

Hanla IMS is the best solution
Company View



Head Office
15,138 m² / 4,587 py



A/S Training Center



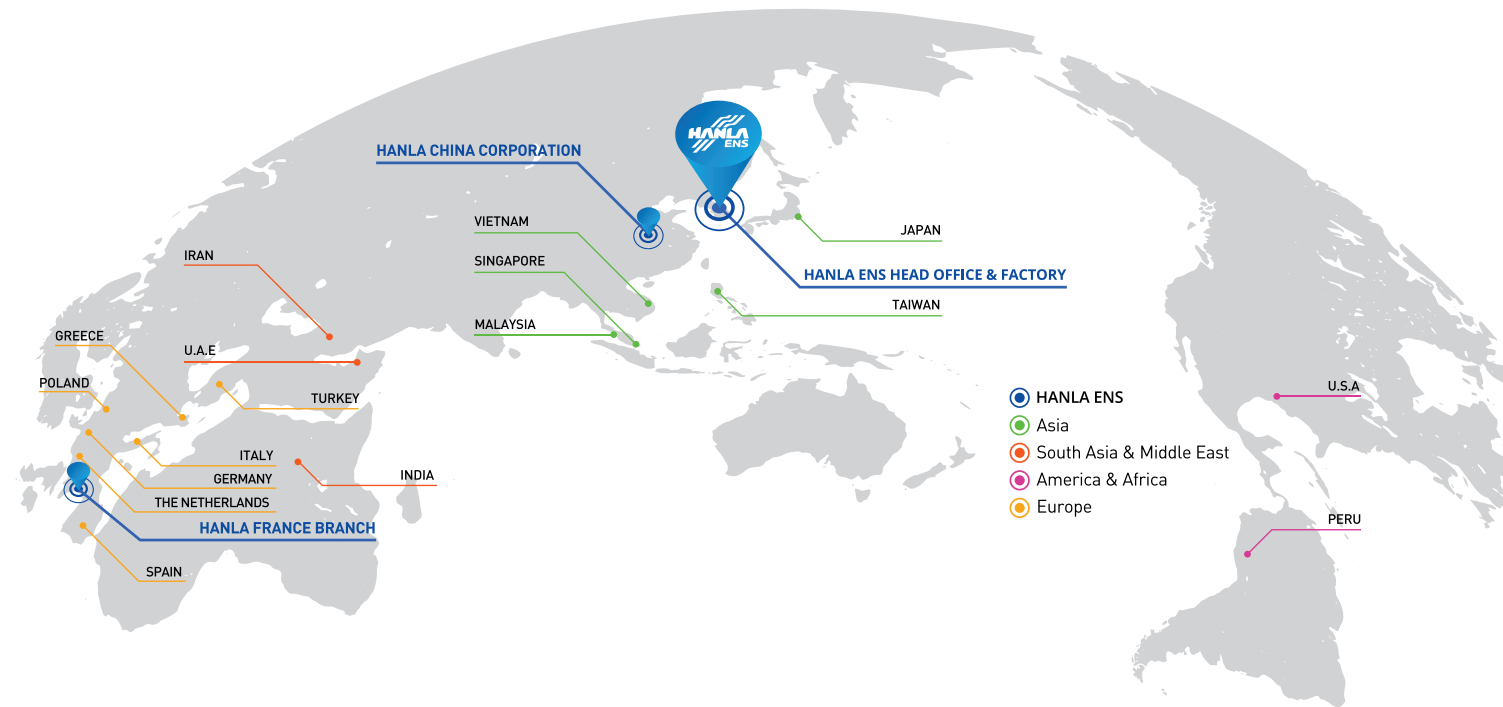
Factory
17,190 m² / 5,200 py



China Factory
26,446 m² / 8,000 py

Since **1989** **HANLA IMS**
Manufacturing Line
Authorized by
the Quality

GLOBAL NETWORK SERVICE



KOREA HEAD OFFICE & FACTORY

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2ND FACTORY
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LED FACTORY

CHINA HANLA CHINA CORPORATION

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FRANCE BRANCH

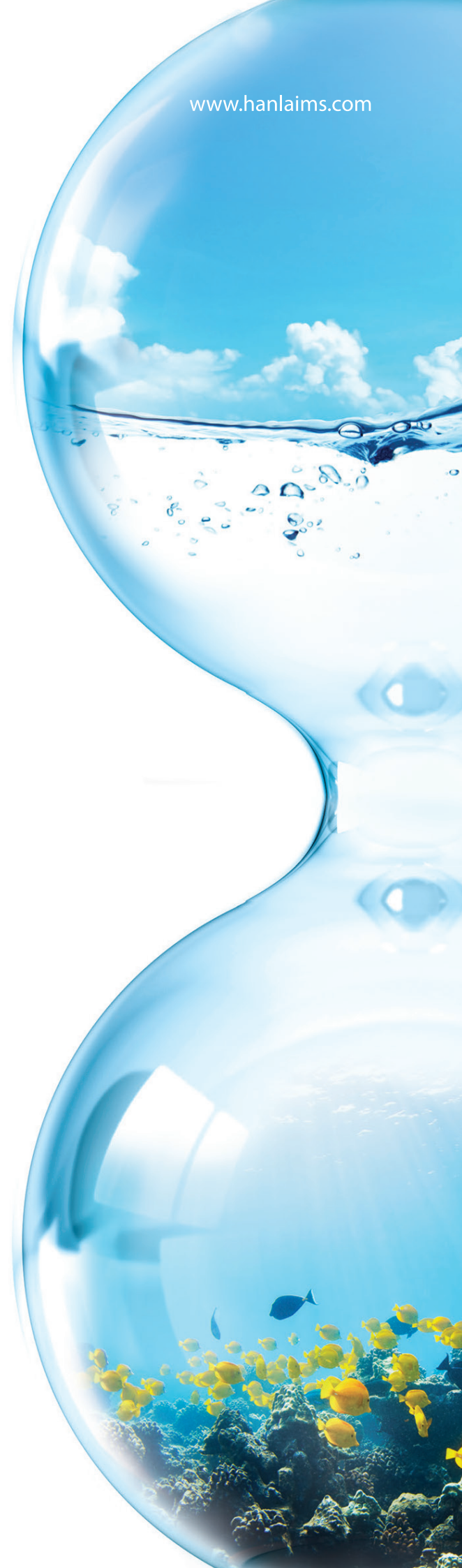
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3B Package Solution

BALLAST WATER TREATMENT SYSTEM

EcoGuardian™



HANLA IMS

Leading Company
in Marine & Offshore with World's Best Technology
for Customer Satisfaction



since 1989

Instrument Division

Cargo Monitoring System (Radar/ Float)
Tank Remote Sounding System (Pneumatic/ Elec.Pressure)
Hi & Hi-Hi Level Alarm System (Acoustic wave/Float)
Fixed Gas Sampling System
Gas Detection & Analyzing System
Vapour Emission Control System
Water Ingress Detection System
Water Survey Detection System
Temperature/ Pressure Sensors
Level Transmitters
Level Gauges
Level Switches
Oil Sampler
Indicators

System Division

Valve Remote Control System
(Hydraulic / Electric / Pneumatic / Electro Hydraulic)
Loading Computer
Dynamic A (Integrated Control & Monitoring System)

Environment Division

Ballast Water Treatment System (EcoGuardian™)
Plant Water Treatment System

LED Division

LED Lighting
LED Lamp

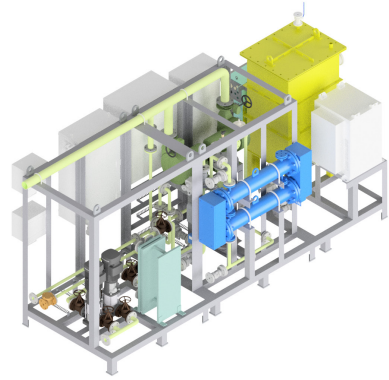
- 2019 · USCG Type Approval of Ballast Water Treatment System
- 2016 · Best Family Friendly Company Certification
· USCG AMS Approval of Ballast Water Treatment System
- 2015 · New Excellent Technology Authentication
· High technology product confirmation
· World Class 300 Company' Certificate of Designation
· Next Global Champ Certificate of Designation
· Type Approval Certificate of Ballast Water Treatment System
- 2014 · Leading Company Certificate (Marine Industry)
· Korean World-Class Product Award
· Certificate of Designation as an Advanced Technology Center
- 2013 · OEM/ ODM Agreement with Econosto
· EcoGuardian(BWTS) IMO final approval
· INNO-BIZ Certificate
- 2012 · Global Small Giants selection 2012 Leading Employer Award
(Busan Metropolitan City)
- 2011 · Certified by ISO 14001 of EMS and QMS
- 2010 · Start business Ballast Water Treatment System
· LED lighting certified by KS Mark
- 2009 · Change name to HANLA IMS
· Acquired equity in Blue Science Co., Ltd
- 2008 · Start business Valve Remote Control System
· Established affiliated company HANLA NMT
- 2007 · Established China Corporation HANLA M&E CO.,LTD
· Listed on Korean Stock Market
- 2005 · Awarded Q-GOLD MARK Certification from Samsung Heavy Industries
· Awarded an export prize.(10,000,000 USD)
- 2004 · Awarded an export prize(5,000,000 USD)
- 2002 · Established a Joint-Venture Company "TAIZHOU HANMI INSTRUMENT CO., LTD"
- 2000 · CE mark Certified from DNV
- 1995 · ISO 9001 Certified from DNV
· Registered on Manufacturer List of Korea Electric Power Corporation
- 1993 · Products type approved from
· - ABS, KR, LR, DNV, BV, GL, NK, RINA
- 1992 · Technical Agreement with Honeywell Marine System
· Representative Agreement with VEGA Germany
- 1989 · HANLA LEVEL established



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INTRODUCTION



General Information

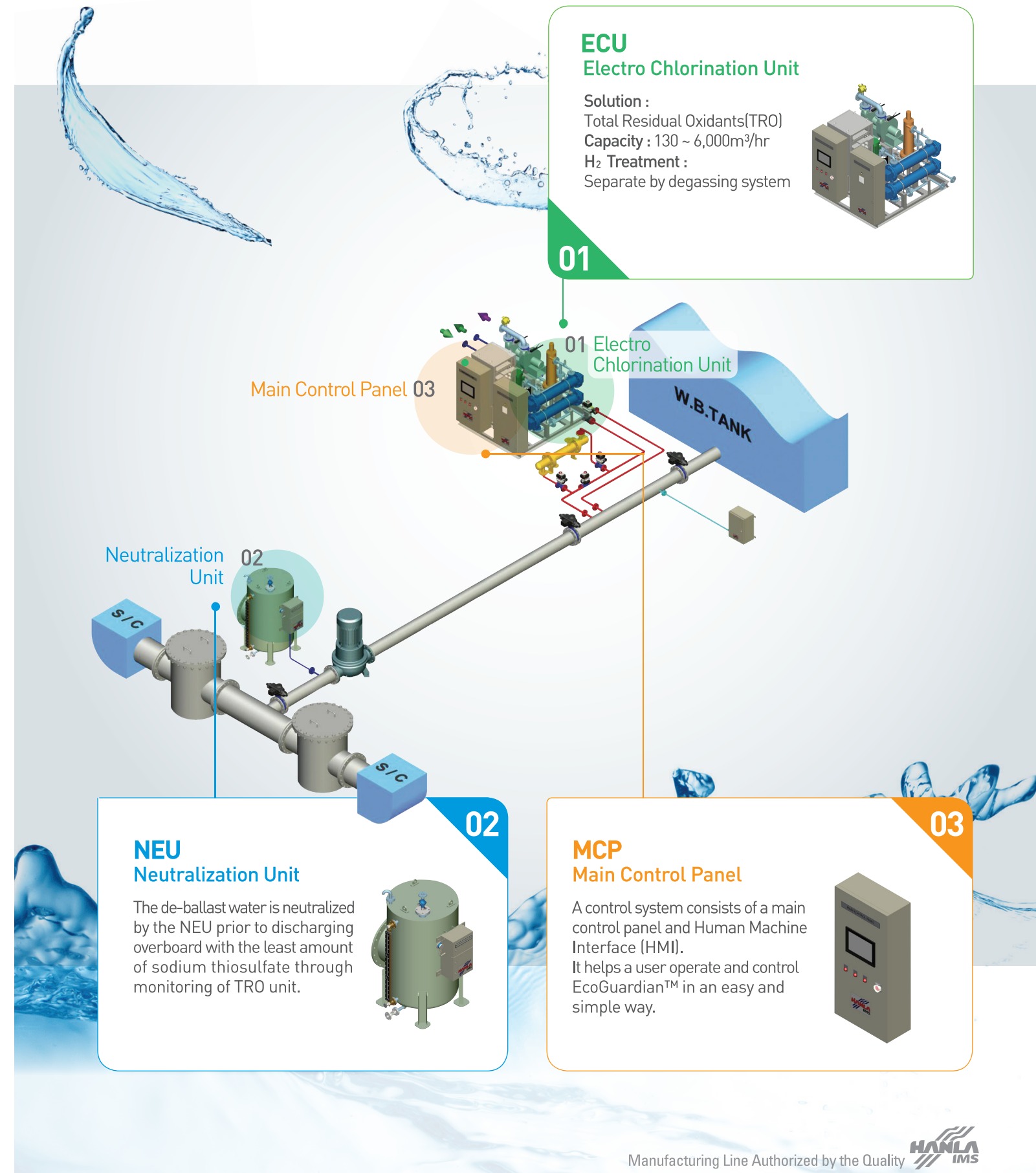
Hanla IMS Co.,Ltd has developed eco-friendly EcoGuardian™ system for treating Aquatic Invasive Species in a ship's ballast water. Treatment method is side- Stream type which enables the system to be remotely installed away from the ballast lines. The EcoGuardian™ system can be installed separately by unit. So relocation of other equipments and additional engineering can be minimized.

Division	Description
Treatment Method	<ul style="list-style-type: none"> ✦ Ballasting Filtration + Electrolysis (Side-stream) ✦ De-ballasting Neutralization
Biological Efficiency	Compliance with IMO D2 performance standard & CFR 151.2030(BWDS)
Operation Mode	Automatic / Manual operation by remote control(option)
Operation H/W, S/W	Human Machine Interface(HMI), Touch Screen
Utility Required	<ol style="list-style-type: none"> Control air (6~7kgf/cm2) for pneumatic valves Fresh water for rectifier cooling
Installation type	1. Skid mounted / 2. Containerized / 3. Separate

Type and Dimention

Model	Capacity [m³/h]	Foot print (m²) / Weight (ton)			
		ECU	NEU	SIU	HEU
EGNF0130	130	2.6 / 1.2	1.2 / 0.4	0.1 / 0.1	0.4 / 0.1
EGNF0130-Ex				0.9 / 0.4	
EGNF0250	250	2.6 / 1.4	1.4 / 0.6	0.1 / 0.1	0.4 / 0.1
EGNF0250-Ex				1.1 / 0.4	
EGNF0350	350	2.9 / 1.5	1.7 / 0.8	0.1 / 0.1	0.4 / 0.2
EGNF0350-Ex				1.1 / 0.4	
EGNF0500	500	3.2 / 1.7	2.1 / 0.9	0.1 / 0.2	0.4 / 0.2
EGNF0500-Ex				1.1 / 0.5	
EGNF0800	800	5.0 / 2.2	2.4 / 1.0	0.2 / 0.2	0.6 / 0.3
EGNF0800-Ex				1.2 / 0.6	
EGNF1000	1000	5.4 / 2.3	2.4 / 1.0	0.2 / 0.2	0.7 / 0.3
EGNF1000-Ex				1.2 / 0.6	
EGNF1500	1500	7.9 / 3.3	2.4 / 1.0	0.2 / 0.2	0.7 / 0.3
EGNF1500-Ex				1.4 / 0.8	
EGNF2000	2000	10.6 / 3.9	2.4 / 1.0	0.2 / 0.2	0.5 / 0.4
EGNF2000-Ex				1.9 / 0.9	
EGNF2600	2600	10.2 / 4.6	2.4 / 1.0	0.3 / 0.3	0.5 / 0.4
EGNF2600-Ex				2.0 / 0.9	
EGNF3000	3000	10.6 / 5.5	2.4 / 1.0	0.3 / 0.3	0.5 / 0.4
EGNF3000-Ex				2.3 / 0.9	
EGNF3600	3600	14.3 / 5.9	2.4 / 1.0	0.3 / 0.4	0.5 / 0.4
EGNF3600-Ex				2.3 / 1.0	
EGNF4000	4000	18.9 / 9.4	2.4 / 1.0	0.3 / 0.4	0.5 / 0.4
EGNF4000-Ex				2.3 / 1.0	
EGNF5200	5200	10.0 / 8.1	2.4 / 1.0	0.5 / 0.4	0.5 / 0.4
EGNF5200-Ex				0.8 / 0.9	
EGNF6000	6000	16.5 / 9.3	2.4 / 1.0	0.5 / 0.5	0.5 / 0.4
EGNF6000-Ex				0.8 / 0.9	

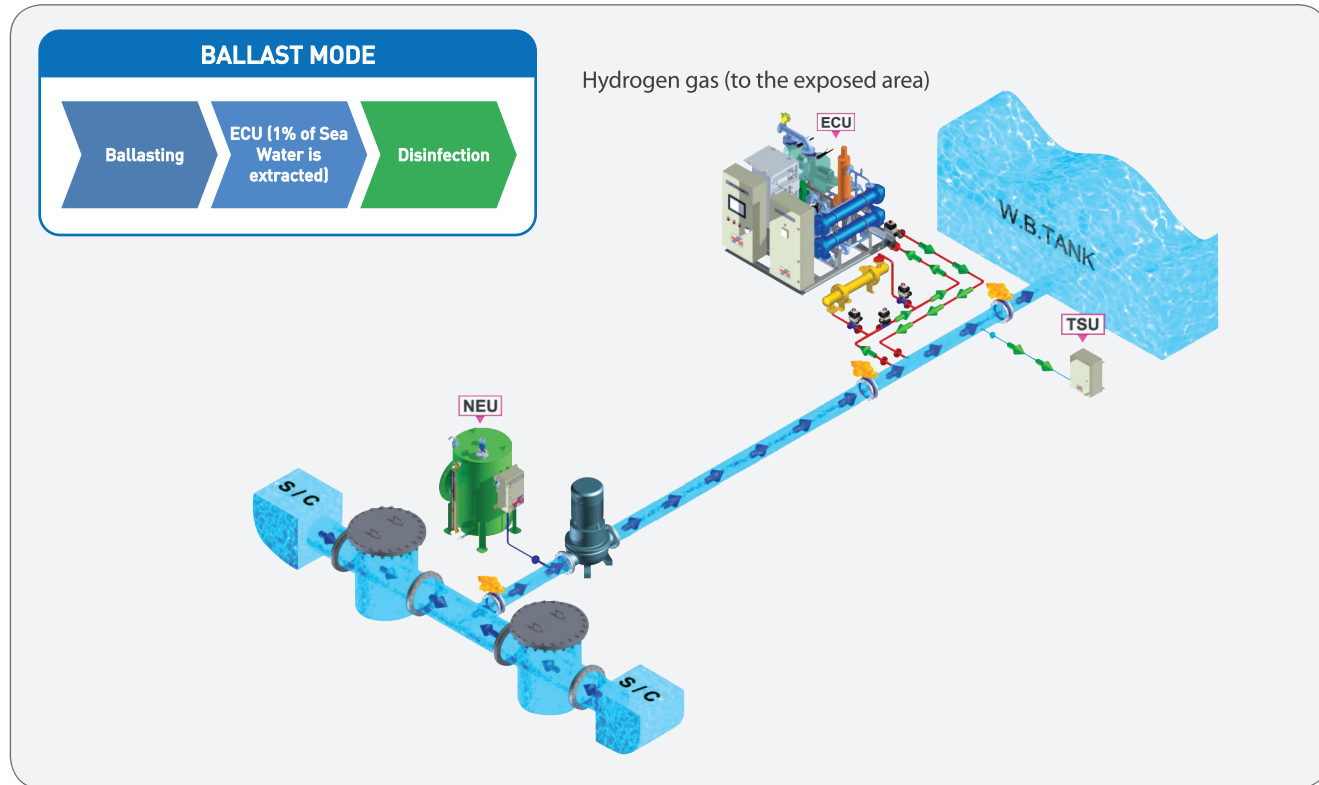
COMPONENT



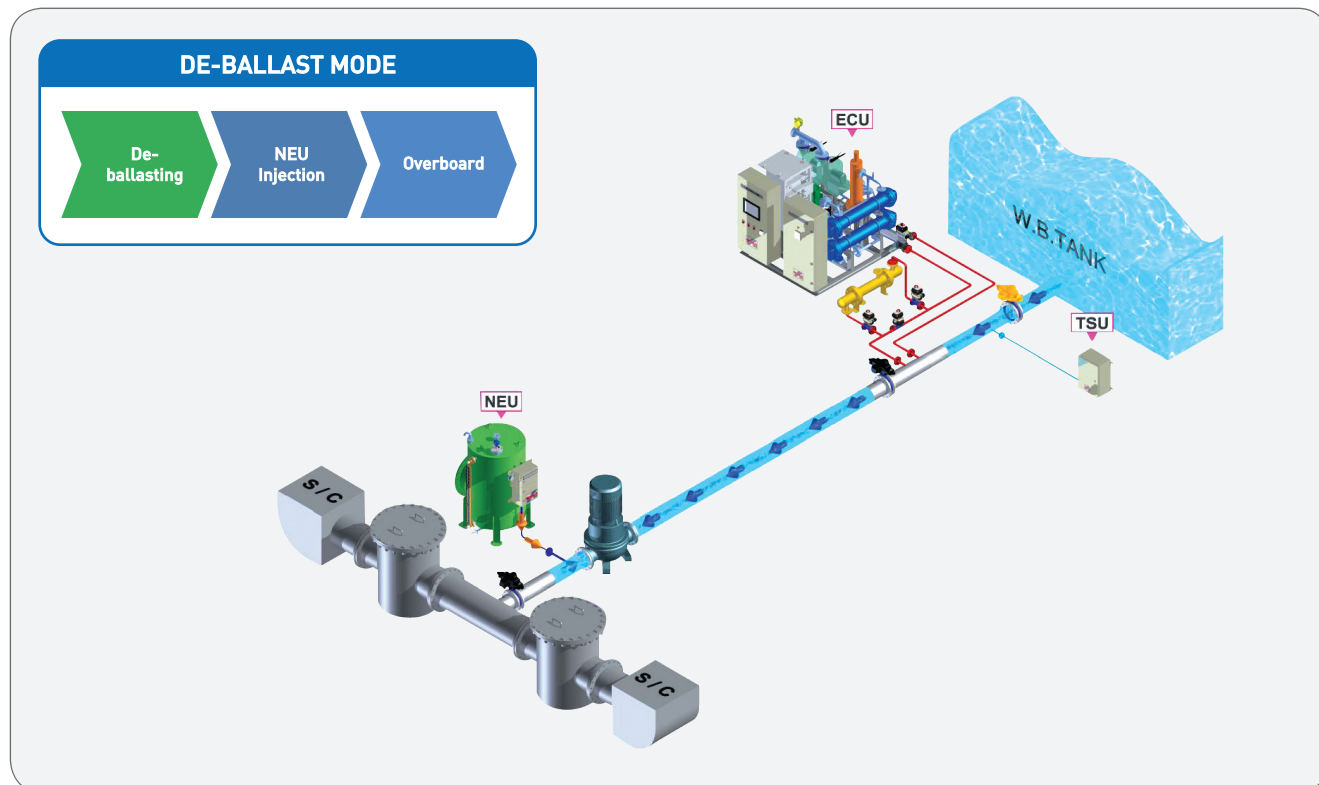
PROCESS

EcoGuardian™ NF is based on the principles of the non filtration and electrolysis.

BALLASTING



DE-BALLASTING



Advantage

- 1/ Simple & Easy Installation
- 2/ Minimum modification of existing ballasting main line
- 3/ Effective even in the turbid water
- 4/ No corrosion to hulls & pipings
- 5/ No stock of dangerous chemicals
- 6/ Cost-effective by Hanla package solution
- 7/ Effective disinfection
- 8/ Low maintenance cost

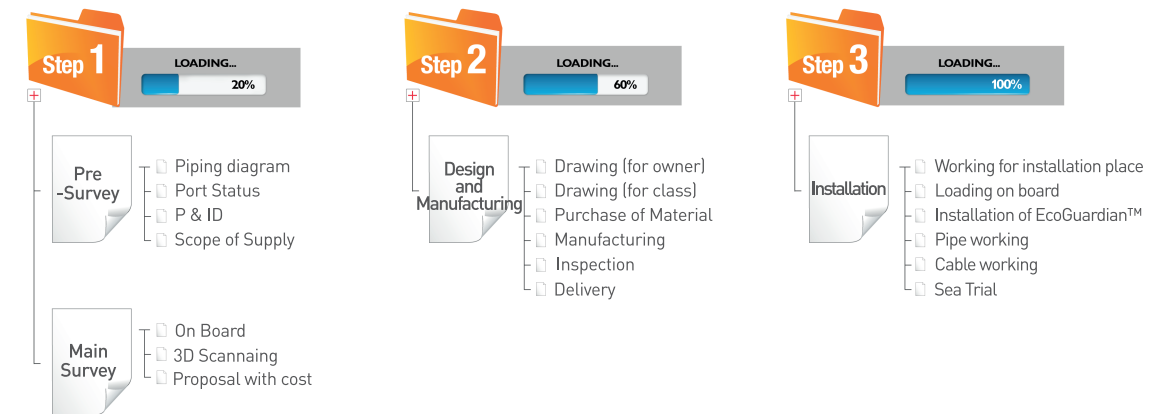


- ◆ **Ballasting**
Electrolysis [Side-Stream]
- ◆ **Deballasting**
Reliable Neutralization
; Real-time monitoring by TRO sensor through Hanla Integrated ballast control system.

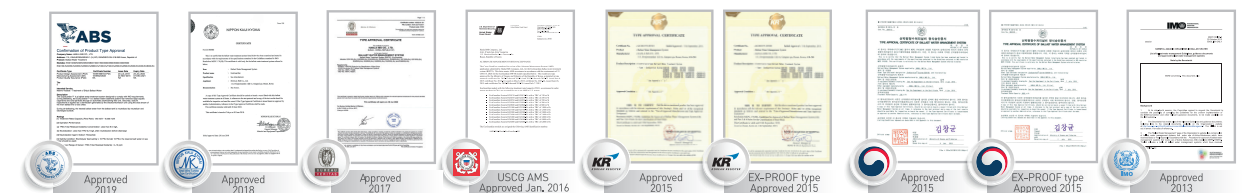
EcoGuardian™ NF Key Features

- The side stream of the ballasting water goes through the electrolysis unit that generates the high concentration of TRO (Total Residual Oxidants). The concentrated stream is then injected back to the main ballasting line;
- Electrolysis unit (including electrolytic cells, rectifier/transformer, booster pumps, conductivity sensor and degassing devices) produces TRO in situ which disinfects the residual planktons, pathogens, larva or spores;
- Neutralization unit adds sodium thiosulfate solution into the treated ballast water to neutralize the TRO during de-ballasting;
- Control system including PLC, HMI and auxiliary equipment

Retrofit Solution

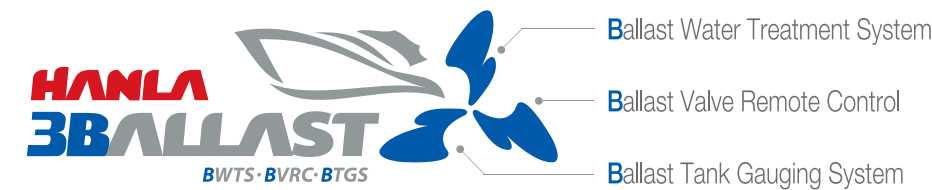


Certificates & Approvals

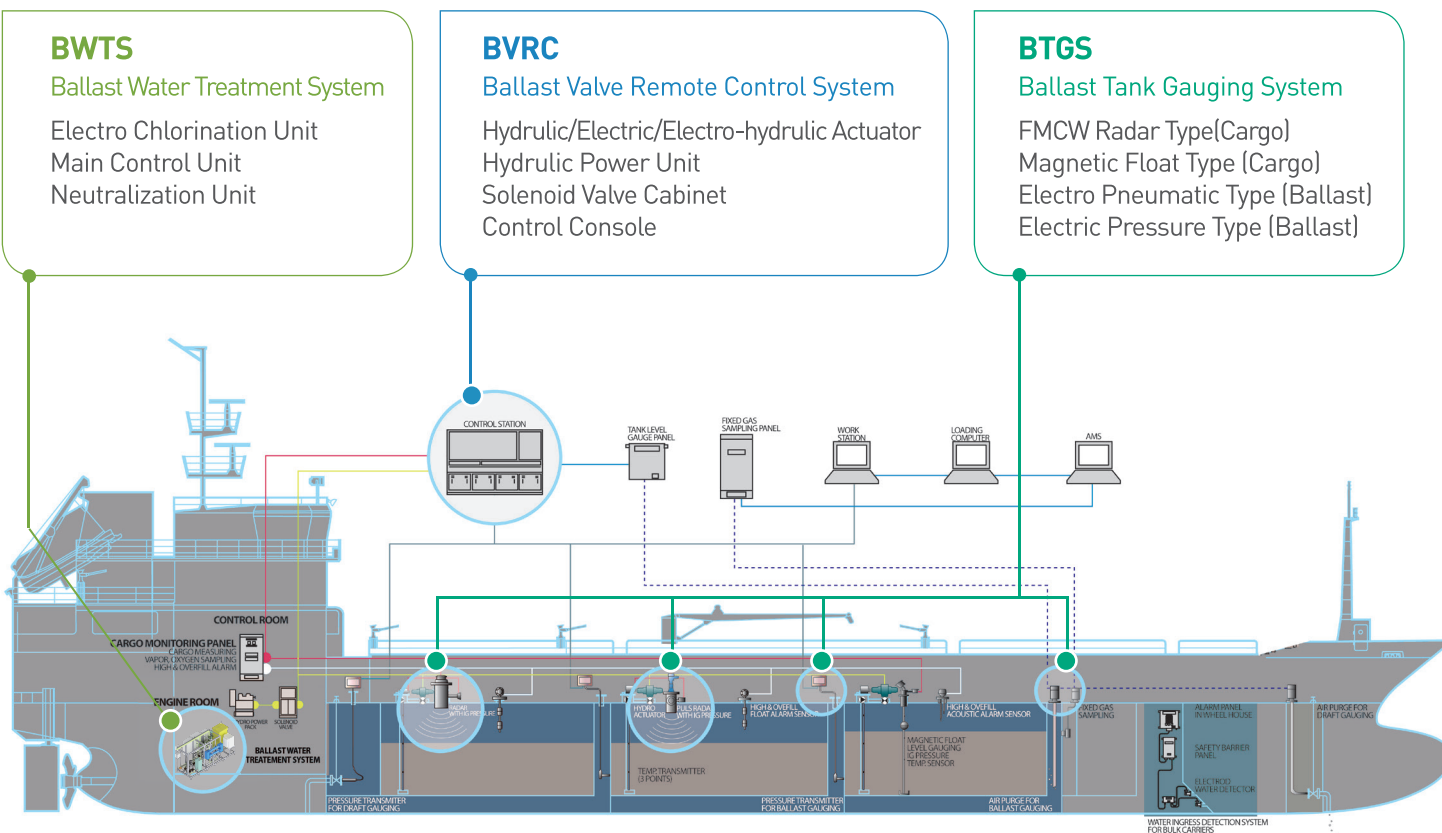


HANLA is the only company which can provide "Integrated Triple Ballast Package Solution" developed by our own technologies throughout the world

World Best



Optimized process solution that integrates a wide range of marine systems based on Hanla's advanced technologies



3BALLAST™ PACKAGE SOLUTION

Since starting a business in marine equipment industry in 1989, we "HANLA IMS" have supplied reliable products to customers for over 26 years. Based on these 26 years experiences, Loading Computer, Tank Monitoring System, Valve Remote Control System, Ballast Water Treatment System(BWTS), LED Lighting have been developed by our own technologies and we have been continuously growing up to become the best company in this field.

Now, as a specialist of Total Ballast System Line Up, all of our staff are going to run more faster with the 3B in their mind. This 3B is our new campaign logo to introduce that we "HANLA IMS" is a specialist of Total Ballast System Line Up.

3B ballast package solution has been created based on the highest customer satisfaction and we are committed to providing the best service to our customers with cost-effective optimal system. The 3B means not only Ballast Water Treatment System, Ballast Valve Remote Control System, and Ballast Tank Gauging System but also Best quality, Best technology and Best service.

How can the Hanla 3BALLAST™ package solution operate systematically?

Each of 3B System communicates through an integrated ballast control console by Dynamic-A.

1B BWTS - BVRC

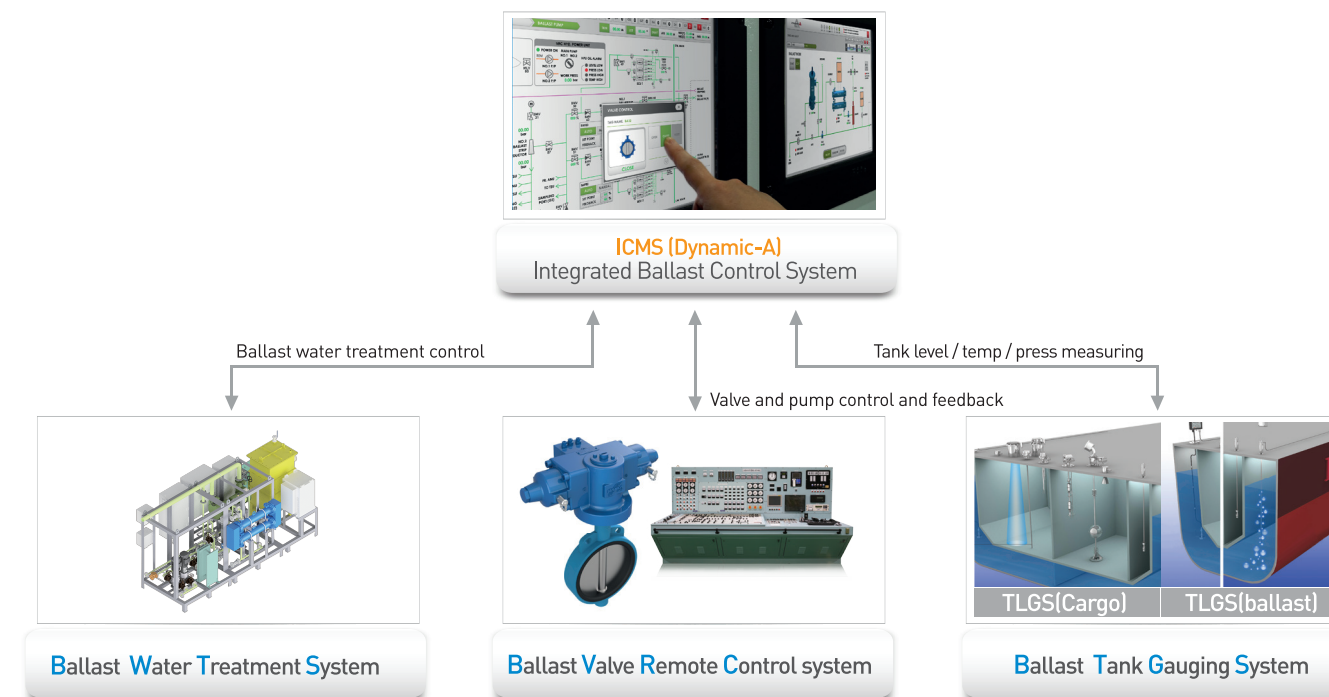
When ballast water treatment system (BWTS) operates, a ballast control console displays operating status of BWTS. During the treatment, all of the valves can be controlled by the ballast valve control system in accordance with progression of BWTS.

2B BVRC - BTGS

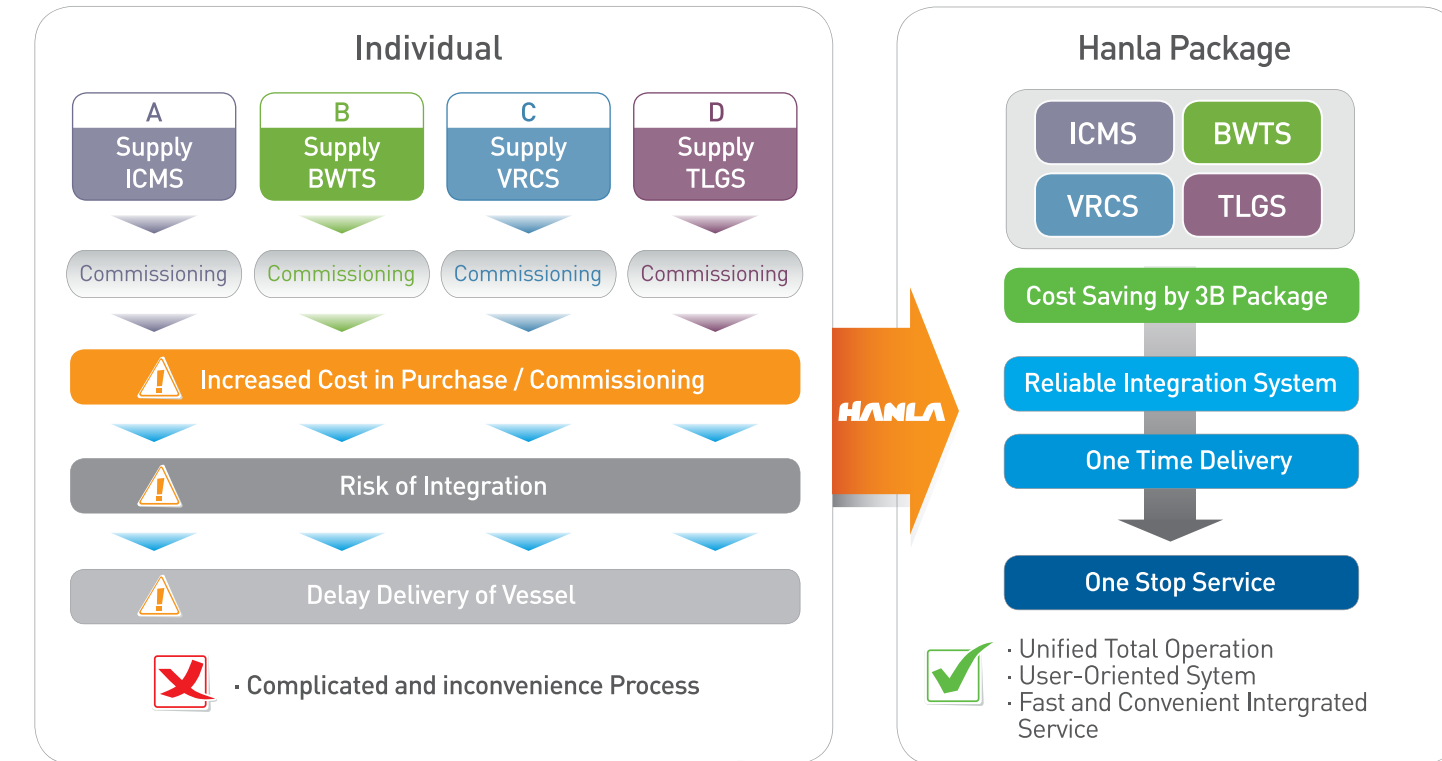
When treated ballast water flows into ballast tanks, the level of ballast tanks is measured and monitored by the ballast gauging system. And then, its signal goes to the ballast control console. It helps a decision by the signal to open or close of valves.

3B BTGS - BWTS

When the level of ballast tanks becomes maximum height, ballast control console transfers a signal to BWTS for a stop. Before BWTS starts, ballast gauging system monitors the level of ballast tank.



What is the difference of the HANLA's 3BALLAST™ ?



Optimized 3BALLAST™ Solution is the answer and we provides the most perfect integrated system.

- VRCS**
- Hydraulic type
 - Pneumatic type
 - Electric motor type
 - Electro-Hydraulic type
 - Control Console
 - PLC Control
 - I.S. Type Sol.valve Cabinet

- TLGS**
- Cargo Monitoring System
 - Ballast & Draft Gauging System
 - Gas Sampling/Detection System
 - Independent High Level Alarm System
 - Vapour Emission Control System
 - Water Ingress Detection System
 - Loading computer & ICMS
 - Instruments

- BWTS**
- Electrolysis type
 - Side-Stream type
 - Neutralization unit