

Biological Sewage Treatment

- Easy to install
- Easy to operate
- Reliable

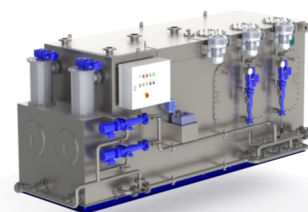
For Ocean's Sake

Technical Specification

Biological Sewage Treatment Plant

"Ocean Clean[®] EasyC-2"

Ocean Clean UltraC



General design features of EasyC STPs:

- Space-saving design for corner installation
- Engineered and designed IN GERMANY
- For black and grey water or black water only
- For gravity and vacuum systems
- Vacuum pump system available on request
- Customized solutions available on request
- Up-to-date effluent values acc. IMO MEPC.227(64)
- Compact, reliable and robust design
- Stainless steel tank

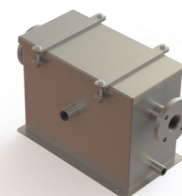
Ocean Clean EasyC



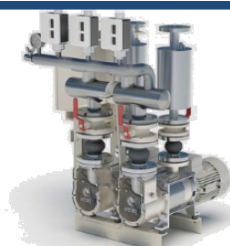
Specifications for EasyC-2:

Designed hydraulic load:	Approx. 1.7m ³ /d
Designed biological load:	Approx. 1.1kg BOD ₅ /d
Dimensions (LxWxH):	1.900x1.350x1.800mm
Dry weight / wet weight:	Approx. 700 / 2600kg
Power supply:	380-690V / 50/60Hz
Power consumption:	Approx. 4kW
Tank and piping material:	Stainless steel: SAE grade 304 EN-standard steel no.: 1.4301

Fat Trap FT-50



Vacuum System



Ocean Clean[®] - A German manufacturer of Oily Water Separators and Biological Sewage Treatment Plants.

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Contents:

1. Foreword
2. Rules and Regulations
3. STP Extensions
4. General Description
5. EasyC-2 - detailed description
6. EasyC-2 - design & calculation

Attachments: Dimensional Drawings

1. Foreword:

The EasyC sewage treatment plant (STP) is a biological treatment system that is designated for the installation and operation on ships. The following pages show the technical specifications for the EasyC-2 and its attaching parts.

2. Rules and Regulations:

Sewage treatment plants have to comply with IMO guidelines for effluent standards and undergo performance tests to ensure they are suitable to be operated on board of ships.

The EasyC STP is type approved and certified according to MARPOL 73/78 and IMO resolution MEPC.227(64) as modified by resolution MEPC.115(51) and MEPC.200(62) by the German Traffic Trade Association ("BG Verkehr") - Ship Safety Division.

The EasyC can be operated on board of all ships that carry more than 15 persons or are larger than 400 GRT. **The Certificates are accepted by USCG for non US-flagged vessels.**

Effluent values of EasyC in comparison with IMO regulations		
	EasyC	MEPC.227(64)*
Total Suspended Solids	< 10 mg/l	35 mg/l
BOD ₅	< 23 mg/l	25 mg/l
COD	< 53 mg/l	125 mg/l
Coliforms	< 10 per 100 ml	100 per 100 ml
pH	6.8 - 7.7	6-8.5
Chlorine	0.0 (not used)	0.5 mg/l

* Without consideration of N + P treatment.

3. STP Extensions:

Galley water has to be treated by a fat trap or separator before led into the STP. Sludge tank for discharge of excess sludge has to be provided. An effluent storage tank is recommended for using the STP in areas where no liquids may be discharged overboard.

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"Ocean Clean® EasyC-2"

Biological Sewage Treatment Plant Moving Bed Biofilm Reactor (MBBR)



4. General Description:

All accessory units are mounted on the STP (except vacuum unit), with all internal piping and wiring, completely checked and tested, ready to plug on. The black water and grey water flows (vacuum on request) into the STP via gravity. Incurred excess sludge inside the STP must be discharged acc. instructions into a sludge tank.

The "EasyC" is a three chamber system:

Reject material is removed in the first stage (coarse material tank). Pre-cleaned sewage enters the second stage (activation tank) where microorganisms metabolize the organic pollution into CO₂ and water. A number of exchangeable filter membranes in the last stage (filter tank) separates the cleaned water from the bio mass and excess sludge. A pump discharges the cleaned water through a UV disinfection into a filtrate tank (not part of this STP) or directly overboard.

The exchangeable filter has to be renewed acc. to instruction manual and in fixed intervals!

Ambient air is fed into the STP to support the biological process. Only biodegradable waste may be led into the STP. Excessive use of detergents or hazardous substances can destroy the biology and cause malfunctions of the STP.

In accordance with the SOLAS regulation II-I/3-5, new installation of asbestos in context with IMO MSC.1/Circ.1374 and 1379, all materials, products and components including packaging by our company are completely free of asbestos.

- **Easy to install**
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5. EasyC-2 - detailed description:

Electrical system and attached parts:

The electrical control cabinet, including transformer, level relays, all necessary switches, control relays and control lamps (LED), is made of mild steel, protected according to IP66, coated with finish RAL 7035 and equipped with cable glands with stuffing bushes acc. to DIN 89280 and door stoppers.

Start-stop level for pumps and high level alarm are measured by level switches. One potential-free contact for a common alarm to ECR is provided.

- Coarse material tank
Reject material that enters the STP is held back in a first stage.
- Discharge pump
The discharge pump is used to discharge cleaned water via the membrane filter and to empty the STP.

Technical details circulation pump / filtrate pump:	
	Discharge pump
Type	Eccentric screw pump with mechanical seal
Flange sizes suction / discharge side	DN25, PN16
Protection class	IP 55, ISO class F
Capacity [m ³ /h] at [bar]	1.0 at 6
Power [kW at Hz]	0.55 at 50

- Air blower
The air feed of the STP is supplied by a side channel blower. It forces ambient air into the tank via submerged aeration elements (aeration pipes) that both support the biology and clean the membrane filter.

Technical details side channel blower:	
Air flow [m ³ /h]	40
Pressure [mbar]	380
Power [kW at Hz]	1.1 at 50 / 1.4 at 60

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Tank:

- The EasyC is a three tank system:

In the first tank coarse material is separated from the sewage.

The second tank is to activate + accelerate biological processes.

The third tank is to separated bio mass from the cleaned water by a filter membrane.

All tanks are accessible via manholes either on top or on the sidewalls of the tank. Flanges for inlet and ventilation pipes are on the top of the STP.

The control panel as well as all pumps, blower and instruments are located on the front or on a side of the unit for easy access and a minimum footprint and maintenance space.

- Tank and piping are made of stainless steel.

Connections:

- For electrical connections please refer to the electrical diagram.
- The EasyC is factory tested and ready to plug in. It needs to be fixed to the floor by welding or bolting. The necessary pipe connections need to be established:

Pipe connection:	Inlet	Ventilation	Outlet	Flushing	Discharge
Size [DN]	DN100	DN100	DN25	DN25	DN25
Size [PN]	PN16	PN16	PN16	PN16	PN16

EasyC - version overview

The EasyC STP is available in different versions and sizes.

Type	Hydraulic load [m³/d]
Ocean Clean EasyC-2	1.7
Ocean Clean EasyC-3	3.0
Ocean Clean EasyC-5	5.0
Ocean Clean EasyC-7	7.2
Ocean Clean EasyC-9	9.0

Please contact Ocean Clean for further information.

Please note that a sufficient maintenance space is always needed to guarantee a good access to all components. The maintenance space requirement of the EasyC is very small. Please note the attached drawings for details.

Images and diagrams for illustration only. Subject to technical changes and misprints.

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6. EasyC-2 - design & calculation

The EasyC-2 is designed, calculated and type approved to treat a maximum hydraulic load of approx. 1.7m³/d and a biological load of approx. 1.1 kg BOD₅/d according to the guidelines and specifications of the German BG Verkehr as responsible authority:

	Hydraulic load [litre]					Resulting No. of persons	
Min. requirements acc. BG Verkehr	Grey Water	Black Water Vacuum	Black Water Gravity	Total Vacuum System	Total Gravity System	Vacuum System	Gravity System
Passenger vessel	160	25	70	185	230	9	7
Seagoing ship except passenger vessel	110	25	70	135	180	13	9

The Ocean Clean calculation is based on experienced data and customer feedback:

	Hydraulic load [litre]					Resulting No. of persons	
Requirements according to OC experience							
Barge	35	15	35	50	70	34	24
Commercial vessel	95	25	55	120	150	14	11
Naval vessel	135	20	65	155	200	11	9
Stationary Platform	175	25	70	200	245	9	7
Yacht (charter)	190	25	75	215	265	8	6
Working ship	190	25	75	215	265	8	6
River Cruiser	210	25	75	235	285	7	6
Cruiser	240	25	75	265	315	6	5
Yacht (owner)	350	25	75	375	425	5	4

Please request project-specific calculation for further details and a load forecast.

To ensure a solid biological process the feeding of the EasyC-2 should not fall below the following values:

	Long-term	Short-term	Design maximum
Hydraulic load	0.34m ³ /d	0.17m ³ /d	1.7m ³ /d
Biological load	0.22kg/d	0.11kg/d	1.1kg/d

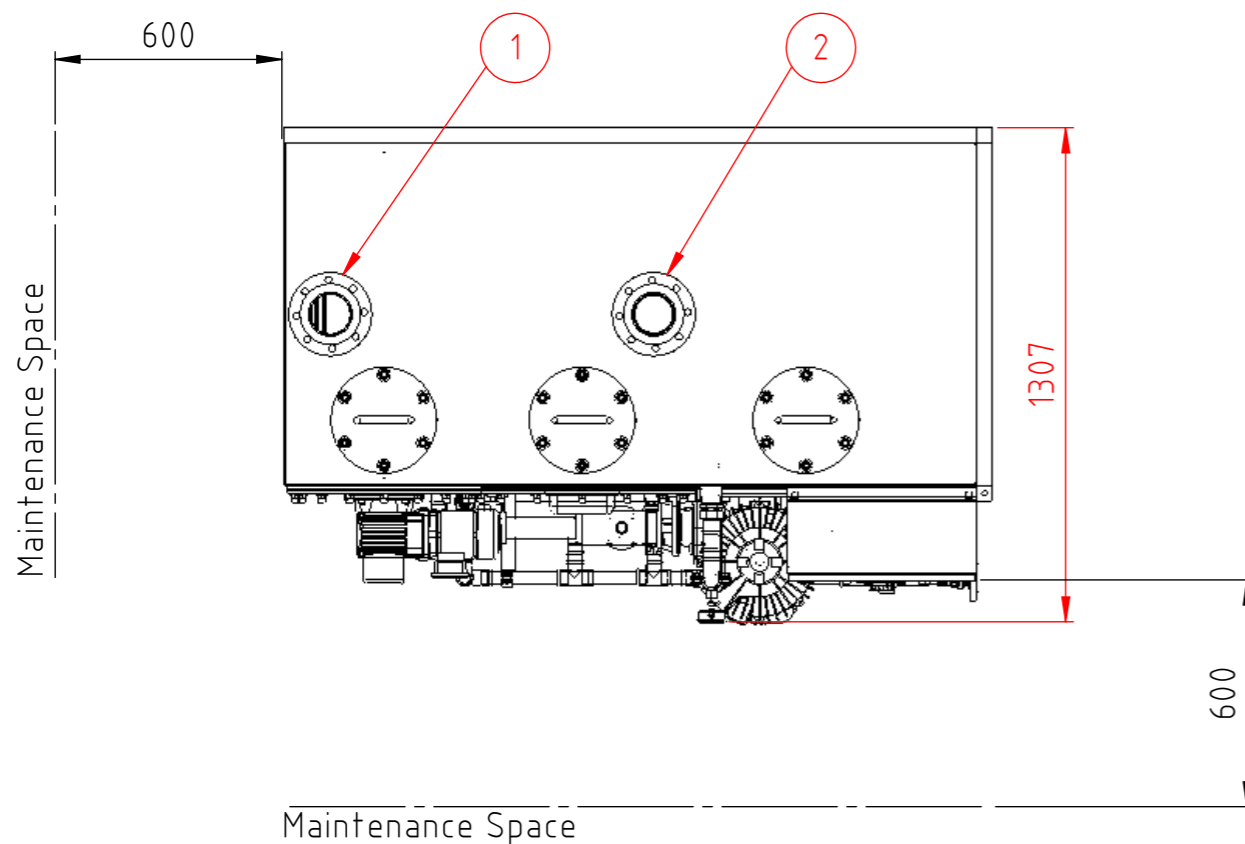
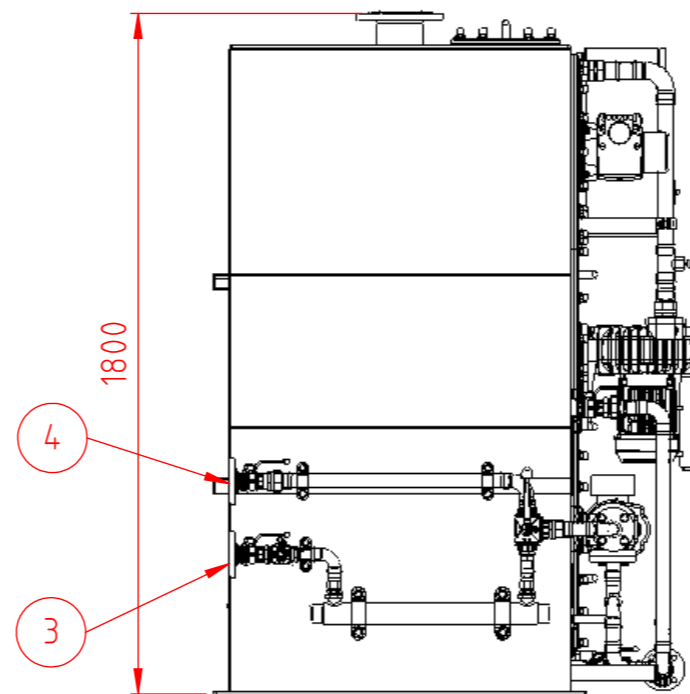
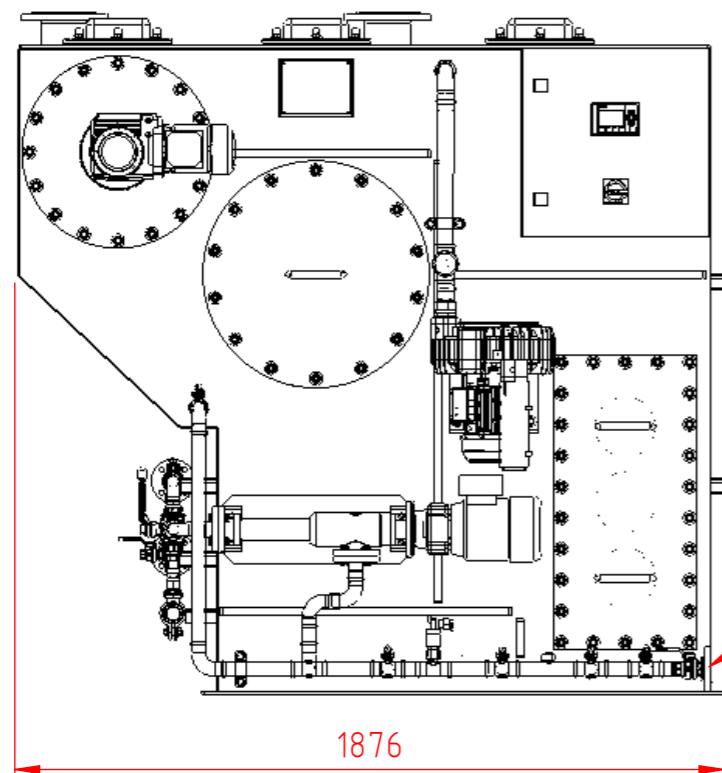
As a biological system the EasyC is sensitive to the sewage quality. Intensive use of strong detergents or the inlet of chemicals (e.g. chlorine) will destroy the microorganisms of the bio mass. Insufficient feeding may reduce the concentration of microorganisms severely and cause difficulties when feeding the STP with the standard load.

Flushing the plant and emptying it completely requires to restart the biological process.

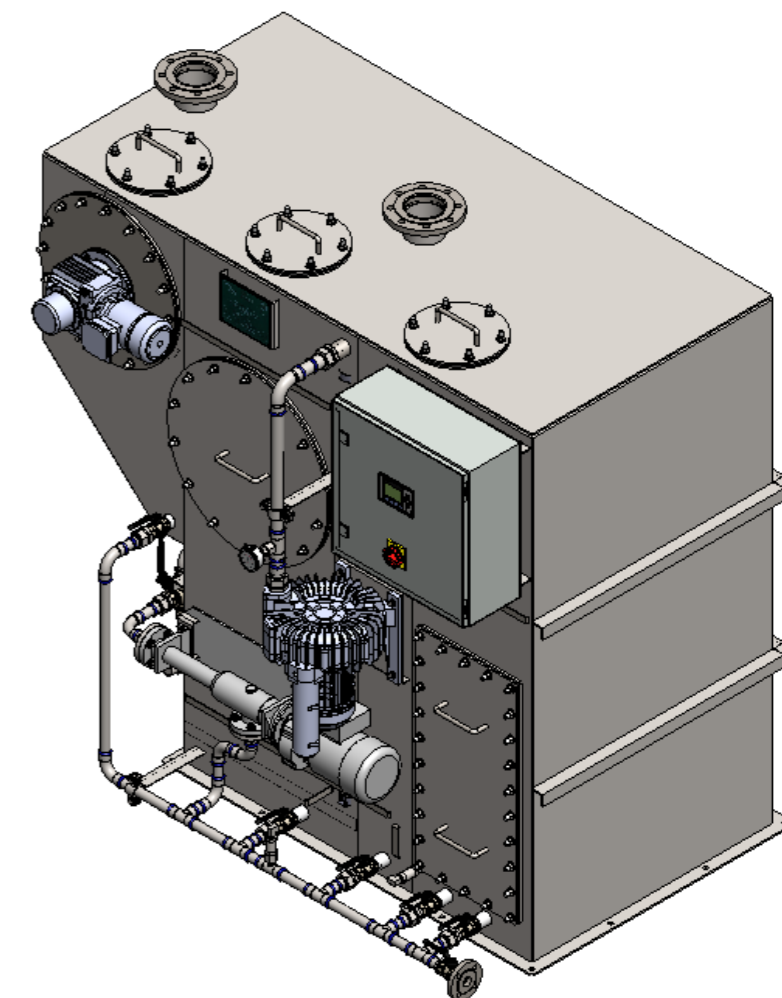
Effluent quality and hydraulic flow may vary due to condition of the filter membrane. A worn out filter membrane may stress the discharge pump. Always check the condition of the filter membrane via differential pressure gauge. Exchange when necessary.

Contact Ocean Clean for original, reliable and genuine spare parts.





Pos.	Description
1	Inlet
2	Vent
3	Effluent discharge
4	Sludge discharge
5	Flush Connection

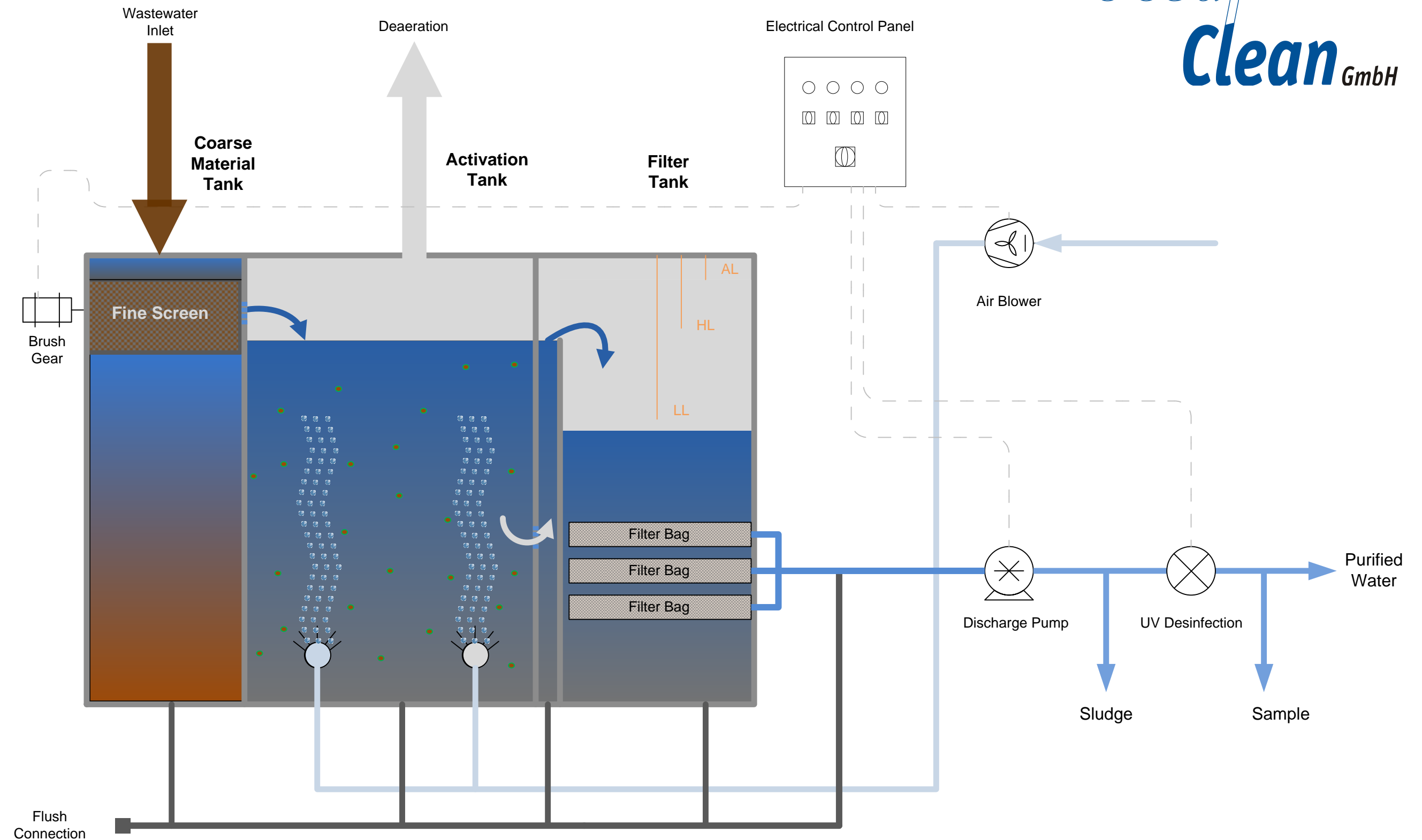


Preliminary Drawing. Subject to technical changes and misprints.

Revision : -				Oberfläche:			Maßstab:1:20		Gewicht: 679.37kg				
							Werkstoff: Stainless Steel						
					Datum	Name	Ocean Clean EasyC-2						
				Erst.	07.10.2016	M.Hille							
				Gepr.									
				Freig.									
				<div>Ocean Clean GmbH Zum Kühlhaus 5 18069 Rostock Germany Phone: +49 (0) 381-811 2930 Fax: +49 (0) 381-811 2939 info@oceanclean.de</div> <div></div>			OC-e3-BG-000-00					Seite 1/1	
Index	Änderung	Datum	Name				A3						

Biological Sewage Treatment Plant **EasyC** Operation Scheme

Ocean[®]
Clean GmbH



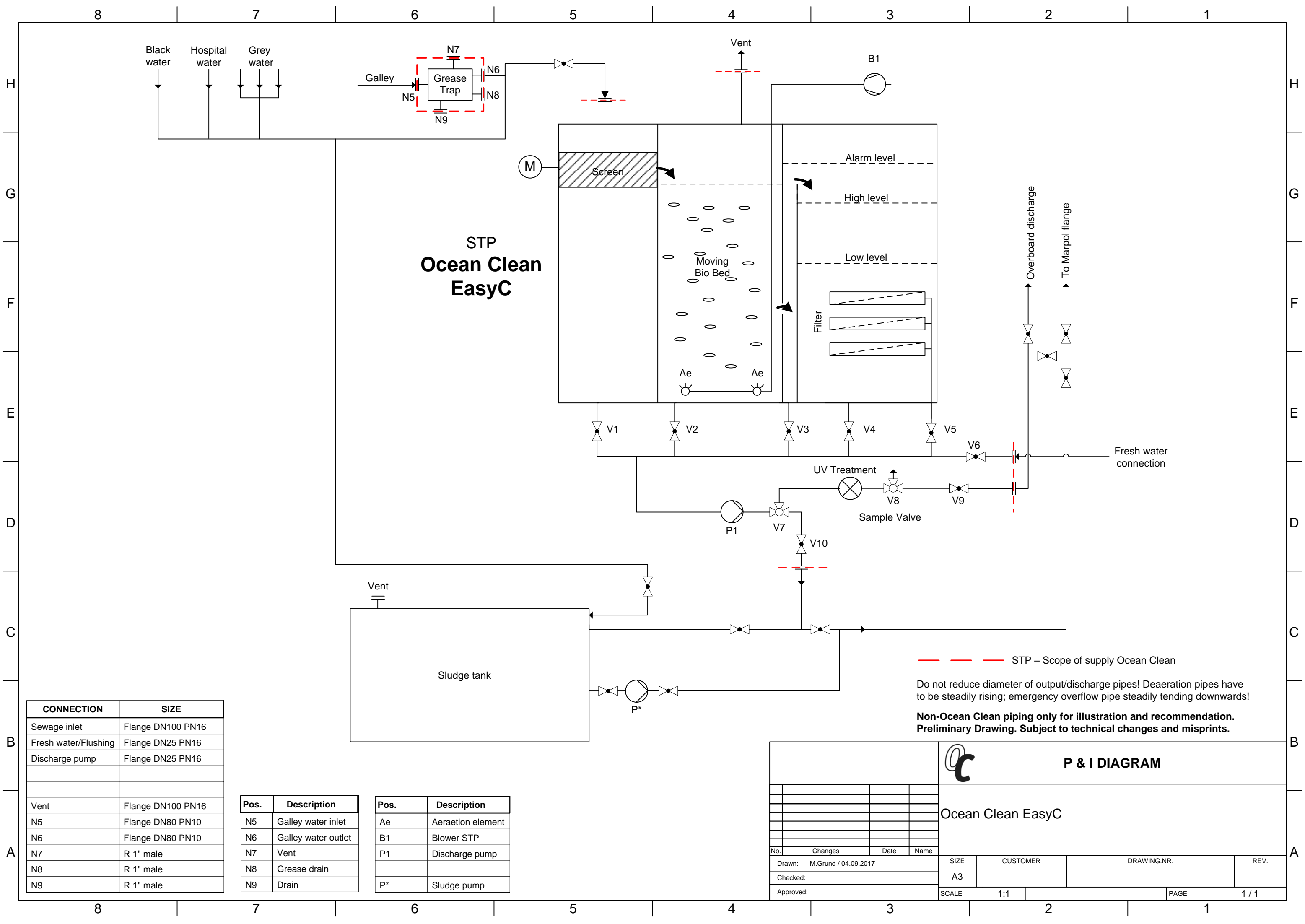
Black Water
Grey Water

Pre-treated
Wastewater

Moving Bio Bed
Equalizing & Biological Process

Settling & Filtration

Purified Water



CONNECTION	SIZE
Sewage inlet	Flange DN100 PN16
Fresh water/Flushing	Flange DN25 PN16
Discharge pump	Flange DN25 PN16
Vent	Flange DN100 PN16
N5	Flange DN80 PN10
N6	Flange DN80 PN10
N7	R 1" male
N8	R 1" male
N9	R 1" male

Pos.	Description
N5	Galley water inlet
N6	Galley water outlet
N7	Vent
N8	Grease drain
N9	Drain

Pos.	Description
Ae	Aeraetion element
B1	Blower STP
P1	Discharge pump
P*	Sludge pump

				P & I DIAGRAM			
				Ocean Clean EasyC			
No.	Changes	Date	Name	SIZE	CUSTOMER	DRAWING.NR.	REV.
Drawn: M.Grund / 04.09.2017				A3			
Checked:							
Approved:				SCALE	1:1	PAGE	1 / 1

- Easy to install
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For Ocean's Sake

Ocean Clean Grease Trap "FT-50"

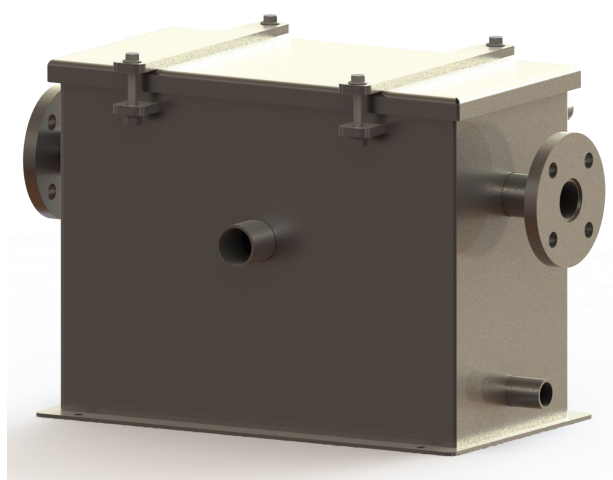
Design features:

- Compact and solid unit *MADE IN GERMANY*
- No moving parts
- No spare parts required
- Easy access for simple cleaning
- Customized solutions available on request
- Available in capacities from 0.1—1.0 m³/h
- Reliable and well known design in dependence on German DIN 4040 and DIN-EN 1825

General technical specifications for FT-50

(customized solutions available):

- Volume: 0.05m³
- Dimensions (LxWxH): 660x344x420mm
- Dry weight: 37kg
- Made of 1.4301
- Grease discharge at the top
- Cover removable
- Draining connection at the bottom



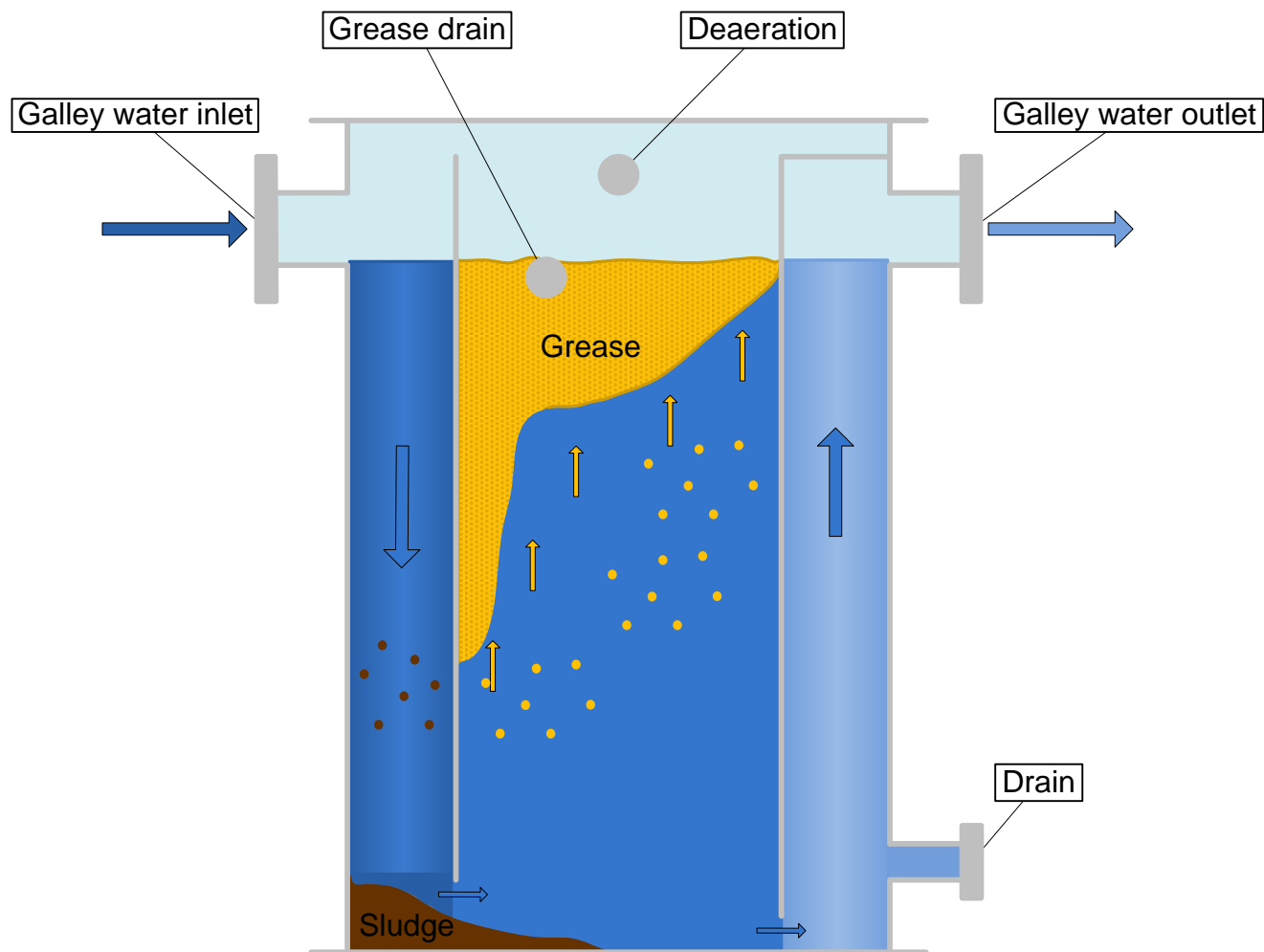
Ocean Clean[®]—A german manufacturer of Oily Bilge Separators and Biological Sewage Treatment Plants.



Fat Trap

Operation Scheme

Ocean[®]
Clean GmbH



A grease trap removes fat, oil and grease (called FOG) and solids (food particles, sand and grit etc.) by a gravity separation process.

The grease trap slows down the flow of waste water long enough for the FOG and solids to separate. The solids settle to the bottom and the grease floats to the top. The middle layer is free water which is discharged to the sewer.

The longer the flow is kept inside the trap, the better job it will do of separating the waste materials.



TYPENPRÜFUNGSZEUGNIS für Abwasser-Aufbereitungsanlagen

Certificate of Type Approval for Sewage Treatment Plants

Ausgestellt im Namen der Regierung der
BUNDESREPUBLIK DEUTSCHLAND durch die
BERUFGENOSSENSCHAFT VERKEHRSWIRTSCHAFT
POST-LOGISTIK TELEKOMMUNIKATION

*Issued under the authority of the
FEDERAL REPUBLIC OF GERMANY by
BERUFGENOSSENSCHAFT VERKEHRSWIRTSCHAFT
POST-LOGISTIK TELEKOMMUNIKATION*

Hiermit wird bescheinigt, dass die Abwasser-Aufbereitungsanlage
This is to certify that the sewage treatment plant

Typ: Ocean Clean EasyC-2
type:

Ausgelegter Flüssigkeitsdurchsatz: 1,70 m³/Tag
having a designed hydraulic loading of: 1,70 m³/d

Durchsatz an organischen Stoffen: 1,10 kg/Tag biochemischer Sauerstoffbedarf (BSB₅, ohne Nitrifikation)
an organic loading of: 1,10 kg per day biochemical oxygen demand (BOD₅, without nitrification)

Auslegung gemäß Zeichnungen Nrn.: OC-e3-BG-000-00
and of the design shown on drawings Nos.:

Hergestellt durch: Ocean Clean GmbH, Zum Kühlhaus 5, 18069 Rostock, Germany
manufactured by:

einer Prüfung unterzogen und in Übereinstimmung mit der IMO-Entscheidung MEPC.227(64) (ausschließlich Paragraph 4.2),
um die Anforderungen an den Betrieb gemäß Regel 9.1.1 MARPOL Anlage IV, in der jeweiligen geänderten Fassung.

*has been examined and satisfactorily tested in accordance with the International Maritime Organization resolution MEPC.227(64) (except for
paragraph 4.2) to meet the operational requirements referred to in Regulation 9.1.1 of MARPOL Annex IV, as amended.*

Die Erprobungen der Abwasser-Aufbereitungsanlage wurden durchgeführt
The tests on the sewage treatment plant were carried out

an Land bei*: Kläranlage der Hansestadt Wismar
ashore at:

an Bord von*: --
on board at:

und abgeschlossen am: 18.10.2017
and completed on:

Zulassungs-Nr.: 340.613
Certificate-No.:

* nicht zutreffendes streichen
Delete as appropriate

Bei der Erprobung wurde ein Abfluss festgestellt, der nach der analytischen Untersuchung folgende Ablaufwerte hat:

The sewage treatment plant was tested and produced an effluent which, on analysis, produces:

- (.1) ein geometrisches Mittel von nicht mehr als 100 fäkalkoliforme (thermo-toleranten) Bakterien/100 ml
(.1) *a geometric mean of no more than 100 thermo tolerant coliforms/100 ml;*
- (.2) ein geometrisches Mittel der gesamten Schwimm- und Schwebstoffe von 35 Qi/Qe mg/l für an Land getestete Anlagen oder der Maximalwert der gesamten Schwimm- und Schwebstoffe übersteigt nicht (35 plus x) Qi/Qe mg/l für das umgebende Wasser, das für Spülzwecke verwendet wird, bei Tests an Bord
(.2) *a geometric mean of total suspended solids of 35 Qi/Qe mg/l if tested ashore or the maximum total suspended solids not exceeding (35 plus x) Qi/Qe mg/l for the ambient water used for flushing purposes if tested on board*
- (.3) ein geometrisches Mittel des Biochemischen Sauerstoffbedarfs nach fünf Tagen ohne Nitrifikation (BSB₅ ohne Nitrifikation) mit nicht mehr als 25 Qi/Qe mg/l
(.3) *a geometric mean of 5-day biochemical oxygen demand without nitrification (BOD₅ without nitrification) of no more than 25 Qi/Qe mg/l*
- (.4) ein geometrisches Mittel des Chemischen Sauerstoffbedarfs (CSB) mit nicht mehr als 125 Qi/Qe mg/l
(.4) *a geometric mean of chemical oxygen demand (COD) of no more than 125 Qi/Qe mg/l*
- (.5) der pH-Wert liegt zwischen 6 und 8,5
(.5) *pH between 6 and 8,5*

Die Verwaltung bescheinigt, dass die Anlage bei Neigungen bis zu 22,5° in jede Richtung von der normalen Aufstellung arbeiten kann.

The Administration confirms that the sewage treatment plant can operate at angles of inclination of 22.5° in any plane from the normal operating position.

Einzelheiten der Erprobungen und der einzelnen Ergebnisse werden im Anhang aufgezeigt.

Details of the tests and the results obtained are shown on the Appendix to this certificate.

Ein Schild oder ein haltbarer Aufkleber muss an jeder Abwasser-Aufbereitungsanlage angebracht sein mit Angaben über den Hersteller, Typ und die Seriennummern, den Flüssigkeitsdurchsatz und das Herstellungsdatum.

A plate or durable label containing data of the manufacturer's name, type and serial numbers, hydraulic loading and date of manufacture should be fitted on each sewage treatment plant.

Eine Kopie dieses Zeugnisses muss auf jedem Schiff mitgeführt werden, das mit der oben beschriebenen Abwasser-Aufbereitungsanlage ausgerüstet ist.

A copy of this certificate shall be carried on board any ship equipped with the above described sewage treatment plant.

Dieses Typenprüfungszeugnis gilt bis:

30.09.2023

This certificate of type test is valid until

Dieses Typenprüfungszeugnis bleibt über das vorstehende Datum hinaus in Kraft, sofern kein Widerruf erfolgt.

Ein Widerruf für auf einem Schiff eingebaute Einrichtungen kann z.B. erfolgen, wenn diese nicht gefahren und/oder nicht gewartet und/oder nicht funktionsbereit sind und/oder nicht innerhalb einer angemessenen Frist an zukünftige Bestimmungen angepasst werden können.

This certificate of type test is in force beyond the above mentioned date unless it is revoked.

A revocation of the equipment installed aboard the ship can follow, but is not limited to, if the equipment is not maintained and/or is not in good working order and/or the equipment can not be modified within an appropriate time frame, due to future regulatory standards.

Ausgestellt in Hamburg am 01.10.2018
Issued at Hamburg on



BERUFGENOSSENSCHAFT VERKEHRSWIRTSCHAFT
POST-LOGISTIK TELEKOMMUNIKATION
- DIENSTSTELLE SCHIFFSSICHERHEIT -

A handwritten signature in blue ink, appearing to read "L. J. 106".

Unterschrift
Signature

Die Abwasser-Aufbereitungsanlage Serien-Nr.
The sewage treatment plant serial No.

entspricht dem geprüften Typ.
complies with the tested type.

Ort
Place

Datum
date

Firmen-
stempel
Company
stamp

Unterschrift
Signature



TYPENPRÜFUNGSZEUGNIS für Abwasser-Aufbereitungsanlagen

Certificate of Type Approval for Sewage Treatment Plants

ANHANG zu Type: Ocean Clean EasyC-2 *Appendix to type: Ocean Clean EasyC-2*

**Prüfergebnisse und Einzelheiten der Erprobungen, geprüft mit Hilfe von Proben der
Abwasser-Aufbereitungsanlage in Übereinstimmung mit der EntschlieÙung MEPC.227(64),
in der jeweiligen geänderten Fassung, (ausschließlich Abschnitt 4.2)**

*Test results and details of tests conducted on samples from the sewage treatment plant in
accordance with resolution MEPC.227(64), as amended, (exception for section 4.2)*

Abwasser-Aufbereitungsanlage, Typ: Ocean Clean EasyC-2
Sewage treatment plant, Type:

Hergestellt durch: Ocean Clean GmbH, Zum Kühlhaus 5, 18069 Rostock, Germany
Manufactured by:

Stelle, die die Prüfung durchgeführt hat: BG Verkehr
Organization conducting the test:

Ausgelegter Flüssigkeitsdurchsatz <i>Designed hydraulic loading</i>	1,70	Kubikmeter pro Tag <i>cubic metres per day</i>
Ausgelegter Durchsatz an organischen Stoffen <i>Designed organic loading</i>	1,10	Kilogramm pro Tag BSB <i>kilograms per day BOD</i>
Anzahl der untersuchten Ausflussproben <i>Number of effluent samples tested</i>	40	
Anzahl der untersuchten Einlaufproben <i>Number of influent samples tested</i>	40	
Abwasserqualität (Einlauf), TSS <i>Total suspended solids influent quality</i>	2772	Milligramm pro Liter Schwebestoffe <i>milligrams per litre Total Suspended Solids</i>
BSB ₅ ohne Nitrifikation am Einlauf <i>BOD₅ without nitrification influent quality</i>	543	Milligramm pro Liter <i>milligrams per litre</i>
Maximaler Flüssigkeitsdurchsatz <i>Maximum hydraulic loading</i>	--	Kubikmeter pro Tag <i>cubic metres per day</i>
Mindest-Flüssigkeitsdurchsatz <i>Minimum hydraulic loading</i>	--	Kubikmeter pro Tag <i>cubic metres per day</i>
Durchschnittlicher Flüssigkeitsdurchsatz <i>Average hydraulic loading</i>	1,70	Kubikmeter pro Tag <i>cubic metres per day</i>
Abwasserauslauf (Q _e) <i>Effluent flow (Q_e)</i>	1,70	Kubikmeter pro Tag <i>cubic metres per day</i>

Verdünnungsausgleichsfaktor (Q_i/Q_e)

Dilution compensation factor (Q_i/Q_e)

1

Geometrisches Mittel der gesamten Schwimm- und Schwebstoffe

Geometric mean of total suspended solids

1

Milligramm pro Liter

milligrams per litre

Geometrisches Mittel der fäkalcoliformen (thermo-toleranten) Bakterienzahl

Geometric mean of the thermotolerant coliform count

1

Bakterien pro 100 Milliliter

coliforms per 100 millilitres

Geometrisches Mittel des BSB₅ ohne Nitrifikation

Geometric mean of BOD₅ without nitrification

8,1

Milligramm pro Liter

milligrams per litre

Geometrisches Mittel des CSB

Geometric mean of COD

36

Milligramm pro Liter

milligrams per litre

Höchster pH-Wert

Maximum pH

7,71

Niedrigster pH-Wert

Minimum pH

6,80

Art des verwendeten Desinfektionsmittels

Type of disinfectant used

UV

Wenn Chlor - verbleibendes Chlor:

If Chlorine - residual Chlorine:

Maximum

Maximum

--

Milligramm pro Liter

milligrams per litre

Mindestwert

Minimum

--

Milligramm pro Liter

milligrams per litre

Geometrisches Mittel

Geometric Mean

--

Milligramm pro Liter

milligrams per litre

Wurde die Abwasser-Aufbereitungsanlage geprüft mit:

Was sewage treatment plant tested with:

Frischwasserspülung?

Fresh water flushing?

ja/yes ☒

nein/no ☐

Salzwasserspülung?

Salt water flushing?

ja/yes ☐

nein/no ☒

Frisch- und Salzwasserspülung?

Fresh and salt water flushing?

ja/yes ☐

nein/no ☒

Wurde Grauwasser zugegeben?

Grey water added?

ja/yes ☒ - Anteil %

- proportion

nein/no ☐

Wurde die Abwasser-Aufbereitungsanlage geprüft nach den Umweltbedingungen die in Abschnitt 5.9 der Entschließung MEPC.227(64) festgelegt sind:

Was the sewage treatment plant tested against the environmental conditions specified in section 5.9 of resolution MEPC.227(64):

Temperatur <i>Temperature</i>	ja/yes <input checked="" type="checkbox"/>	nein/no <input type="checkbox"/>
Luftfeuchtigkeit <i>Humidity</i>	ja/yes <input checked="" type="checkbox"/>	nein/no <input type="checkbox"/>
Krägung <i>Inclination</i>	ja/yes <input checked="" type="checkbox"/>	nein/no <input type="checkbox"/>
Vibration <i>Vibration</i>	ja/yes <input checked="" type="checkbox"/>	nein/no <input type="checkbox"/>
Funktionssicherheit der elektr. und elektronischen Bauteile <i>Reliability of Electrical and Electronic Equipment</i>	ja/yes <input checked="" type="checkbox"/>	nein/no <input type="checkbox"/>

Beschränkungen und Betriebsbedingungen

Limitations and the conditions of operation are imposed:

Salzgehalt <i>Salinity</i>	--
Temperatur <i>Temperature</i>	5 - 45°C
Luftfeuchtigkeit <i>Humidity</i>	--
Krägung <i>Inclination</i>	--
Vibration <i>Vibration</i>	--

Ergebnisse anderer geprüfter Parameter: keine
Results of other parameters tested none

Auferlegte Einschränkungen:
Limiting conditions imposed:

.....

.....

Ausgestellt in: Hamburg am: 01.10.2018
Issued at: Hamburg *on:* 01.10.2018



**BERUFGENOSSENSCHAFT VERKEHRSWIRTSCHAFT
POST-LOGISTIK TELEKOMMUNIKATION
- DIENSTSTELLE SCHIFFSSICHERHEIT -**

Unterschrift
Signature

[Handwritten signature]



Europäisch notifizierte Stelle
Kennnummer 0736
European notified body
Identification number 0736



DGUV Test

Prüf- und Zertifizierungsstelle
BG Verkehr
Dienststelle Schiffssicherheit

EG-Baumusterprüfbescheinigung (Modul B) EC Type Examination (Module B) Certificate

Zulassungs-Nr.
Certificate No.

340613 - 00

Hersteller (Antragsteller)
Manufacturer (Applicant)

Ocean Clean GmbH

Adresse
Address

Zum Kühlhaus 5, 18069 Rostock, Germany

Ausrüstung
(Nummer & Bezeichnung)
Equipment
(Number & Item designation)

MED/2.6 Abwassersysteme
Sewage systems

Produkttyp
Product Type

Ocean Clean EasyC-2

Produkteinschränkung
Product Restriction

n/a
n/a

Prüfgrundlage
Specified Standard

IMO-Resolution MEPC.227(64) (b)
IMO Resolution MEPC.227(64) (b)

Die auf den folgenden Seiten aufgeführten Bedingungen sind Bestandteil dieses Zertifikats.

Diese Baumusterprüfbescheinigung gilt, solange sie nicht entzogen oder widerrufen wird und die Gegenstände unverändert, einsatzfähig eingesetzt werden.

The listed conditions on following pages are part of this certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory in service.

On this certificate the German text shall prevail.

Hiermit wird bestätigt, dass:

This is to certify that:

Die BG Verkehr - Dienststelle Schiffssicherheit die entsprechenden EG-Bauartzulassungsverfahren zur Bewertung angewendet hat und das genannte Baumuster den einschlägigen MARPOL- Bestimmungen der Richtlinie 2014/90/EU (Schiffsausrüstung) in der jeweils geltenden Fassung, zuletzt geändert durch die Durchführungsverordnung (EU) 2018/773, vorbehaltlich der im Zertifikat genannten Auflagen, entspricht.

BG Verkehr - Ship Safety Division did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the MARPOL requirements of Marine Equipment Directive (MED) 2014/90/EU, as amended by Commission Implementing Regulation (EU) 2018/773 subject to any conditions in the schedule attached hereto.

Ausstellungsdatum
Date of issue
Ablaufdatum
Expiry date

01.10.2018

30.09.2023



Unterschrift (Seifert)
Signature

Seifert





Europäisch notifizierte Stelle
Kennnummer 0736
European notified body
Identification number 0736

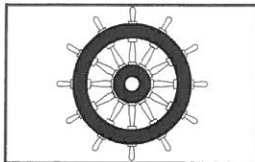
Zulassungsbedingungen / condition of approval:

Note 1: Dieses Zertifikat wird ungültig, wenn der Hersteller Änderungen oder Modifikationen jeglicher Art am zugelassenen Produkt durchgeführt hat, die nicht der benannten Stelle gemeldet und mit ihr abgestimmt wurden.
This certificate becomes invalid if the manufacturer makes any changes or modifications to the approved equipment, which have not been notified to, and agreed with the notified body named on this certificate.

Note 2: Sollten spezielle Regeln oder Prüf-Standards für die o.g. Ausrüstung während der Gültigkeit des Zertifikates geändert werden, muss das Produkt neu getestet werden, bevor es nach Inkrafttreten der Änderungen an Bord geliefert wird.
Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply.

Note 3: Das Konformitätskennzeichen darf an o. g. zugelassener Ausrüstung nur angebracht und eine "Declaration of Conformity" vom Hersteller nur ausgestellt werden, wenn die Qualitätssicherungsmodule (D, E oder F) des Anhangs II der Richtlinie voll eingehalten und durch die „benannte Stelle“ im Rahmen eines schriftlichen Vertrages mit dem Hersteller überwacht werden.

The Mark of Conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the Quality assurance module (D, E or F) of Annex II of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.



XXXX / YYYY

Note 4: "Steuerrad" Format

YYYY Die vierstellige Ziffer des Jahres, in dem das Konformitätskennzeichen angebracht wurde.

XXXX Kennnummer der benannten Stelle, die die Qualitätssicherung beim Hersteller überwacht

"Wheelmark" Format

YYYY The year in which the mark is affixed.

XXXX Notified Body number undertaking surveillance module

Note 5: Die an Bord von Seeschiffen zur Verwendung kommende Ausrüstung muss mit der geprüften Ausrüstung in seiner Zusammensetzung und seinen Eigenschaften übereinstimmen.
The equipment installed on board ships shall comply in every respect with the Marine equipment which has been tested.

Note 6: Die in den Handel kommende Schiffsausrüstung sind entsprechend Artikel 10 der Richtlinie 2014/90/EU des Rates vom 23. Juli 2014 über Schiffsausrüstung zu kennzeichnen.
The equipment shall be marked in accordance with Article 10 of the Council Directive 2014/90/EU of 23 July 2014 on Marine Equipment as amended.

Note 7: Diese EG-Baumusterprüfbescheinigung darf nur in vollem Wortlaut veröffentlicht oder Dritten zugänglich gemacht werden.
This EC-Type Examination Certificate may only be published or transmitted unabridged.



Europäisch notifizierte Stelle
Kennnummer 0736
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Identification number 0736

Bestimmungsgemäße Verwendung/intended purpose:

Abwasseraufbereitungsanlagen für Schiffe gemäß MARPOL 73/78, Anlage IV Reg. 9 und Helsinki-Übereinkommen

Sewage treatment plants for ships acc. MARPOL 73/78 Annex IV reg. 9 and Helsinki-Convention

Mitgeltende Unterlagen/further applicable documents:

Dokumente/documents	Ausgestellt von/issued by	Datum/date
Prüfbericht/test report	Prüfbericht-Nr. 6946/4269/17, Dr. Krengel GmbH	24.10.2017
Unterlagen zur Ausstellung des IMO Zertifikats 340.613/ records to issue IMO certificate 340.613	BG - Verkehr	01.10.2018
Umweltverträglichkeitsprüfung/environmental test	Test Report No. 18-10118 von paconsult	22.05.2018

Technische Daten / technical characteristics

P & I Diagram	Ocean Clean EasyC	04.09.2017
assembly drawing	Nr./no.: OC-e3-BG-000-00	07.10.2016

Weitere Bedingungen und Auflagen / additional conditions and remarks:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

----- ENDE DES DOKUMENTS -----

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