

HiBallast *EcoBallast*

Ballast Water Treatment System

2019

Contact us!

Category	Work field	E-mail or address	Telephone
Technical	Design, Technical support	bwts-tech@hyundaiwelding.com	+82-52-283-6962
Customer Service	Commissioning, After-sales service	bwts-cs@hyundaiwelding.com	+82-52-283-6926
Sales	Quotation, Training	bwts-sales@hyundaiwelding.com	+82-52-283-6903
Head Office	-	Wework BLDG, 507, Teheran-ro, Gangnam-gu, Seoul, Korea	+82-2-6230-6042
Ulsan Engineering Center	Technical support	406 Good prime I building, 641 Jongga-ro, Jung-gu, Ulsan, Korea	+82-52-283-6900
Pohang Factory	Manufacturing, FAT, Training center	88beon-gil 99, Yeongilmansandan-ro, Heunhar-eup, Buk-gu, Pohang, Korea	+82-54-260-0634



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1. Company Introduction
2. BWTS Business
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**Company
Introduction**

Hyundai Welding

Sustainable, Reliable Business Partner



Established	1975
Employee	1,341
Global Production Plant	Korea : Pohang, Gochang Vietnam : Dongnai China : Kunshan



Vietnam - Dongnai



Head Office (Seoul)



China - Kunshan



Pohang Plant #1



Pohang Plant #2



Gochang Plant



BWTS



Welding Consumables & Machine



Logistics

Hyundai Welding Global Network



2

BWTS Business

BWTS Business Started...

Signing Ceremony



HHI

- Sales (for HHI group), Warranty, Certificates (IMO & USCG)



HWC

- Sales, Design, Fabrication, FAT, Commissioning, OBT and Training



HGS

- BWTS Retrofit Sales, Global Service and Spare Parts



Signing Ceremony for OEM on 7 Dec., 2016



Signing Ceremony for BWTS Retrofit

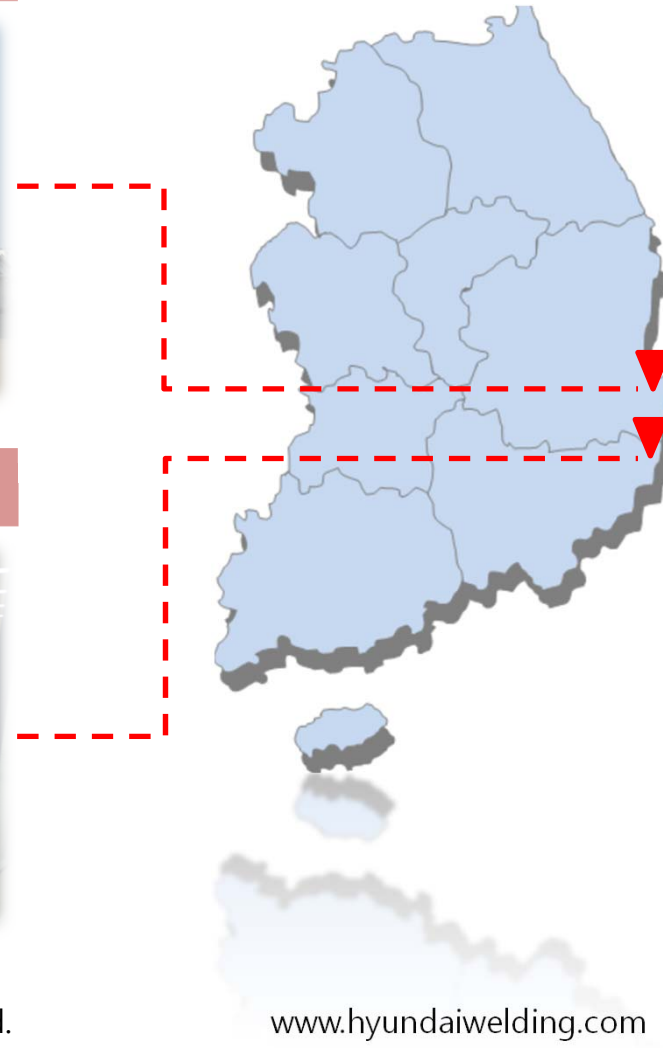
BWTS Business Engineering Center & Factory Location



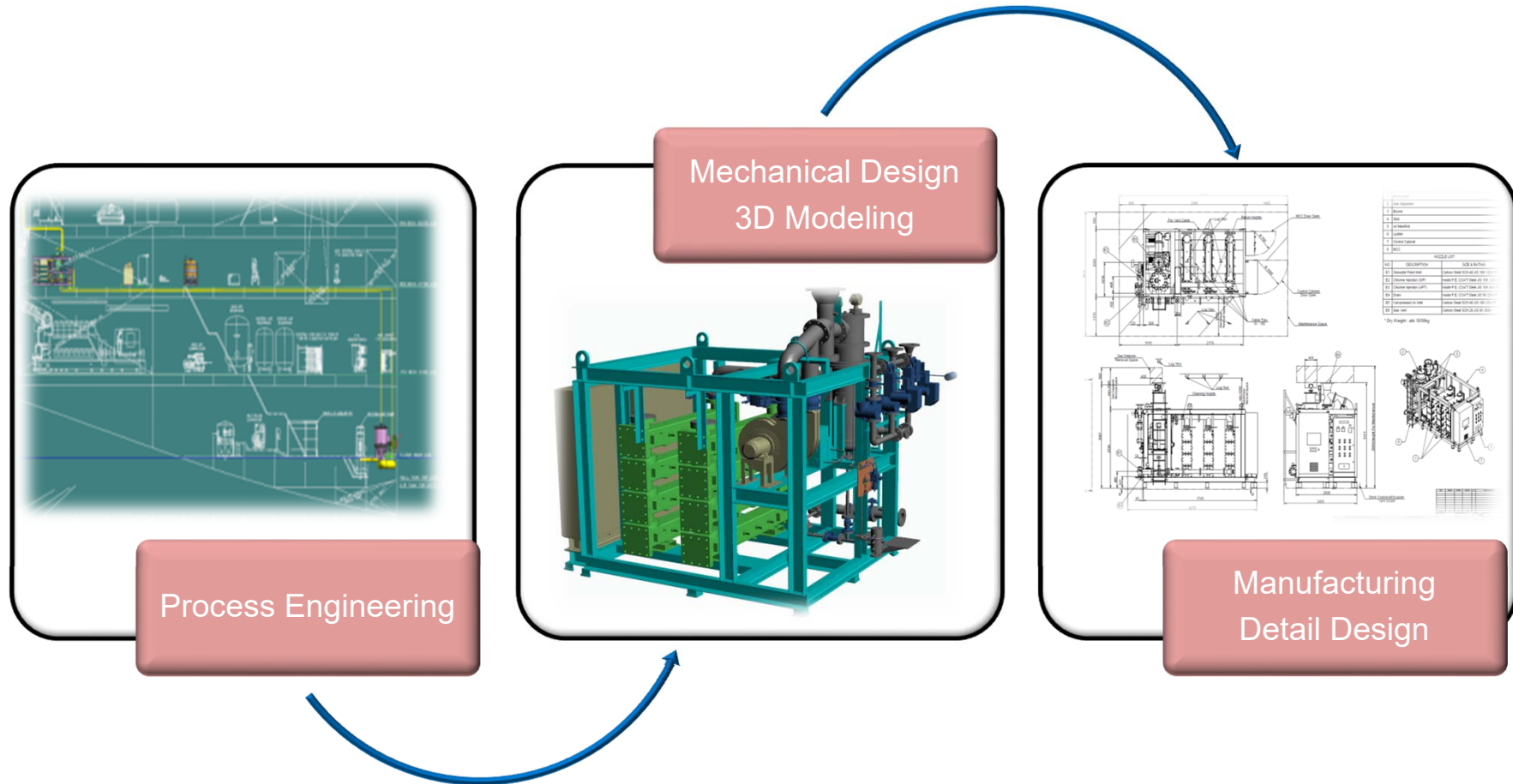
Pohang #2 Factory & BWTS Training Center



Ulsan Engineering Center



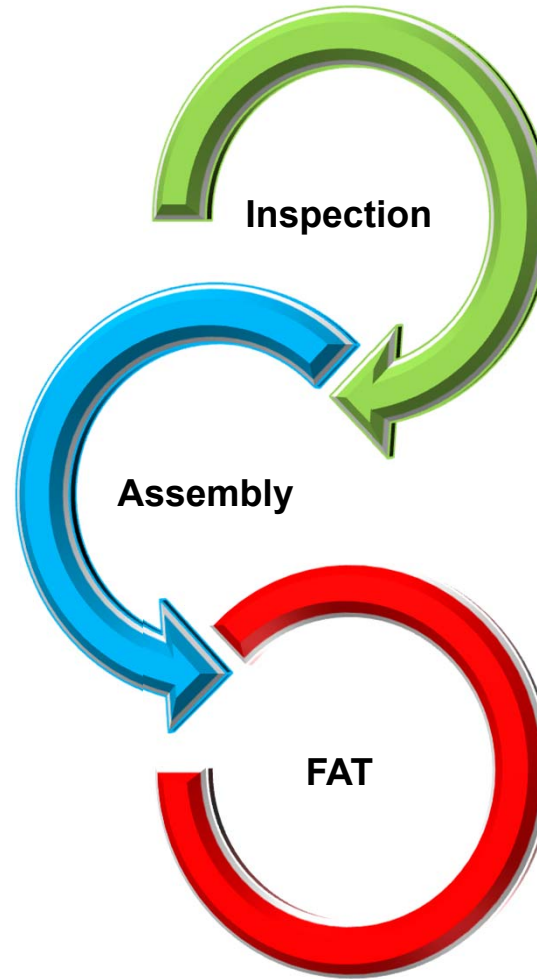
BWTS Business Engineering & Design



BWTS Business Manufacturing



✓ 500 sets per year
(As of Today)



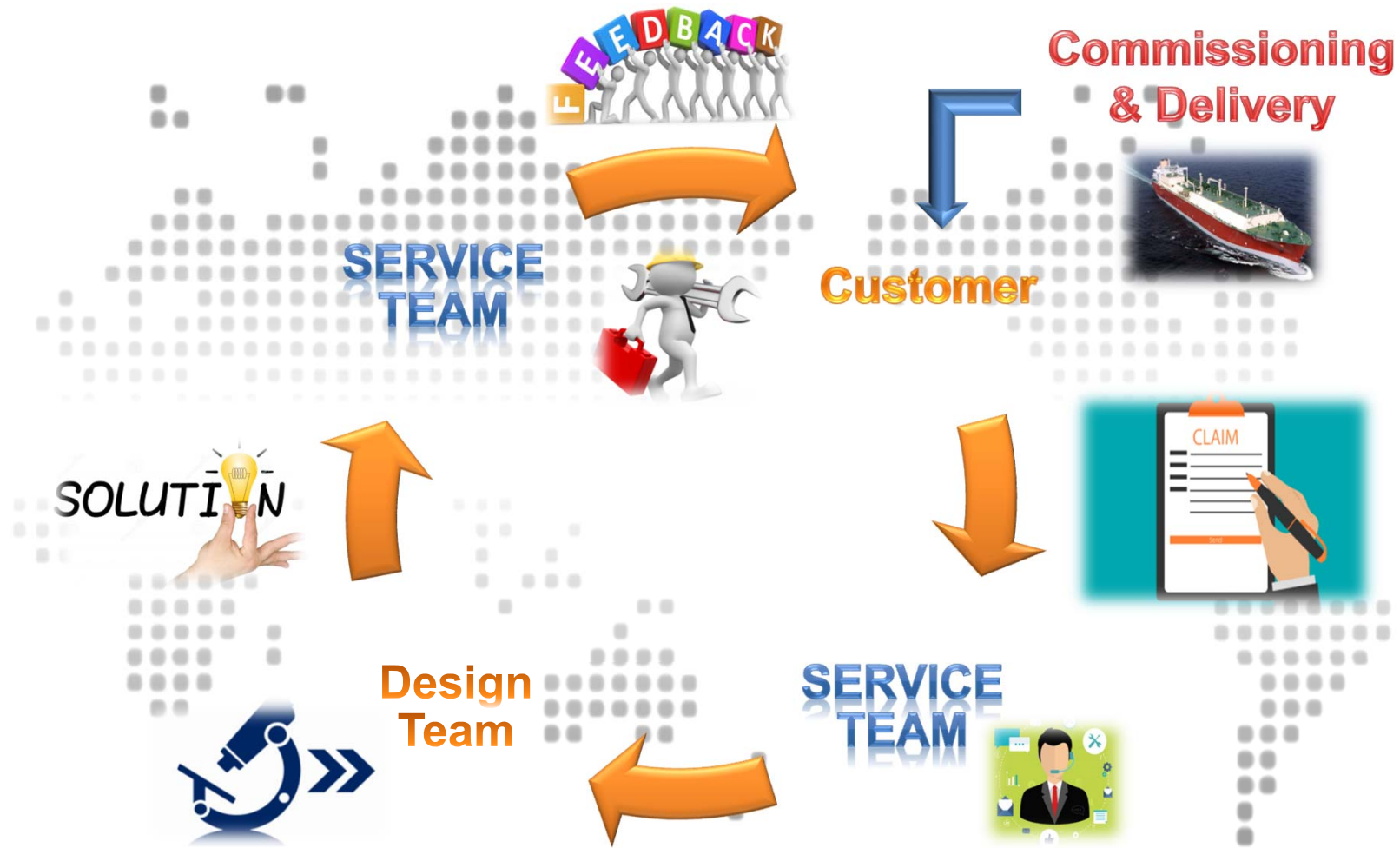
✓ Inspection
✓ Quality Control



✓ FAT

BWTS Business

Commissioning & After Service



BWTS Business Training Center



Facility

- Class room
- Exercise area
- Resting room

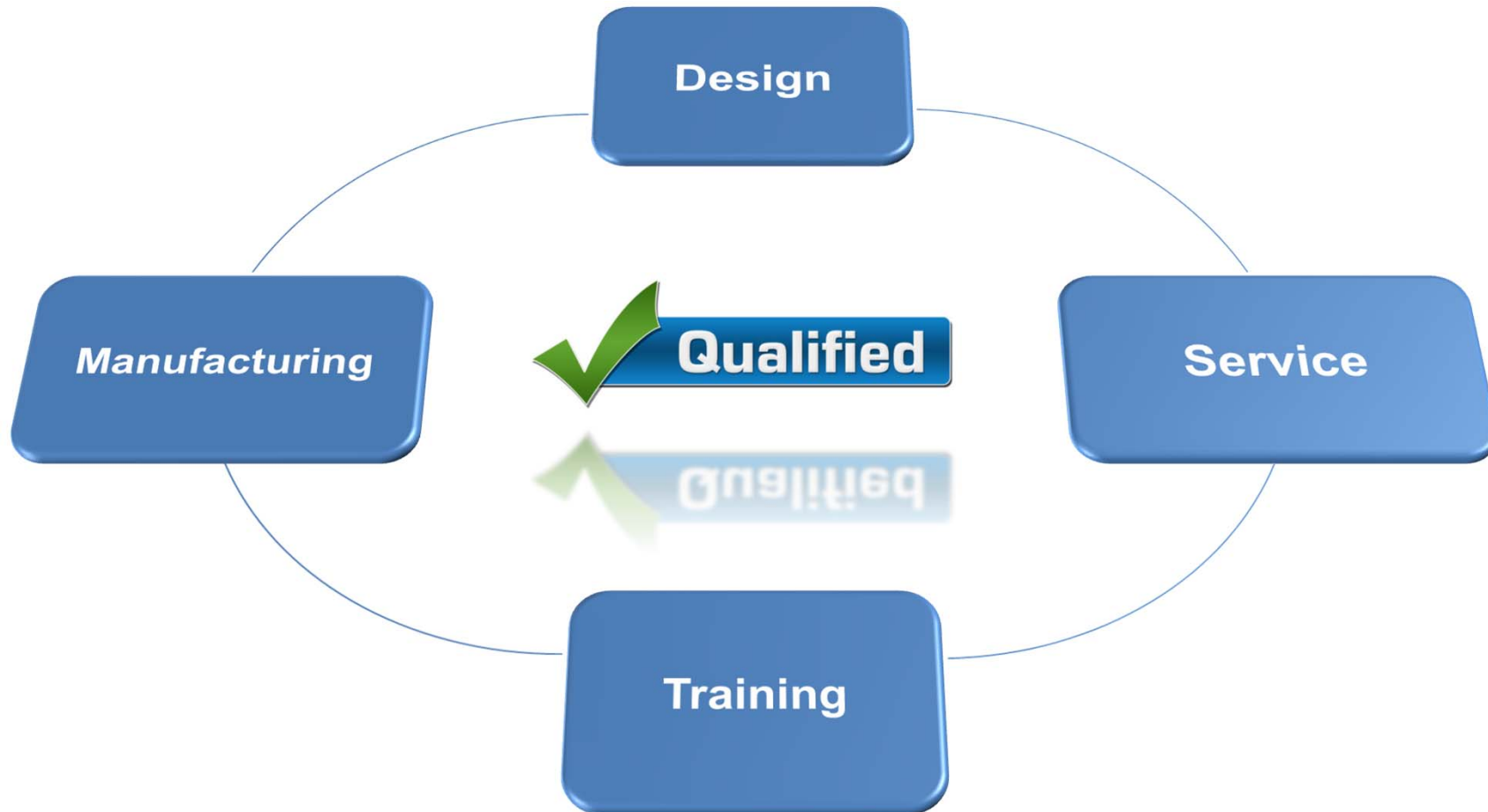


Exercise Area

- Electrolyzer
- Filter unit
- TRO sensor
- Rectifier, and etc.

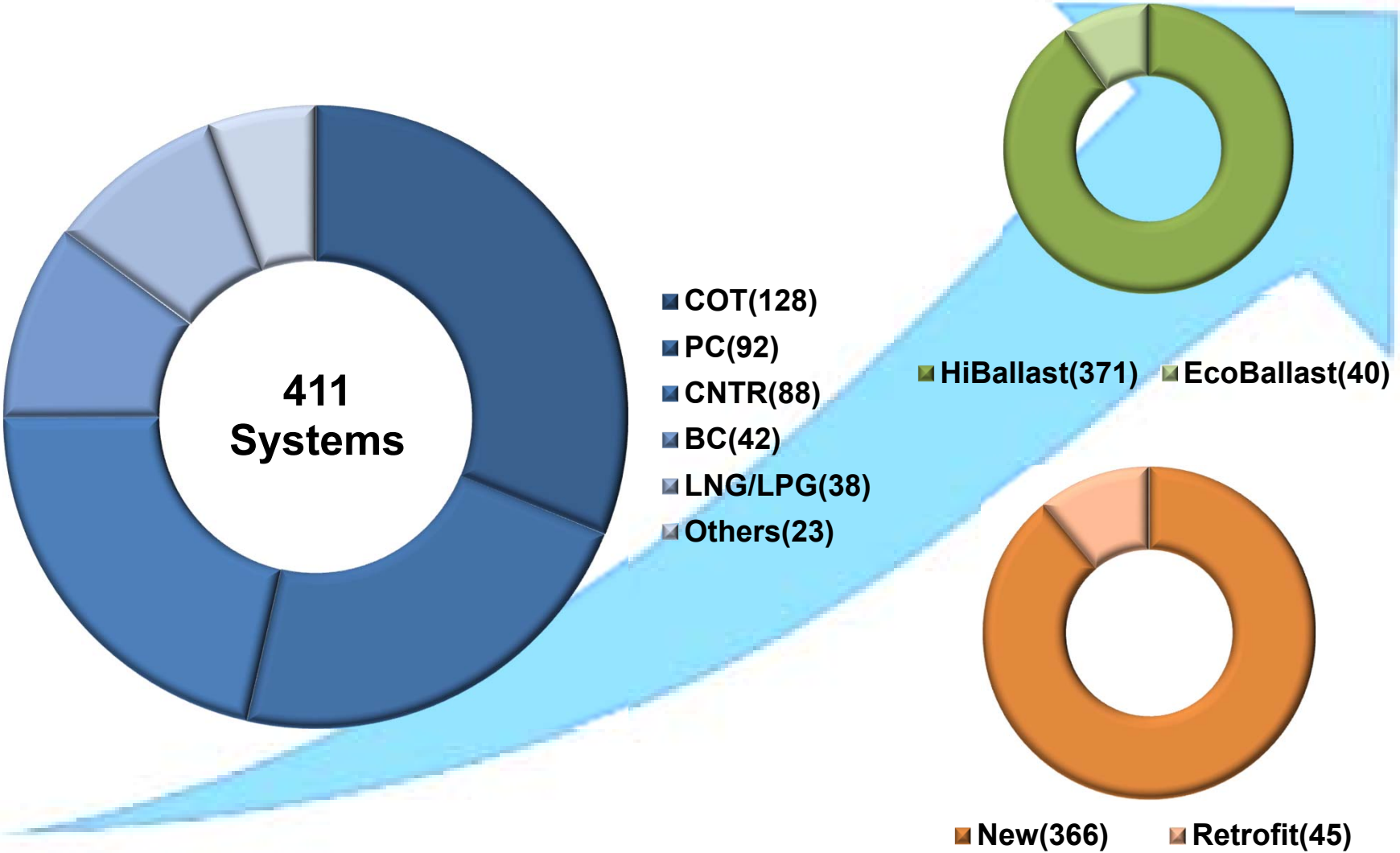


BWTS Business
Qualified Business Partner



BWTS Business

Reference list (As of Nov. 2018)



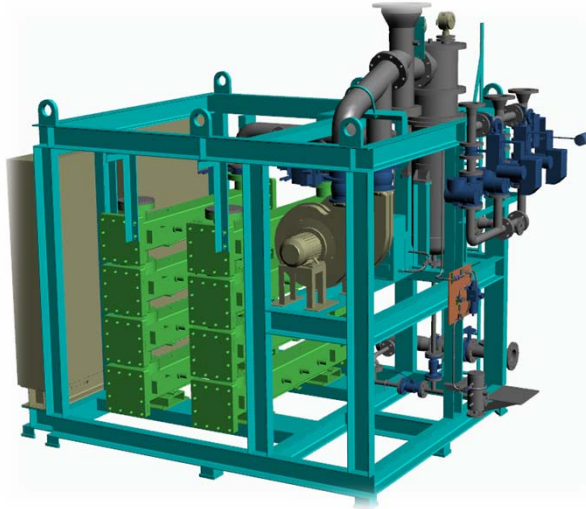
3

**HiBallast
Introduction**

HiBallast is the brand name of Hyundai Heavy Industries Co., Ltd. (hereinafter HHI) BWTS, and the proprietary right belongs to HHI. Hyundai Welding Co., Ltd. is an authorized OEM company of HHI BWTS and covers sales, design, fabrication, commissioning and training.

HiBallast

System Features



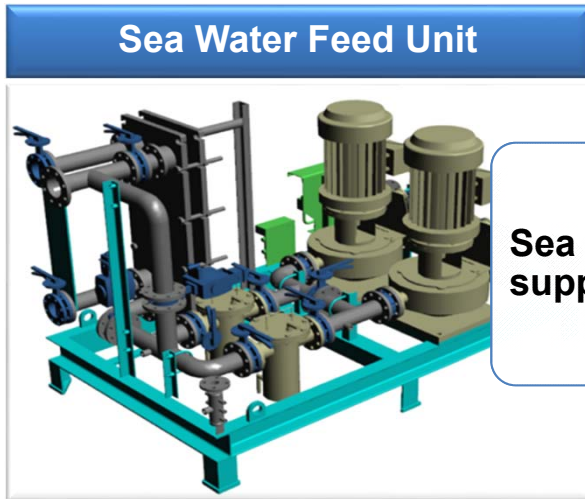
- Filter + Electrolysis
- Indirect (side stream) type
- Low Operation Cost
- No Filter for Feed Water
- Redundancy Operation
- Stable Performance in Low Salinity & Temperature Seawater
- Electrolyte Feed Salinity : > 15 PSU
- Electrolyte Feed Temperature : > 4°C
- Filter Outlet Pressure : > 1.5 bar
- Total Residual Oxidant (TRO) : 8 mg/L
- 75 ~ 10000 m3/h Treatment Capacity

Design Standard

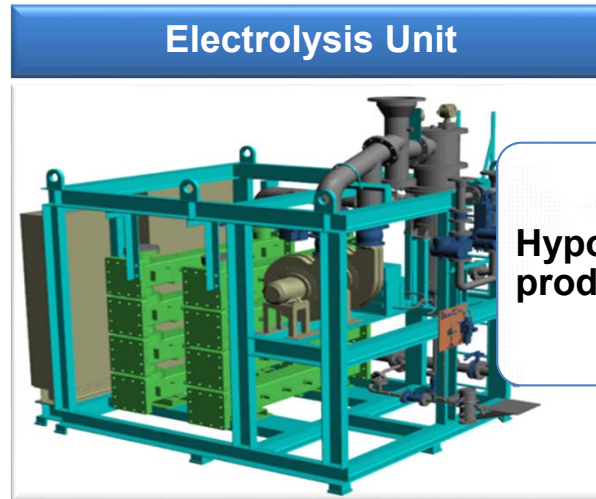
Model	Treatment Capacity(m3/h)	EU Dimension L x W x H (mm)	Filter Dimension L x W x H (mm)	Weight (wet, kg)	Power (kW)
HiB-500	500	2000 x 2200 x 2300	570 x 570 x 2010	1700	25
HiB-1000	1000	2500 x 2400 x 2400	780 x 780 x 2130	2700	50
HiB-2000	2000	2500 x 2500 x 2400	900 x 900 x 2420	5000	100
HiB-4000	4000	3000 x 2800 x 2600	1230 x 1230 x 2660	8200	200
HiB-6000	6000	3500 x 2800 x 2800	1410 x 1410 x 3500	9300	300
HiB-8000	8000	4000 x 2800 x 3000	1630 x 1630 x 3650	9700	400
HiB-10000	10000	4500 x 2800 x 3000	2460 x 2460 x 2660	16400	500

HiBallast

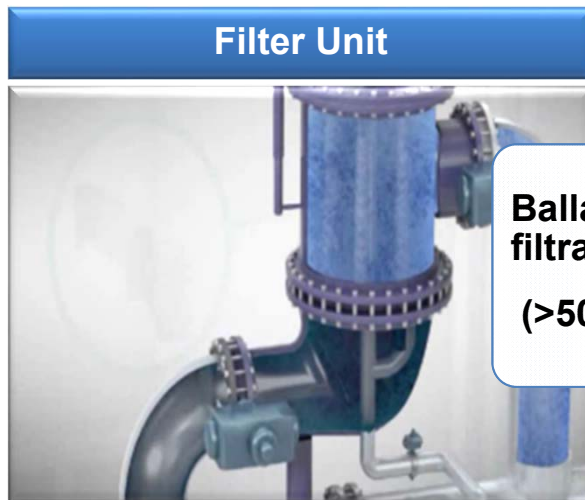
Main Components



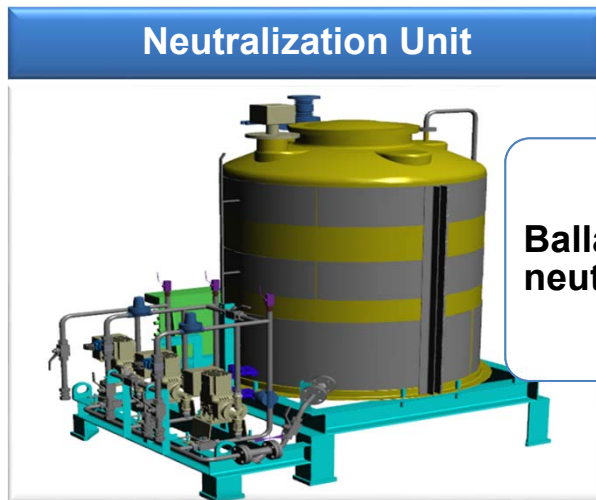
Sea water supply for EU



Hypo-chlorite production



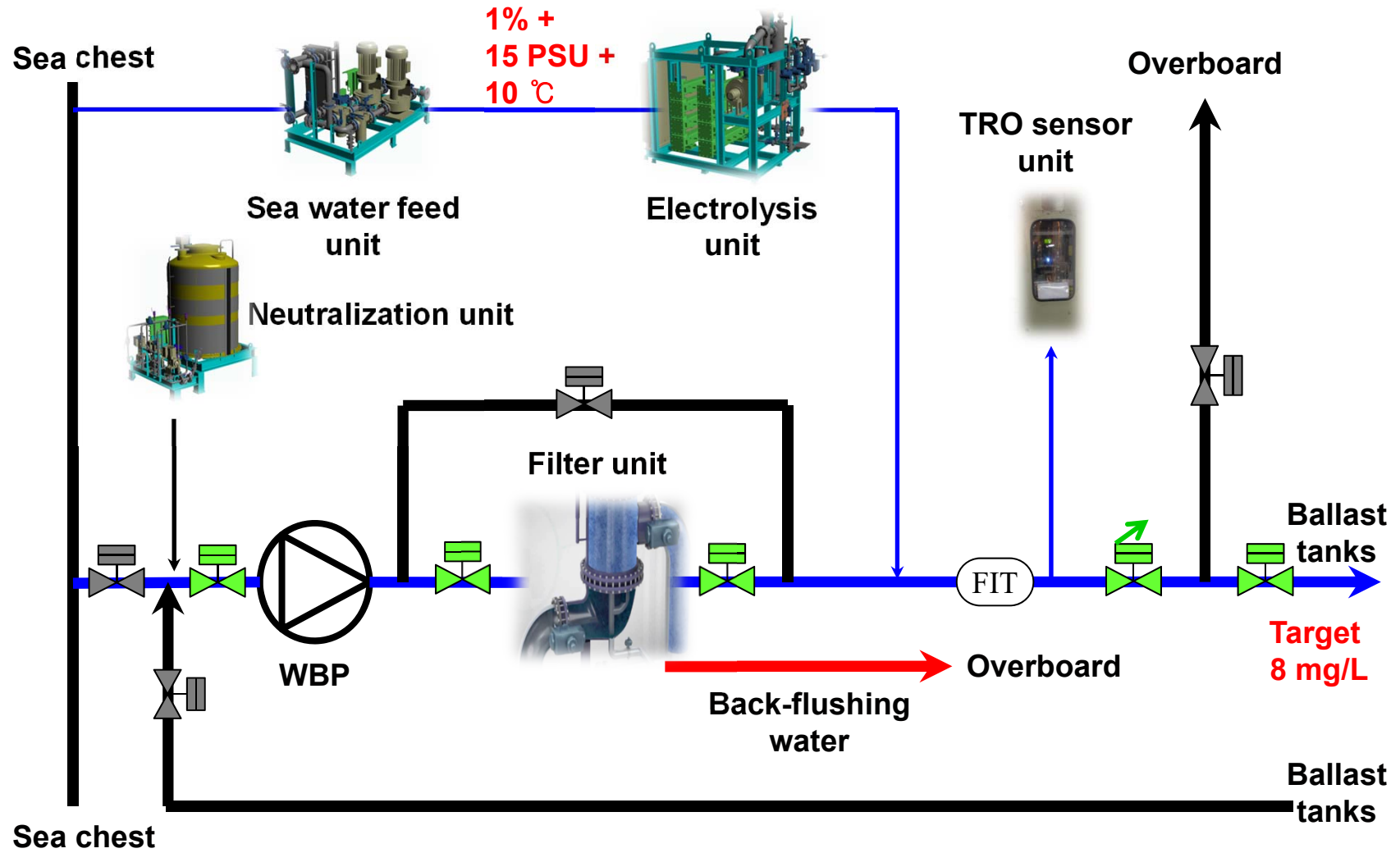
Ballast water filtration (>50 μ m)



Ballast water neutralization

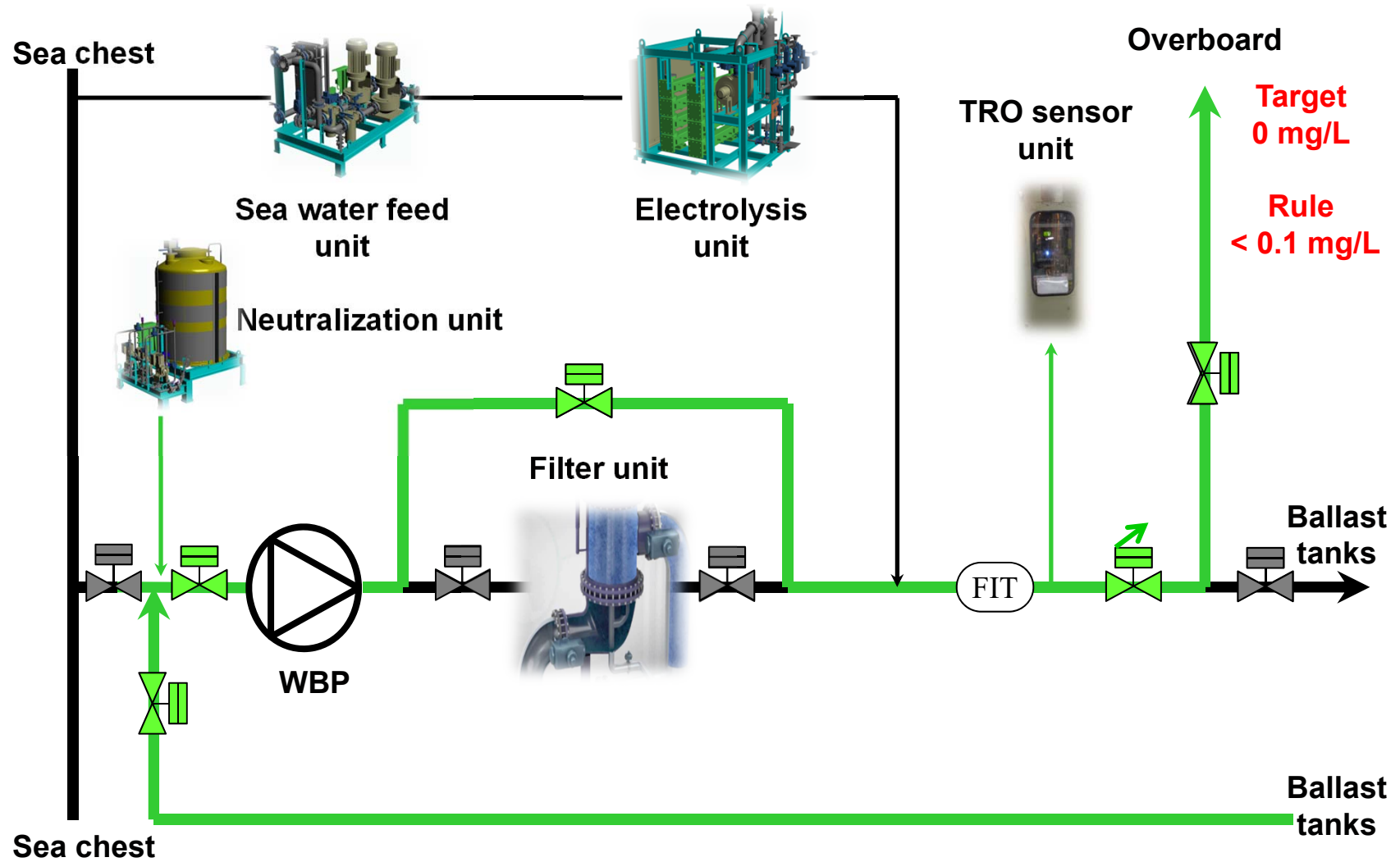
HiBallast

Working Principle - Ballasting

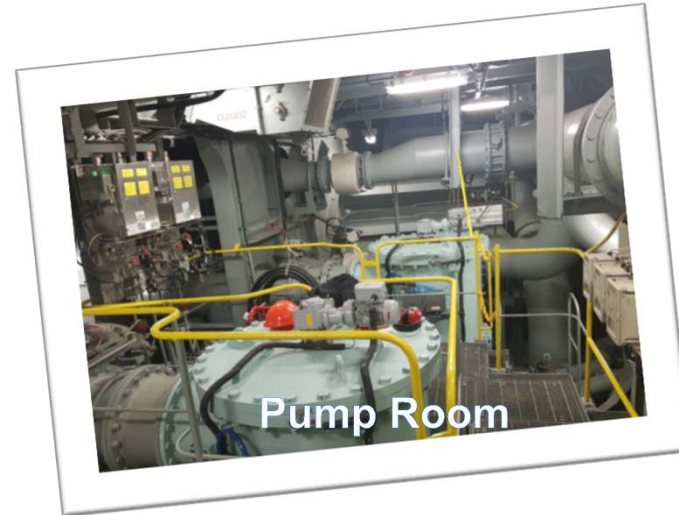
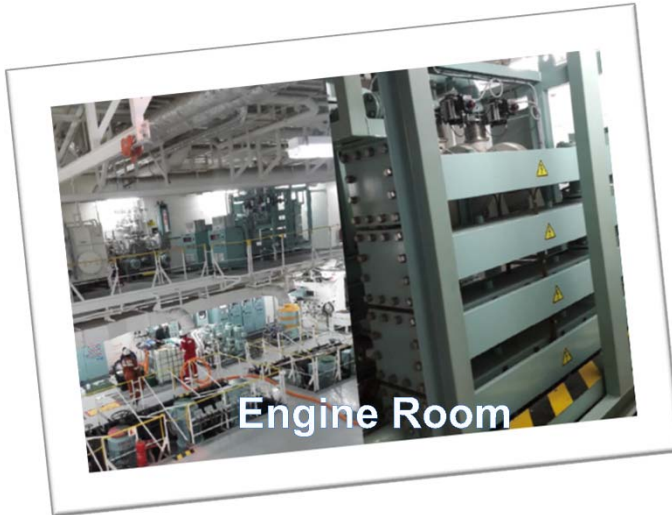


HiBallast

Working Principle - Deballasting



HiBallast Applications



4

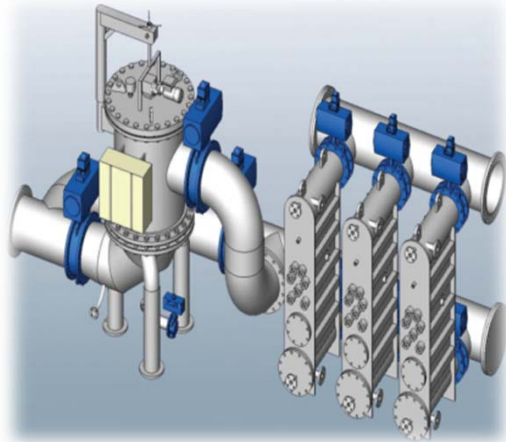
EcoBallast

Introduction

EcoBallast is the brand name of Hyundai Heavy Industries Co., Ltd. (hereinafter HHI) BWTS, and the proprietary right belongs to HHI. Hyundai Welding Co., Ltd. is an authorized OEM company of HHI BWTS and covers sales, design, fabrication, commissioning and training.

EcoBallast

System Features



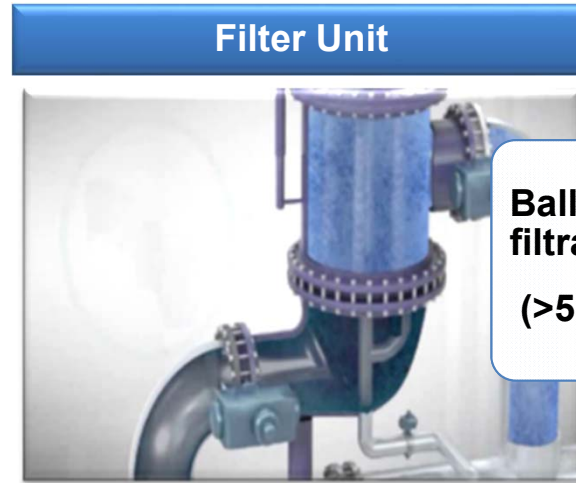
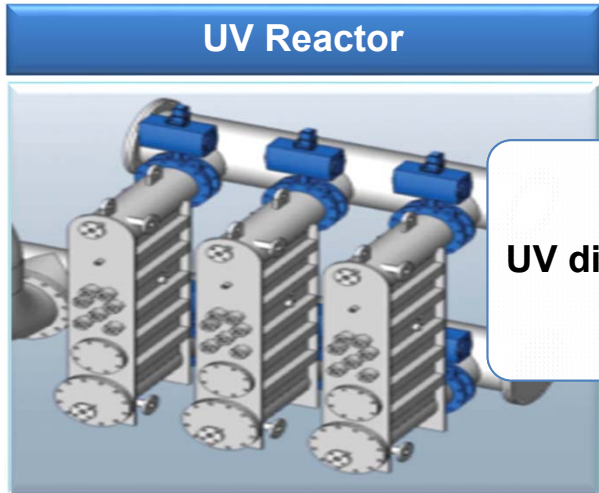
- Filter + UV
- Eco-friendly Disinfection Process
- Simple Configuration
- UV Power Control
- UVT : > 65%
- Salinity, Temperature Free
- Treatment Capacity : 350 ~ 2100 m3/h
- Filter Outlet Pressure : > 1.5 bar

Design Standard

Model	Treatment Capacity(m3/h)	EU Dimension L x W x H (mm)	Filter Dimension L x W x H (mm)	Weight (wet, kg)	Power (kW)
Eco-350	350	400 x 1100 x 1800	880 x 865 x 2220	1400	34
Eco-700	750	600 x 1100 x 1850	1250 x 1100 x 2430	2655	68
Eco-1000	1000	1700 x 1100 x 1800	1250 x 1100 x 2430	3405	102
Eco-1500	1500	1500 x 1100 x 1850	1525 x 1310 x 2630	4410	137
Eco-1800	1800	3000 x 1100 x 1800	1500 x 1470 x 2640	6340	171
Eco-2100	2100	2400 x 1100 x 1850	1500 x 1470 x 2640	6290	205

EcoBallast

Main Components

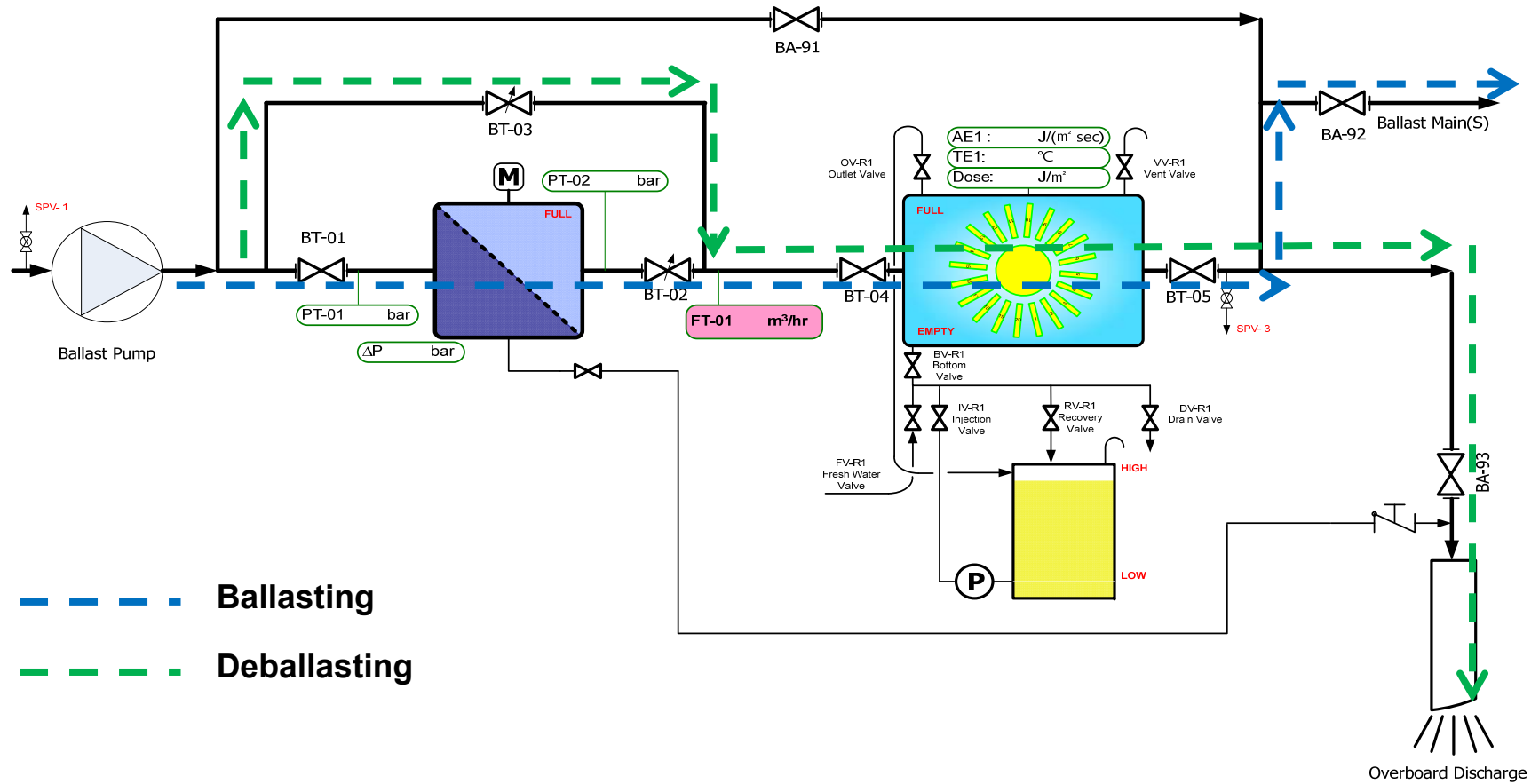


EcoBallast

Working Principle



EcoBallast™ System Flow diagram (TYPICAL)



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BWTS Controller

BWTS Controller

Reliable, Simple, User Friendly & Approved



Reliable
Stands for ICMS



User Friendly
Fault Finding (PSD)
Intuitive MIMIC



Simple
Auto Start/Stop



Approved
8 Major Ship's Class



BWTS Controller

Human Machinery Interface

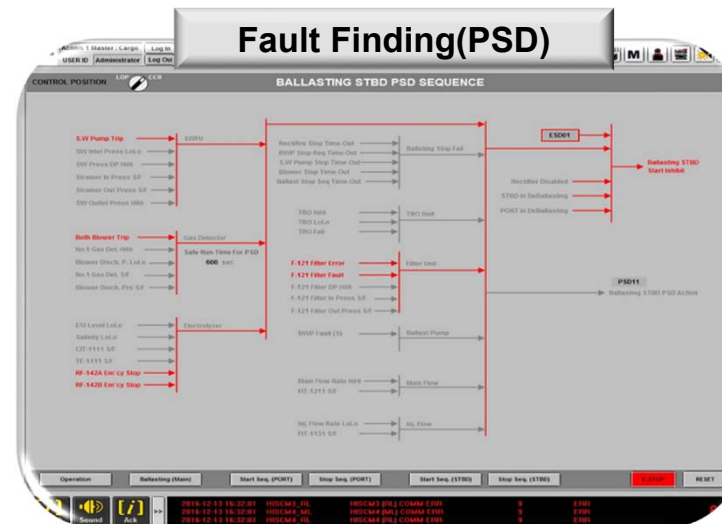
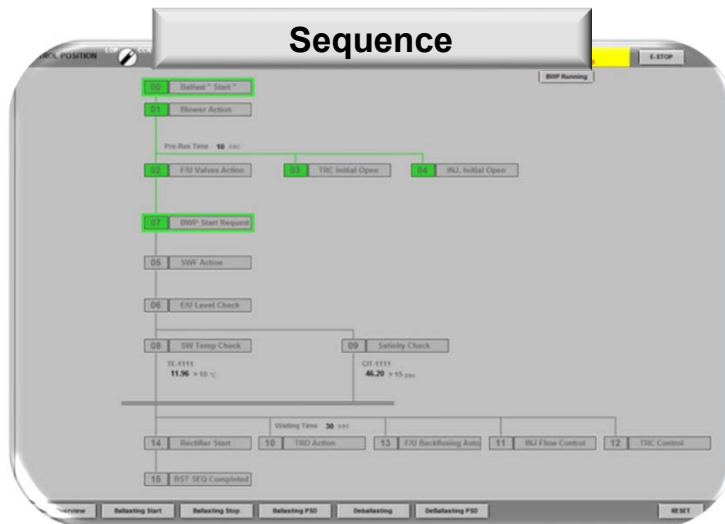
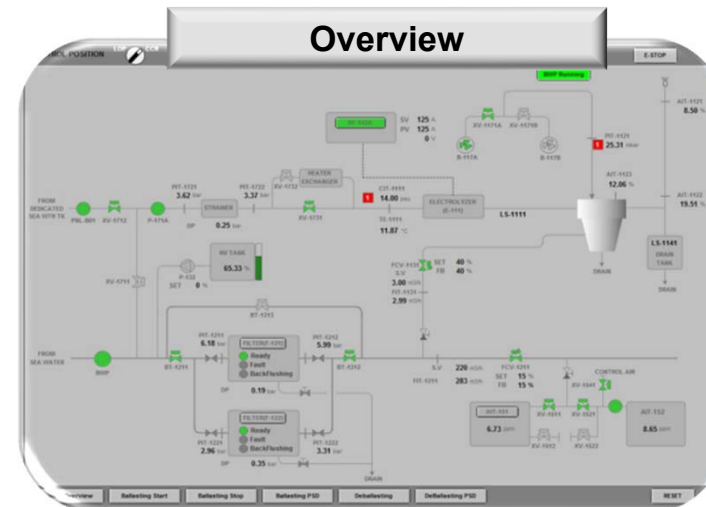


Main

NOTICE
Before Start, Select the Ballast, TRD and Filter
After Start, Don't change the selection

BALLASTING Running	START STOP	BALLAST B-117A <input checked="" type="checkbox"/> F-121 <input checked="" type="checkbox"/> TRD B-117B <input type="checkbox"/> F-122 <input type="checkbox"/> TRD <input checked="" type="checkbox"/>	Inp. Flow Rate FET 4131 11.7 m³/min Main Flow Rate FET 4211 11.39 m³/min
DEBALLASTING	START STOP	TRD AIT 414 <input checked="" type="checkbox"/> AIT 416 <input type="checkbox"/>	Ball. TR Level LIT 4211 35 %

Navigation: [Back] [Home] [Forward] [E-STOP] [RESET]



6

Certificates

Certificates

IMO Type Approval Certificate (As of total flag : 14)



신박형항수처리설비 관리법 시행규칙 [별지 제11호서식] (1/4)

Cert. No. 2015-64 호

신박형항수처리설비 형식승인증서
TYPE APPROVAL CERTIFICATE OF BALLAST WATER MANAGEMENT SYSTEM

대한민국
 REPUBLIC OF KOREA

이 증서는 국제해사기구(IMO) 결의서 MEPC.174(58)에 포함된 자정시의 상세요건에 따라서 아래의 신박형항수처리설비가 검사/시험되었음을 증명합니다. 다만, 이 증서는 아래에 기재된 신박형항수처리설비에 한하여 유효합니다.

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 Guidelines contained in IMO resolution MEPC.174(58). This certificate is valid only for the Ballast Water Management System referred to below.

신박형항수처리설비의 공급자
 Ballast Water Management System supplied by Hyundai Heavy Industries Co., Ltd.

형식 및 모델명
 Under type and model designation HiBallast™ System HiB-2000 and incorporating:
 신박형항수처리설비의 제조자
 Ballast Water Management System manufactured by Hyundai Heavy Industries Co., Ltd.

장비 및 조립도면번호
 To equipment/assembly drawing No. See the Supplement to the Certificate date 5 August 2015.

기타 장비의 제조자
 Other equipment manufactured by Hydac(Filter), Hyundai BS&I(Filter)

장비 및 조립도면번호
 To equipment/assembly drawing No. See the Supplement to the Certificate date 5 August 2015.

정리처리용량
 Treatment Rated Capacity 2000 m³/h

이 형식승인증서의 사본은 신박형항수처리설비를 설치한 선박에 항상 비치하여야 합니다. 관련 형식승인시험계획서와 형식승인시험결과보고서 사본은 선박검사 시에 제시되어야 합니다. 만일 형식승인증서가 타 주관청의 승인에 기초해서 발행되었다면 그 형식승인증서도 첨부되어야 합니다.

A copy of this Type Approval Certificate, should be carried on board a vessel fitted with this Ballast Water Management System at all times. A reference to the test protocol and a copy of the test results should be available for inspection on board the vessel. If the Type Approval Certificate is issued based on approval by another Administration, reference to that Type Approval Certificate shall be made.

승인제한 조건은 이 증서의 주록에 기술되어 있습니다.
 Limiting Conditions imposed are described in the appendix to this document.

Official stamp: 서명: 김창군
 Signed: 김창군
 Administration of: Ministry of Oceans and Fisheries
 Dated this day of: 5 August 2015

2011
HiBallast/EcoBallast
Korean Government

Certificate No.2017/PU/01/3464/001 Page 1 of 2

TYPE APPROVAL CERTIFICATE
OF BALLAST WATER MANAGEMENT SYSTEM

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΓΚΡΙΣΗΣ ΤΥΠΟΥ
 ΓΙΑ ΤΟ ΣΥΣΤΗΜΑ ΔΙΑΧΕΙΡΙΣΗΣ
 ΘΑΛΑΣΣΙΟΥ ΕΡΜΑΤΟΣ
 No. 2017/PU/01/3464/001

Issued, under the authority of the Government of Ελλάδα/δένει εξουσιοδότησης της Κυβέρνησης της:
HELLENIC REPUBLIC / ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
 by/από
RINA Services S.p.A.

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 Guidelines contained in IMO resolution MEPC.174(58). This certificate is valid only for the ballast water management system referred to below.

Το παρόν πιστοποιεί ότι το σύστημα διαχείρισης θαλασσιού έρματος που εκτίθεται παρακάτω έχει εξεταστεί και δοκιμαστεί σύμφωνα με τις απαιτήσεις των προδιαγραφών που παρέχονται στις Οδηγίες που περιέχονται στα ψηφιογράμματα του IMO MEPC.174(58). Το πιστοποιητικό είναι έγκυρο μόνο για το σύστημα διαχείρισης θαλασσιού έρματος που αναφέρεται παρακάτω.

Ballast water management system supplied by/
 Σύστημα διαχείρισης θαλασσιού έρματος εφοδιασμένο από την:
Hyundai Heavy Industries Co., Ltd., Republic of Korea

Name of the Type and Model of the system and incorporating: /
 Ονομασία Τύπου και Μοντέλου Συστήματος και ενσωματώνοντας:
HiBallast™ System HiB-75-8000

Ballast water management system manufactured by/
 Σύστημα διαχείρισης θαλασσιού έρματος κατασκευασμένο από την: /
Hyundai Heavy Industries Co., Ltd., Republic of Korea
 to equipment/assembly drawing No.:/
 σύμφωνα με εξοπλισμό/σχέδιο συναρμολόγησης No.:/
 See the Annex to the Certificate date/ημερομηνία: 8 October 2015.

Other equipment manufactured by/
 Άλλος εξοπλισμός κατασκευασμένος από την: Hydac (Filter), Hyundai BS&I (Filter)
 to equipment/assembly drawing No.:/
 σύμφωνα με εξοπλισμό/σχέδιο συναρμολόγησης No.:/
 See the Annex to the Certificate date/ημερομηνία: 8 October 2015.

Equipment rated capacity/ Λειτουργική Παροχή επεξεργασίας: 75-8000 m³/h

Nov. 2017
HiBallast
Greece

TYPE APPROVAL CERTIFICATE
 No. MAC146317PU/001

This is to certify that the product identified below satisfies the requirements of the standard quoted under "Reference standard"

Description	BALLAST WATER TREATMENT SYSTEM
Type	HiBallast BWMS
	HiB-75-8000
Applicant	HYUNDAI HEAVY INDUSTRIES CO., LTD. 1000, BANGEJINSUNHWANDO-RO, DONG-GU ULSAN, REPUBLIC OF KOREA
Manufacturer	HYUNDAI HEAVY INDUSTRIES CO., LTD.
Place of manufacture	1000, BANGEJINSUNHWANDO-RO, DONG-GU ULSAN, REPUBLIC OF KOREA
Reference standards	IMO Res. MEPC.174(58) / MEPC.169(57)
Reference documents	RINA TYPE APPROVAL SYSTEM

Issued in **BUSAN** on **November 21, 2017**. This Certificate is valid until **November 20, 2022**

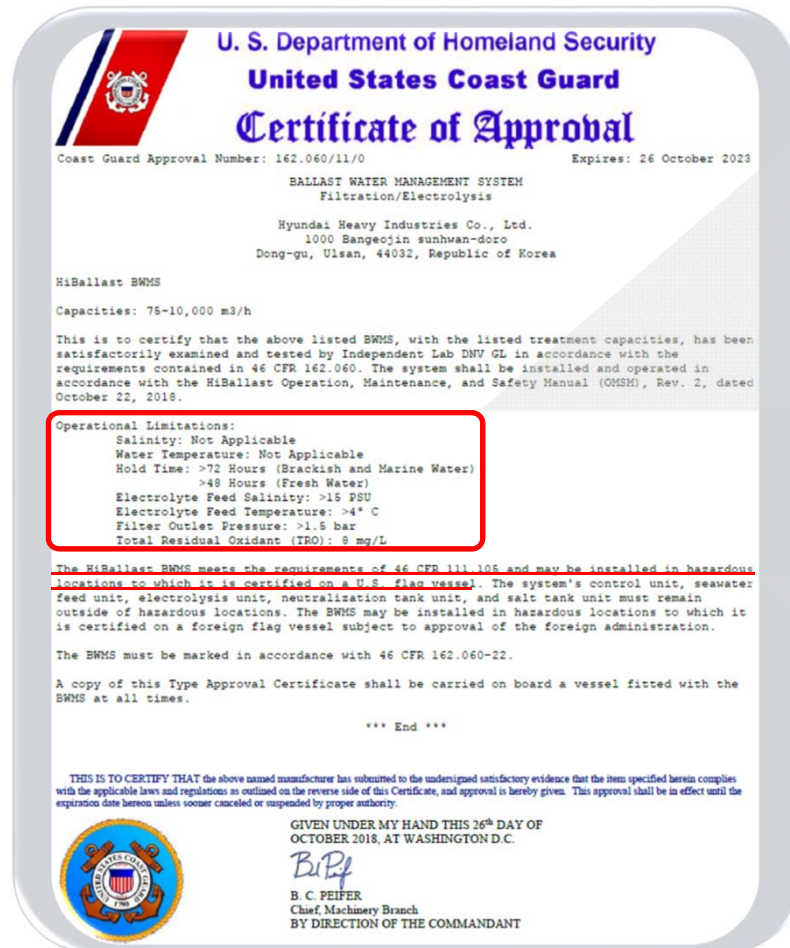
RINA Services S.p.A.
 Young-Kwang Kim

This certificate consists of this page and 1 enclosure

Nov. 2017
HiBallast
RINA

Certificates

USCG BWTS TA



26th Oct. 2018, HiBallast

- ✓ Salinity : Not Applicable
- ✓ Water Temperature : Not Applicable
- ✓ Hold Time : > 72 hrs (Brackish & Marine Water)
> 48hrs (Fresh Water)
- ✓ Electrolyte Feed Salinity : > 15PSU
- ✓ Electrolyte Feed Temperature : > 4°C
- ✓ Filter Outlet Pressure : > 1.5 bar
- ✓ Total Residual Oxidant (TRO) : 8 mg/L

- ✓ HiBallast can be installed in hazardous location to which it is certified on a U.S. flag vessel

Thank you

