan persyaratan dari Peraturan dan/atau Standard yang tercantum dibawah ini

*This is to certify that the following products has been complied and approved in accordance with requirements of the Rules and / or Standards listed below*

Produk : **Ballast Water Management System**  
*Product*

Pembuat : **DESMI OCEAN GUARD A/S**  
*Manufacturer*  
Lufthavnsvej 12, Norresundby, 9400, Denmark

Tipe Produk : **CompactClean & CompactClean EX**  
*Type Designation*

Standard persetujuan : Rules for Approval of Manufacturers and Service Suppliers (Pt.1, Vol.XI)  
*Approval standards*  
IMO Resolution MEPC.300(72)

Sertifikat ini berlaku hingga tanggal yang ditetapkan di bawah dengan syarat jika terdapat perubahan atau modifikasi pada produk harus segera diberitahukan ke BKI.

*This certificate remains valid until the date set below provided that if there are any alterations or modifications to the approved product, BKI shall be notified immediately.*

Sertifikat ini berlaku sampai dengan : **30 Desember 2025**

*This certificate is valid until*



Jakarta 15 Juli 2021

a.n. Direktur Operasi  
Kepala Departemen Operasi Klasifikasi  
*a.o. Operation Director*  
*SVP of Classification Operation Dept.*

  
**ARIEF BUDI PERMANA**  
NUP:42896-KI

Catatan : Sertifikat ini terdiri dari 4 halaman  
*Note This certificate is consist of 4 pages*

Jika Peraturan atau Standard yang digunakan dalam proses persetujuan mengalami perubahan pada saat sertifikat ini masih berlaku, maka produk harus dilakukan persetujuan ulang sebelum dapat dipasang dikapal dimana Peraturan atau Standard tersebut berlaku.

*Should the specified Rules or Standards be amended during the validity of this certificate, the product is to be reapproved prior to it being placed on board vessels to which the amended Rules or Standards apply.*

## Lembar Pengukuhan Endorsement Sheet

Harus dikukuhkan oleh Surveyor BKI  
To be endorsed by BKI Surveyor

<p>Pemeriksaan periodik (30 Desember 2022 s/d 30 Desember 2023) <i>Periodical surveillance (30 December 2022 until 30 December 2023)</i></p> <p>No. Laporan: Report no.</p>	<p>Tanggal : <i>Date</i></p> <p>Surveyor :</p>
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Catatan : Sertifikat akan ditangguhkan secara otomatis jika tidak dikukuhkan dalam rentang waktu yang telah ditetapkan diatas.  
*Note The certificate will be automatically suspended if not endorsed within the specified time period above.*



# Lampiran Annex to Sertifikat Persetujuan Tipe Type Approval Certificate

No. Sertifikat : 00063.21.SP00289  
No of certificate

No. Persetujuan : 00380TA21  
Approval no.

### Deskripsi Produk Product Description

Ballast Water Management System using:  
Mechanical Filtration followed by Ultra Violet -C Radiation during ballast water uptake,  
Ultra Violet -C Radiation during ballast water discharge

Model numbers along with major components of the CompactClean BWMS are listed below

BWMS Model	TRC <sup>1)</sup> Flow rate (Discharge) <sup>2)</sup> (m <sup>3</sup> /h)	Primary Treatment		Secondary Treatment	
		Filter		UV Reactor	
		Filtrex	Unit No(s)	DESMI Ocean Guard	Unit No(s)
cc-35	8 - 35 (5 - 135)	ACB-903-65	1	UV-UNIT 135	1
cc-55	10 - 55 (5 - 135)	ACB-904-80	1	UV-UNIT 135	1
cc-87	15 - 87 (5 - 135)	ACB-906-100	1	UV-UNIT 135	1
cc-135	25 - 135 (5 - 135)	ACB-910-150	1	UV-UNIT 135	1
cc-190	35 - 190 (9 - 340)	ACB-915-150	1	UV-UNIT 340	1
cc-255	35 - 255 (9 - 340)	ACB-935-200	1	UV-UNIT 340	1
cc-340	45 - 340 (9 - 340)	ACB-945-200	1	UV-UNIT 340	1
cc-500	50 - 500 (13 - 500)	ACB-955-250	1	UV-UNIT 500	1
cc-750	65 - 750 (19 - 750)	ACB-985-300	1	UV-UNIT 750	1
cc-1000	95 - 1000 (26 - 1000)	ACB-999-350	1	UV-UNIT 1000	1
cc-1500	126 - 1500 (38 - 1500)	ACB-9100-400	1	UV-UNIT 1500	1
cc-2000	126 - 2000 (52 - 2000)	ACB-9120-500	1	UV-UNIT 1000	2 <sup>3)</sup>
cc-2500	126 - 2500 (64 - 2500)	ACB-9200-600	1	UV-UNIT 1000	1
				UV-UNIT 1500	1
cc-3000	126 - 3000 (76 - 3000)	ACB-9200-600	1	UV-UNIT 1500	2 <sup>3)</sup>

- 1) TRC is the maximum inlet flow to the BWMS; a flow exceeding the given value implies that the ballast water is not treated in accordance with this certificate.
- 2) Value in brackets are given if flow rate limits differ between Ballast Water Intake and Ballast Water Discharge, as defined by either Filter and/or UV-unit flow capacities. The flowrate limitations for Ballast Water Stripping operation corresponds to the flowrate limitations for Ballast Water Discharge.
- 3) UV Units are to be mounted in parallel.

**Note :**

Any combination of Main Unit(s) beyond the list of identified BWMS Models is allowed, as long as their respective stated Flow Rate(s) is adhered to for any given operation, and on the basis of the recognized Design Guide.

### Major Components

Filter	W1-H1-HQ1 (Mesh size 20 µm) (As shown in above table)
UV Reactor/ UV Unit	-W1-V1-VP1
UV Sensor	-W1-V1-BR1
UV Lamp	-W1-V1-EA1>EAXX (available in 4 and 6 KW)
External Control Box	UC03
PLC Software :	V0.52
Temperature sensor	-W1-V1-BT1
Pressure Transmitter	-W1-H1-BP1/2
Flow meter(s)	W1-BF1 (CC35 - CC1500) or W3-BF1 + W9-BF1 + W10-BF1 (CC2000 - CC3000)
Flow control valve(s)	(W1-RM2/MA2 (CC35 - CC1500) or W1-RM2/MA2 + W9-RM1/MA1 + W10-RM1/MA1 (CC2000 - CC3000))

**Kondisi Persetujuan**

*Condition of Approval*

**System Design Limitations**

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

1. Temperature & Salinity: No limitation
2. Holding Time: There is no limitation in respect of Holding Time as reflected in the report 'Hold Time Limitation of CompactClean BWMS', dated 29 August 2018
3. UV Intensity

UV-reactor size (m <sup>3</sup> /h)	UV intensity lower Limit in All Salinities (W/m <sup>2</sup> ) <sup>1, 2</sup>	UV minimum intensity @ full flow in All Salinities (W/m <sup>2</sup> ) <sup>1, 2</sup>
135	227	880
340	227	880
500	227	880
750	227	880
1000	227	880
1500	227	880

- 1) UV intensity below lower limit, corresponding to an UV transmission of approx. 42% and approx. 20% of the TRC for a given model, implies that the ballast water is not treated in accordance with this certificate
  - 2) Set in respect of max flow of given UV-Reactor size
4. Treatment Rated Capacity (TRC): As listed in table under product description.

**Dokumentasi Persetujuan**

*Approval Documentation*

1. BKI approval document no. 2141090056
2. BKI assessment report no. 00289-SP/C1/2021
3. Type Approval certificate issued by IRS no. 2020TAC088
4. IMO Type approval LR2015792TA-03 dated 04.09.2020 issued by Lloyds Register on behalf of Danish Environmental Agency (DEPA) and Danish Maritime Agency (DMA).
5. Biological test reports:

Document No.	Title	Date
11821290	Biological efficacy performance evaluation of CompactClean Ballast Water Management System in landbased test - Test Plan	12 September 2017
11821290	Biological efficacy performance evaluation of CompactClean Ballast Water Management System in landbased test - Landbased test report	21 September 2018
11821290	Biological efficacy performance evaluation of CompactClean Ballast Water Management System in shipboard test - Test Plan	03 November 2017
11821290	Biological efficacy performance evaluation of CompactClean Ballast Water Management System in shipboard test - Shipboard test report	21 September 2018

6. Environmental test reports:  
 Document No. 117-36341-1 Revision 1, Marine type testing of DESMI CompactClean BWMS - Test Report dated 28 February 2019

**Penandaan Produk**

*Marking of Product*

For traceability of this type approval, each treatment system is to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Serial number

**Pemeriksaan periodik**

*Periodical Surveillance*

For retention of the approval, a BKI Surveyor shall conduct periodical surveillance to verify that approved quality system, etc. of the manufacturing works are maintained satisfactorily.

The main scope of the periodical surveillance will normally include:

- Verification of the manufacturer's production and quality system with regard to ensure continued consistent production of the Type Approved products at the manufacturer's premises
- Review of the approval documentation and that this is still used as basis for the production
- Review of possible changes to the properties of the product
- Verification of the product marking