



Ballast Water Treatment System
» Global Service Network

13
HANLA IMS
Ballast Water Treatment System
& 3B Package Solution

GLOBAL SERVICE NETWORK


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27th
Manufacturing Line Authorized by the Quality









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Instruments factory I LED factory

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HANLA IMS is a leading company with the challenging mind.

3B Package Solution
EcoGuardian™
 BALLAST WATER TREATMENT SYSTEM


Ballast Specialist



HANLA IMS

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



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

- 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 HANVI 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.



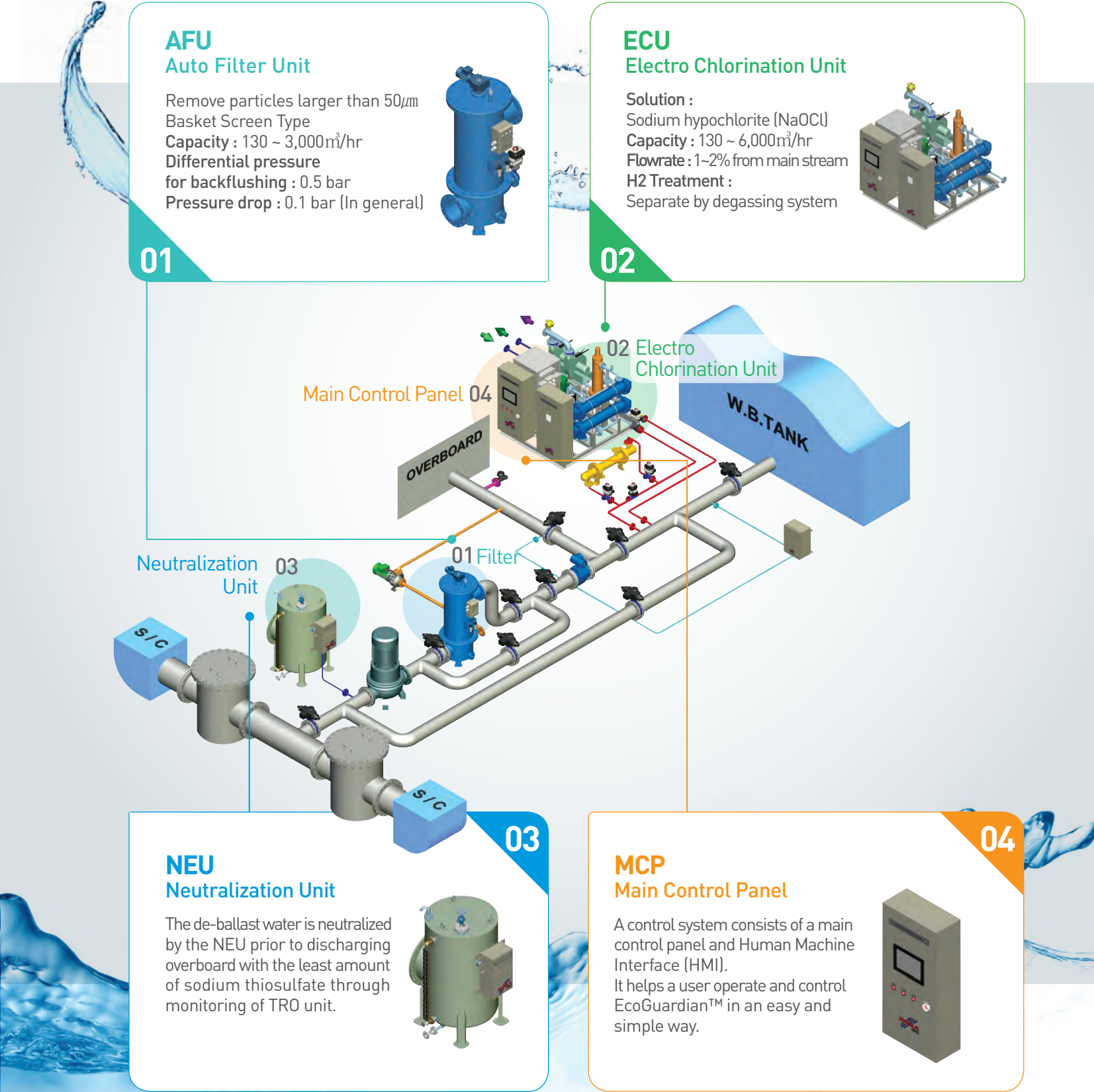
Division	Description
Treatment Method	✦ Ballasting Filtration (50μm) + Electrolysis (Side-stream) ✦ De-ballasting Neutralization (Sodium thiosulfate)
Biological Efficiency	Compliance with IMO D2 performance standard
Operation Mode	Automatic / Manual by remote control panel
Operation H/W, S/W	Human Machine Interface(HMI), Touch Screen
Utility Required	1. Control air (6~7kgf/cm2) for pneumatic valves 2. Fresh water for rectifier cooling
Installation type	1. Skid mounted / 2. Containerized / 3. Separate

Type and Dimention (Detail dimension will be changed on a case by case basis)

Model	Capacity [m3/h]	SIZE : L x W x H (mm)			Power Consumption [kW]
		AFU	ECU	NEU	
EG0130	130	750 x 900 x 1700	1550 x 1400 x 1200	900 x 1000 x 1350	5.1
EG0130-Ex					
EG0250	250	900 x 1100 x 2070	1750 x 1450 x 1400	1050 x 1150 x 1600	10.3
EG0250-Ex					
EG0350	350	1200 x 1300 x 2100	1900 x 1600 x 1550	1250 x 1350 x 1900	14.4
EG0350-Ex					
EG0500	500	1700 x 1800 x 2600	1900 x 1650 x 1600	1500 x 1600 x 2300	20.6
EG0500-Ex					
EG0800	800	2250 x 2200 x 2800	1450 x 2750 x 1750	1600 x 1700 x 2400	30.8
EG0800-Ex					
EG1000	1000	2750 x 2600 x 3100	1750 x 2570 x 1800	1700 x 1750 x 2550	41.1
EG1000-Ex					
EG1500	1500	2750 x 2600 x 3300	1500 x 3300 x 1800	1750 x 1850 x 2650	61.7
EG1500-Ex					
EG2000	2000	2750 x 3800 x 2850	2250 x 2200 x 3050	1900 x 1950 x 2850	82.2
EG2000-Ex					
EG2600	2600	2750 x 3550 x 3050	2750 x 2600 x 3100		102.8
EG2600-Ex					
EG3000	3000	2750 x 4400 x 3050	2300 x 3800 x 2850		123.4
EG3000-Ex					
EG4000	4000	2750 x 5200 x 3300	2300 x 3900 x 2300		164.4
EG4000-Ex					
EG6000	6000		2750 x 3350 x 2800		246.6
EG6000-Ex					

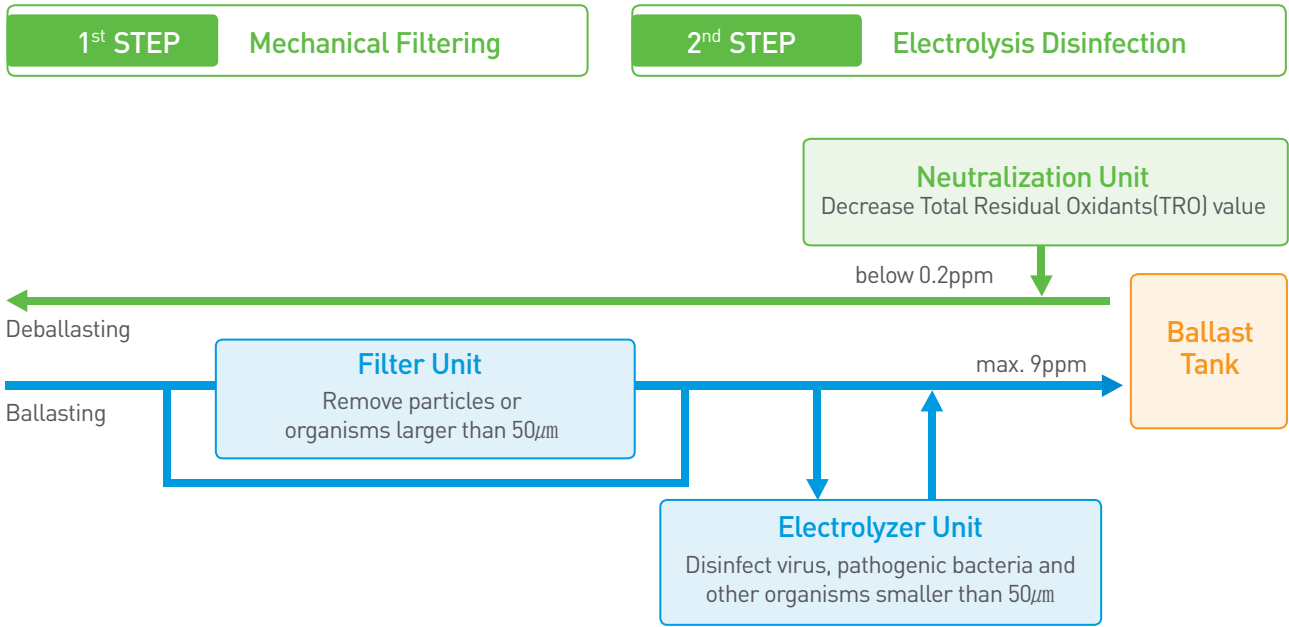
* Power consumption condition: 20 °C, 34 PSU

COMPONENT



PROCESS

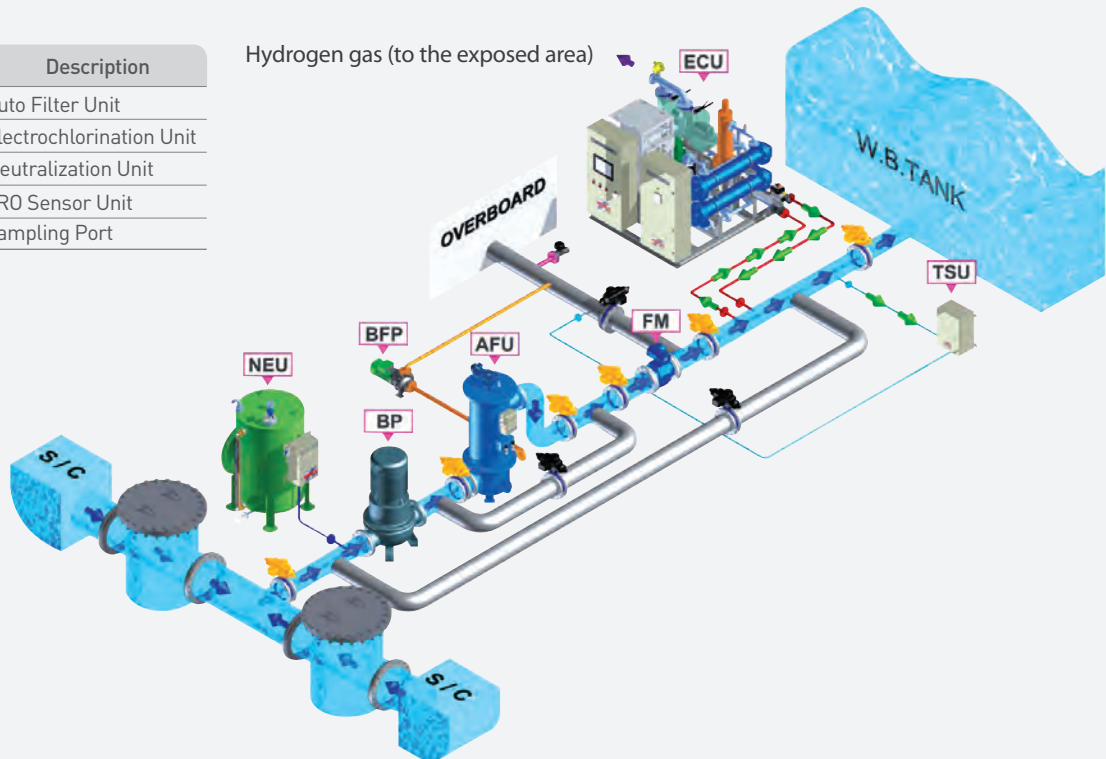
EcoGuardian™ is based on the principles of pre-filtration and electrolysis.



BALLASTING

Abbr.	Description
AFU	Auto Filter Unit
ECU	Electrochlorination Unit
NEU	Neutralization Unit
TSU	TRO Sensor Unit
SP	Sampling Port

Hydrogen gas (to the exposed area)



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

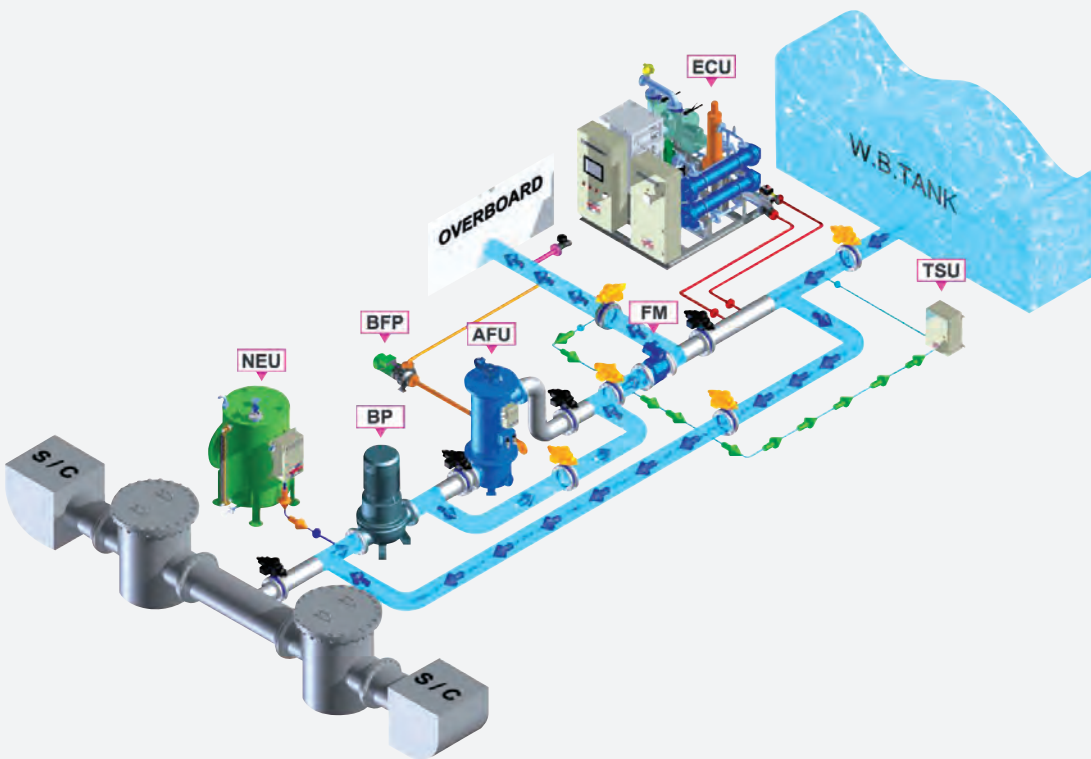


- ✦ **Ballasting**
 - Precise Filtration ; Filtration (50µm) + Electrolysis (Side-Stream)
- ✦ **Deballasting**
 - Reliable Neutralization (Sodium thiosulfate) ; Real-time monitoring by TRO sensor through Hanla Integrated ballast control system.

EcoGuardian™ Key Features

- Automatic backflushing filter unit removes large organisms and solid particles above 50µm;
- Automatic backflushing operation starts when the pressure difference between the water inlet and outlet reaches a certain value;
- 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 sodium hypochlorite solution 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 residual TRO during de-ballasting;
- When ballasting maximum TRO concentration is limited to 9.0mg/L;
- When de-ballasting MADC (Maximum Allowable Discharge Concentration) is 0.2mg/L TRO as Cl2;
- Control system including PLC, HMI and auxiliary equipment

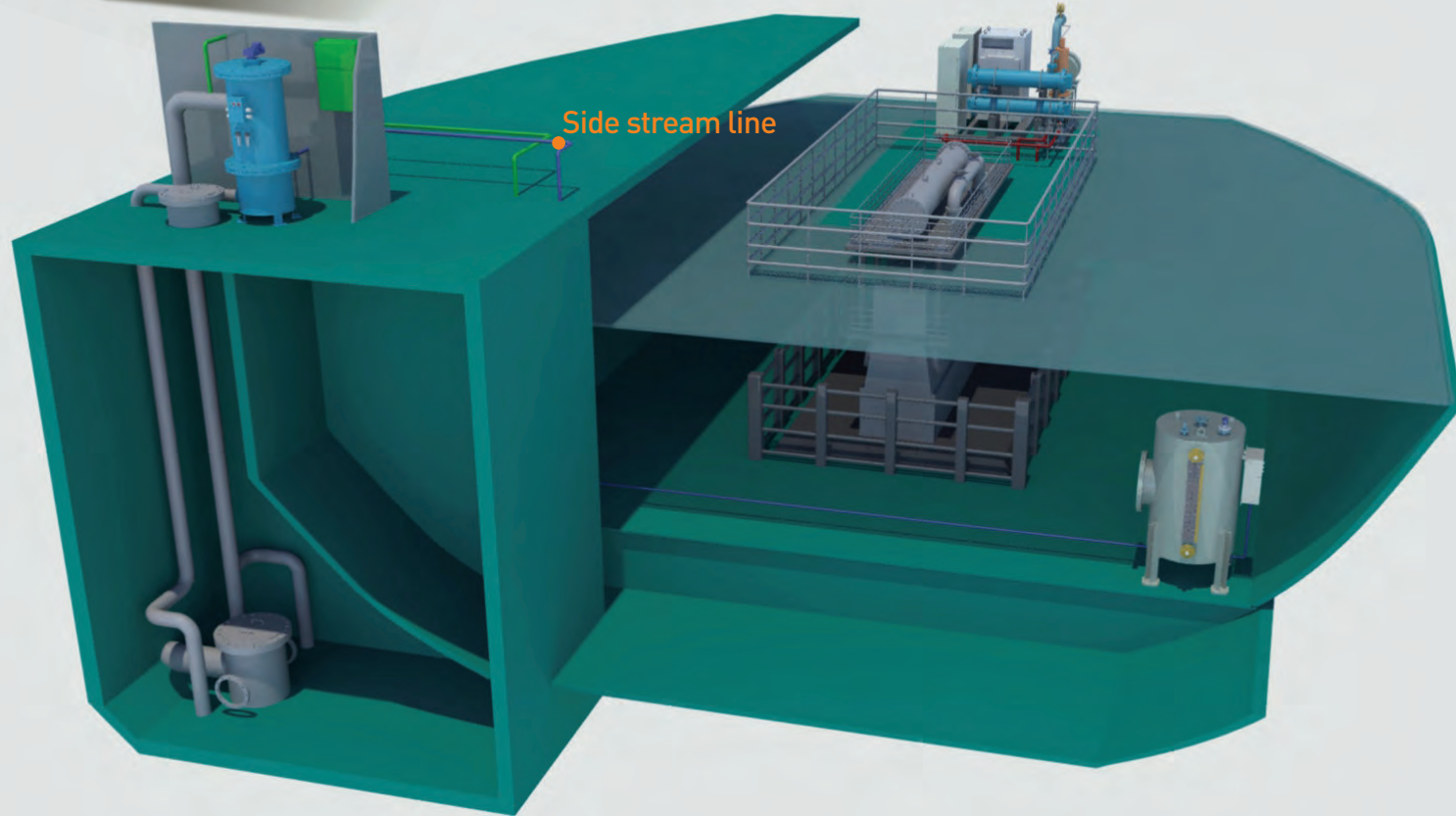
DE-BALLASTING



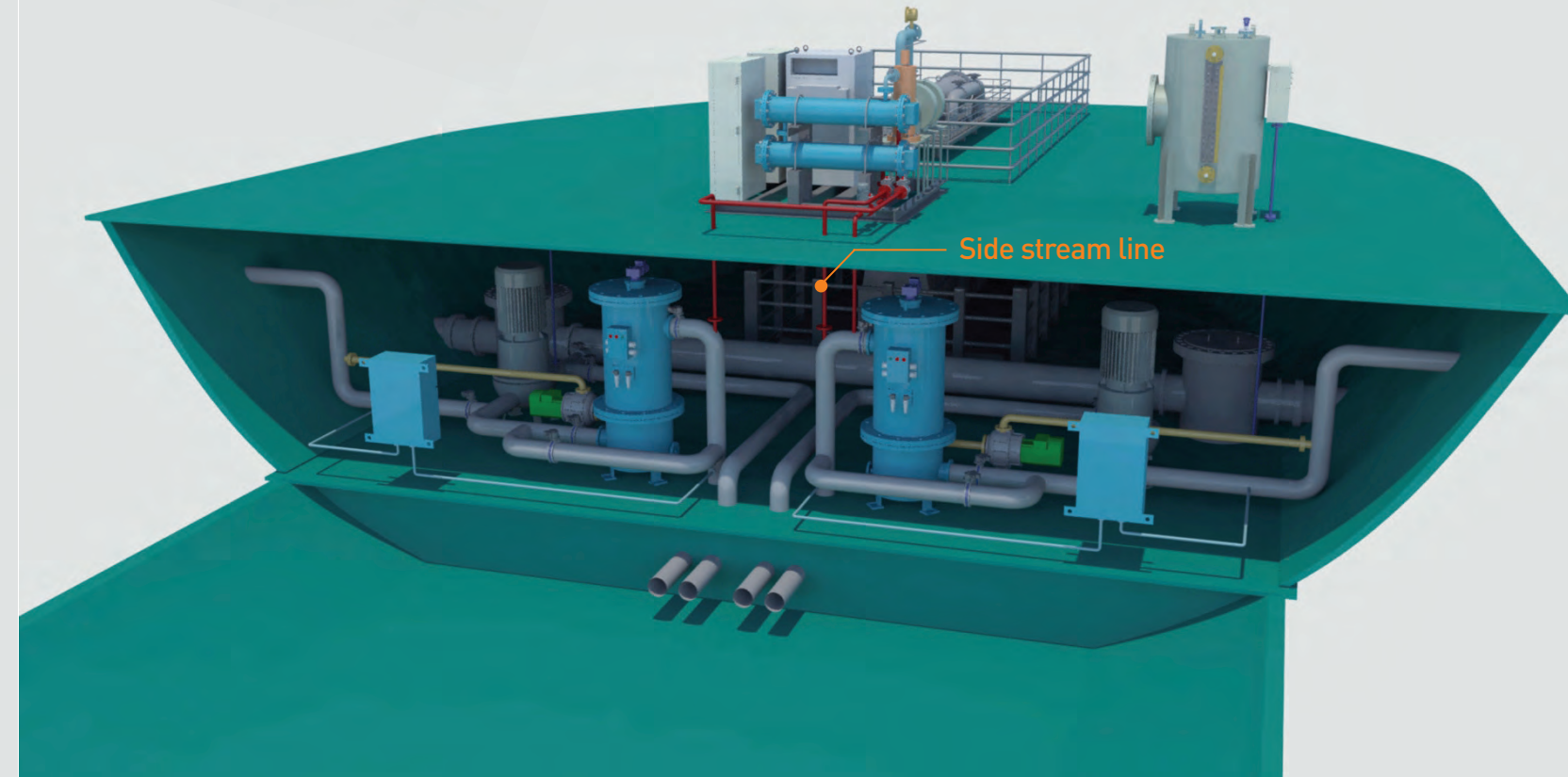
INSTALLATION SOLUTION

This sideline type electrolysis system can be constructed in a small size. Also due to the characteristics of system which uses active substance as disinfectant, our system can be easily modularized and scalable. So our system can be installed easily with low cost even in retrofit. In some cases if needed, our system can be seated on the skid mount or containerized for easy transportation and installation.

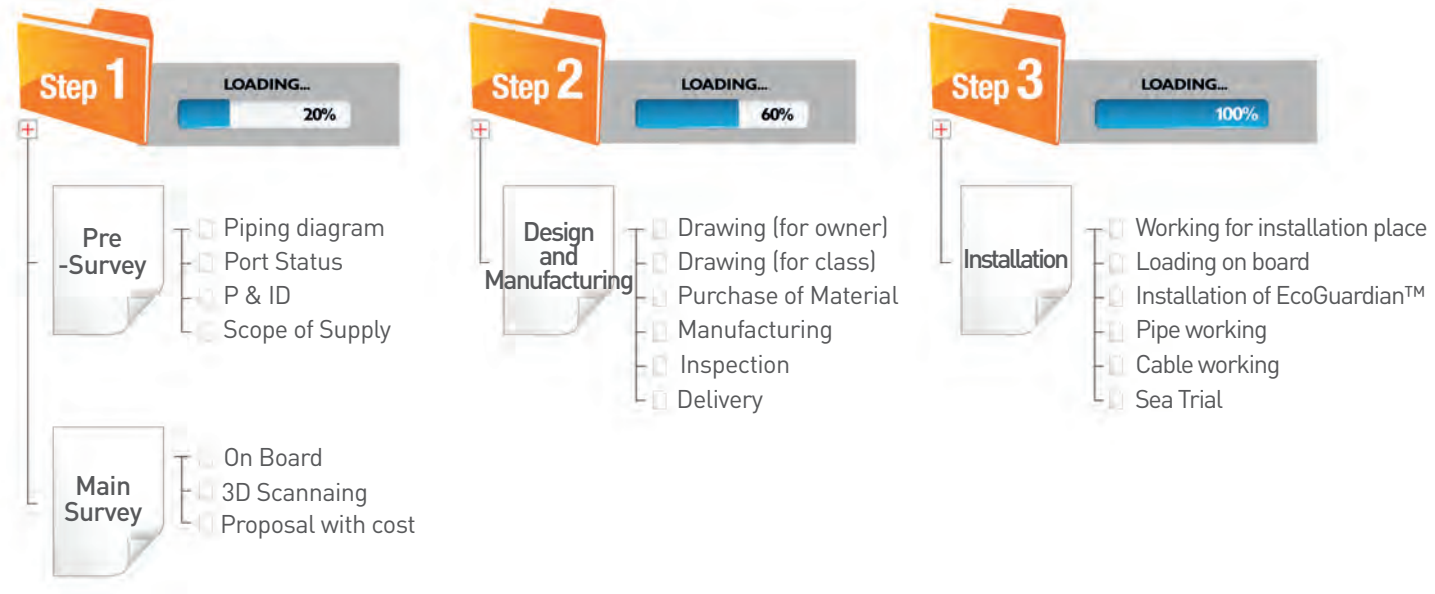
Submerged pumps



Pump room



Retrofit Solution



Approval Status



(under progressing)



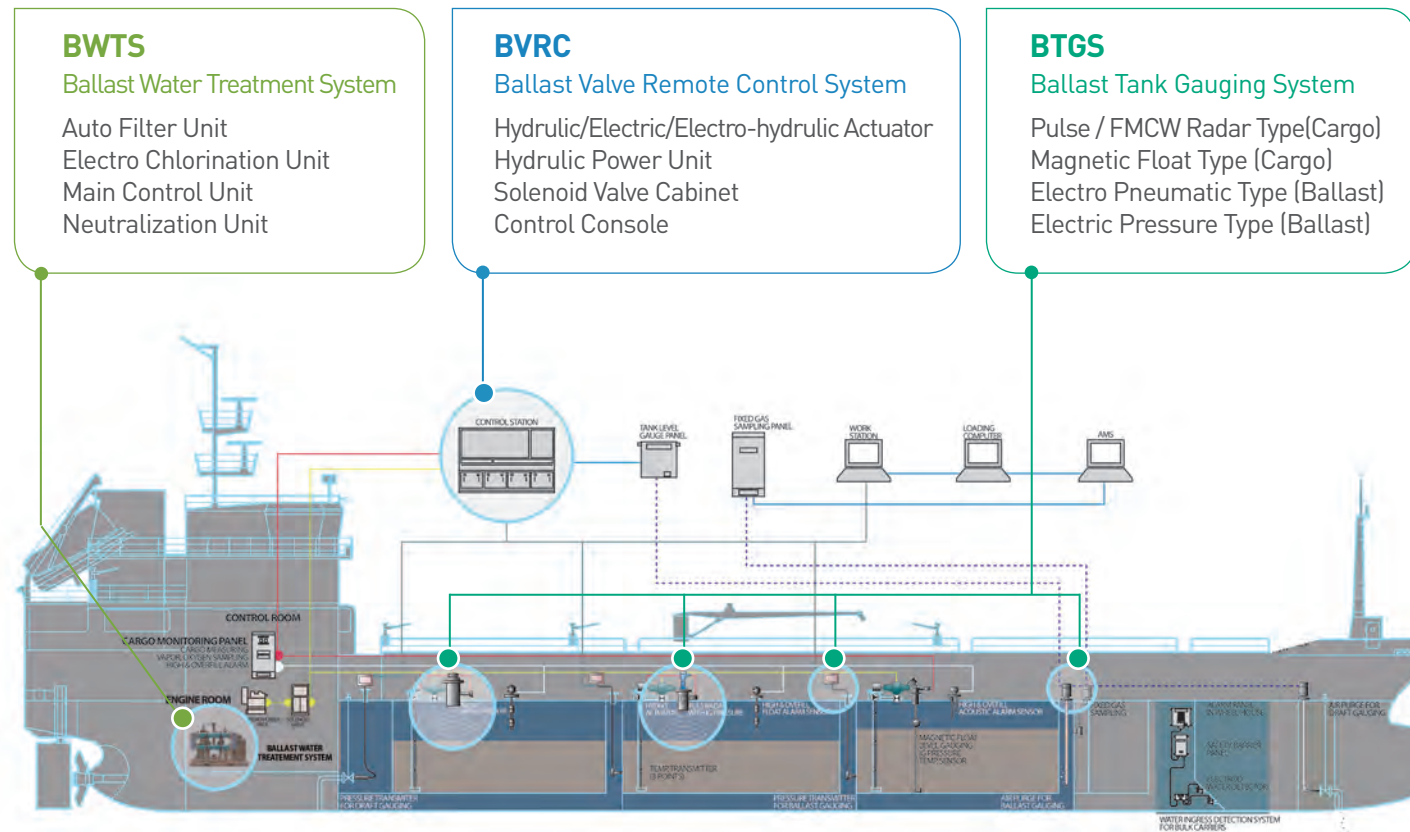
Manufacturing Line Authorized by the Quality

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

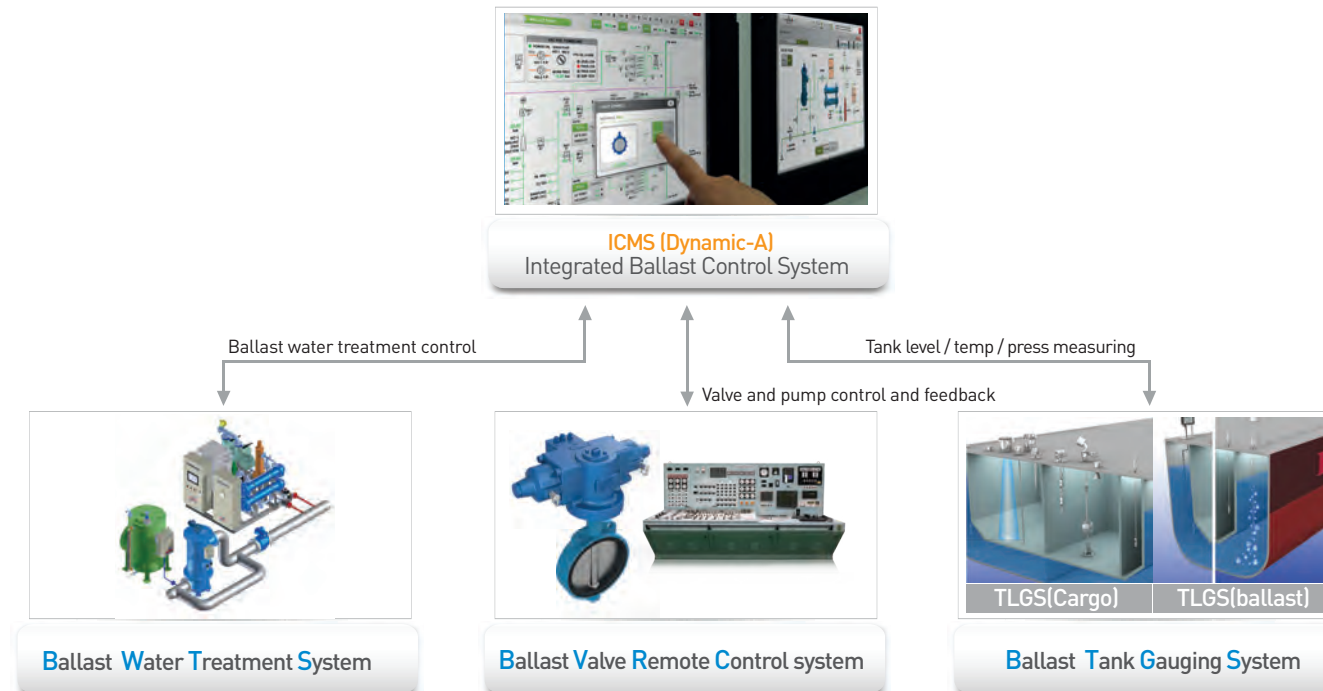
When ballast water treatment system (BWTS) operates, a ballast control console displays operating status of BWTS. During the treatment, all of the valves can be controlled by the ballast valve control system in accordance with progression of BWTS.

2B BVRC - BTGS

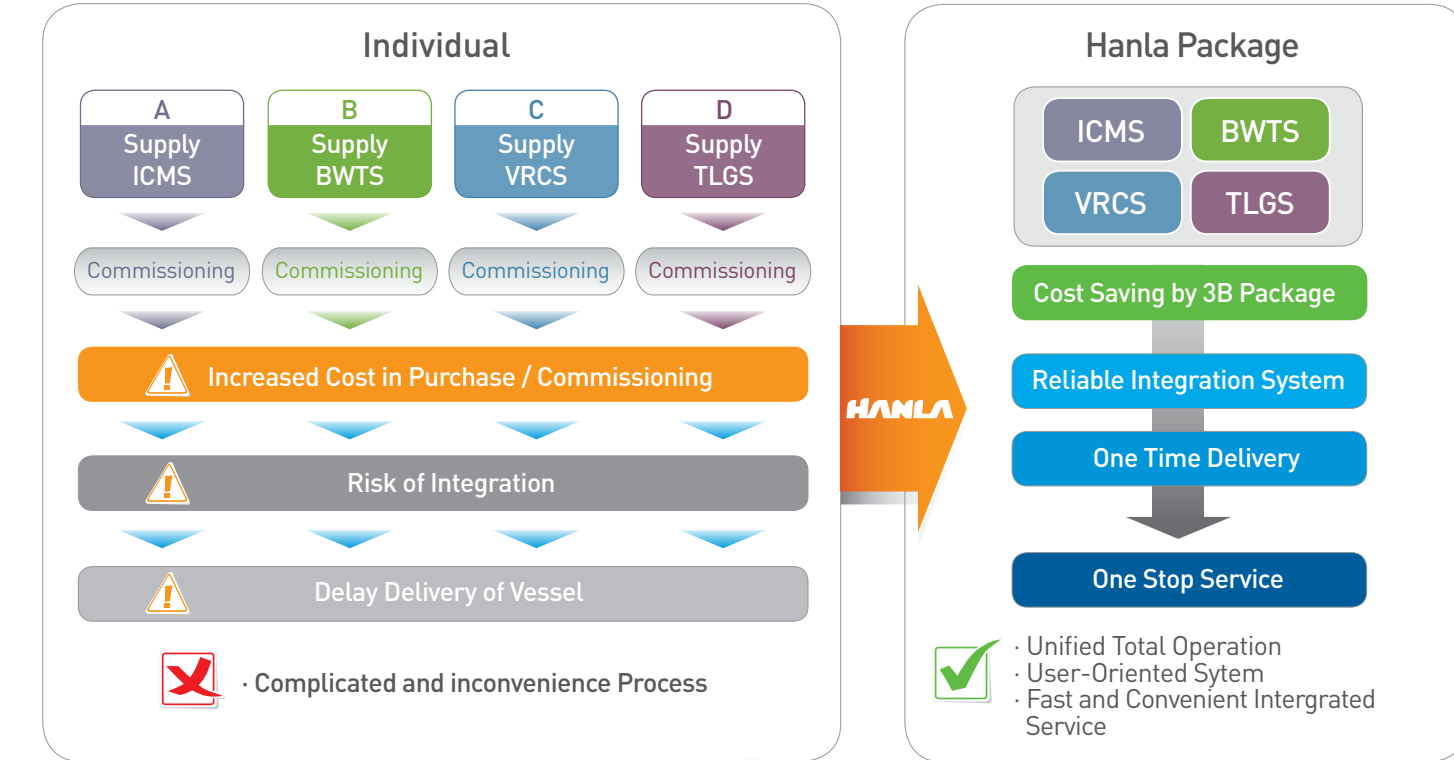
When treated ballast water flows into ballast tanks, the level of ballast tanks is measured and monitored by the ballast gauging system. And then, its signal goes to the ballast control console. It helps a decision by the signal to open or close of valves.

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