GloFouling PARTNERSHIPS

Member of the GIA for Marine Biosafety

TAS GLOBAL

HULL CLEANING ROV
FILTRATION SYSTEM

Innovate together with the world

Shipping and ship building innovation have reached its peak leaving marginal room for further innovation.

However, underwater cleaning method of biofouling, which cause dramatic fuel loss, has stayed the same for many decades.

Hull cleaning by divers lacks economics, environmental needs and quality transparency that, shipping industry has not been able to fully enjoy benefits of hull cleaning.

Many development attempts were made but failed.

TAS GLOBAL, based on harmony, mutual trust and pioneering spirit, converged top minds of business analyst, ship experts, divers and robotic engineers.
As result, we have developed the world's most advanced economic, green and safe robotic underwater hull cleaning system and process.

Furthermore, TAS GLOBAL hope to set a global standard for environment -friendly underwater hull cleaning system and contributing overall shipping industry.

Technology and Services

Working for
A better tomorrow
Through green shipping contribution

TAS GLOBAL was incorporated in order to contribute to shipping industry through robotic innovations.

We are
one of the most anticipated maritime company in South Korea

Newstomato	"Robotic hull cleaning developer…"
Moneytoday	"Developed hull cleaning robot…"
Nocutnews	"World's first hull cleaning robot…"
The Korea Economy Daily	"Busan TAS Global, world's first…"
Bridgenews	"Underwater hull cleaning robot…"
Etoday	"Korea Security Depository, TAS…"
The Seoul Economy Daily	"State of art underwater equipment…"
Yonhap News Agency	"brilliant products…"

2014
- 08 Incorporation

2015
- 12 Best New Technology Authentication in Machinery by Ministry of Trade, Industry and Energy
- 08 Prototype performance authentication by Korea Marine Equipment Research Institute

2016
- 10 Corporation agreement with Hyundai Heavy Industries
- 06 New stock issue, company value USD 10.3 million

2017
- 11 Acquired KR In-Water-Survey Certification
- 06 HQ to Young-do, Busan, New stock issue, Company value 15 million

2018
- 09 Achieved the Advanced Technology Awards at the 3rd Korea Maritime Institute
- 09 Achieved Korea Fisheries Science and Technology Award
- 08 New stock issue, company value USD 26 million
- 07 HQ expansion to Ganseo-gu, Busan
- 07 Acquired LR In-Water-Survey Certification
- 04 Acquired ABS In-Water-Survey Certification
- 03 Acquired DNV-GL In-Water-Survey Certification
- 03 Acquired NK In-Water-Survey Certification
- 03 Acquired ISO 9001 certification
- 03 New stock issue, company value USD 24 million
- 03 Commercial ship field application

2019
- 12 Signed annual contract for Underwater work with Hyundai Marine Service Co., Ltd.
- 09 Capital increase to USD 12 million (24 million in corporate value)
- 05 Selected one of 53 promising startups companies from the Ministry of Maritime Affairs and Fisheries

2020
- 10 Achieved 2020 Machine Robot Award by Ministry of Trade and Industry
- 09 Joined to GIA as Asia's first private company for policy advisory co-organized by IMO
- 09 Achieved 4th Industrial Revolution Power Korea Award by Ministry of Maritime Affairs and Fisheries

TAS GLOBAL Identity

HONESTY
TRUST

Company and its members trust each other with honesty

CREATION
GROWTH

Creation of future industries through constant self-development

The asset of the future is
A clean environment.

ENVIRONMENT
SAFETY

A company that values life and environment

Patent

Classification Certificate (ABS, DNVGL, LR, KR, NK)

Trademark and Service mark registration certificate

Awards

Customized robotic underwater hull cleaning system

Robotic underwater hull cleaning system

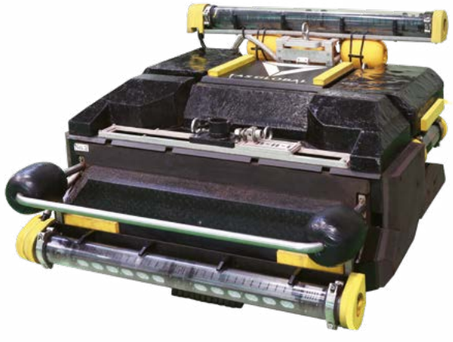
TAS GLOBAL's robotic system has been fully customized for best underwater hull cleaning practice.

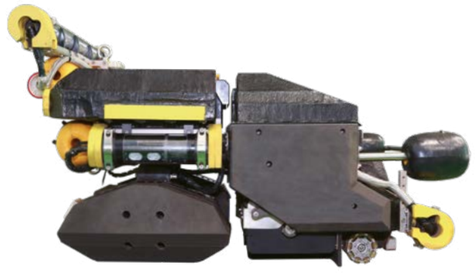
Our robot has non slipping locomotive technology which can move freely on convex and concave areas both in and on water.

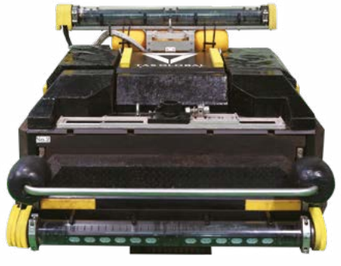
Non slipping caterpillar has wide contact area that, our robot touches ship's hull softly but attaches itself to the hull very strongly. It weighs approximately 350kg~500kg(ver. 2.8), but maintains positive buoyancy.

System components

Robot | Power, communication cable | Filtration system | Operation console | Power pack







Optimal cleaning process for coating protection

Brush Cleaning Process

Different fouling condition requires different cleaning care, for the protection of coating.
Based on our expertise and various experience, most suitable brush is to be selected for removing biofouling.
Brush pressure on coating and Brush RPM is also optimized.
Our Hull Cleaning robot can perform from soft wiping to heavy fouling removal.

Brush Types

- Ultra soft : biofilm
- Very soft : biofilm, slime
- Soft : slime, sea grass
- Medium : sea grass, tube worm
- Medium : tube worm, small barnacles
- Medium : sea grass, tube worm, small barnacles
- Hard : small barnacles, medium barnacles
- Very hard : heavy barnacles, mussel

Environment-friendly underwater hull cleaning

Filtering from microorganism to heavy barnacles

To protect oceanic environment, we have developed Filtration system that filters microorganism and particles to heavy barnacles. 3 steps filtration system makes continuous filtering while cleaning.

• Weight	About 2.5Ton
• Maximum pump capacity	12Ton/hour
• Maximum refining capacity	5Ton/hour
• Maximum length of hose	200m
• Hose Specifications	65A

• Filter Capacity	
• 1st filter	3~5mm
• 2nd filter	30~50um
• 3rd filter	10um

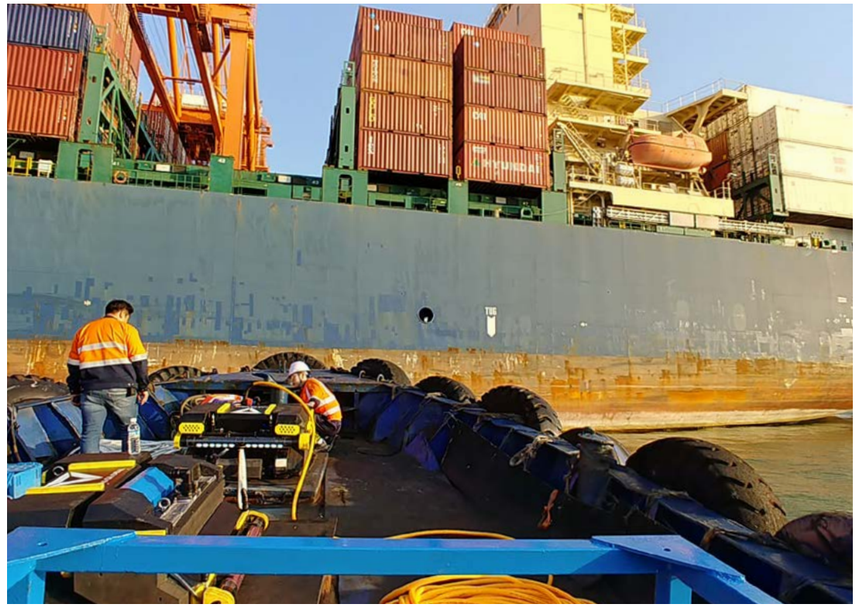
Our filtration system has been evaluated by 3rd party of Marine research institute as suitable for IMO guideline and ideal candidate for global standard.

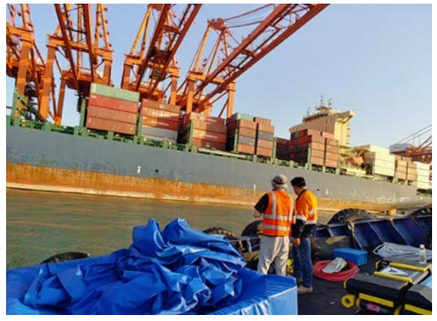
TAS Global has dominant position proceeding with underwater Hull cleaning as obtaining the eligible underwater work permits of most ports and/or anchorages of South Korea.

▶Underwater Hull Cleaning Permission of S. Korean Maritime Authority

Cleaning without interrupting shipping schedule

We clean your vessel simultaneously while your vessel is loading, unloading or bunkering.
Given vessel' size and schedule, we decide numbers of robots to be operated.
Our robots can approach from land and/or water.
Maximum 4 robots can be operated per vessel's hull cleaning.

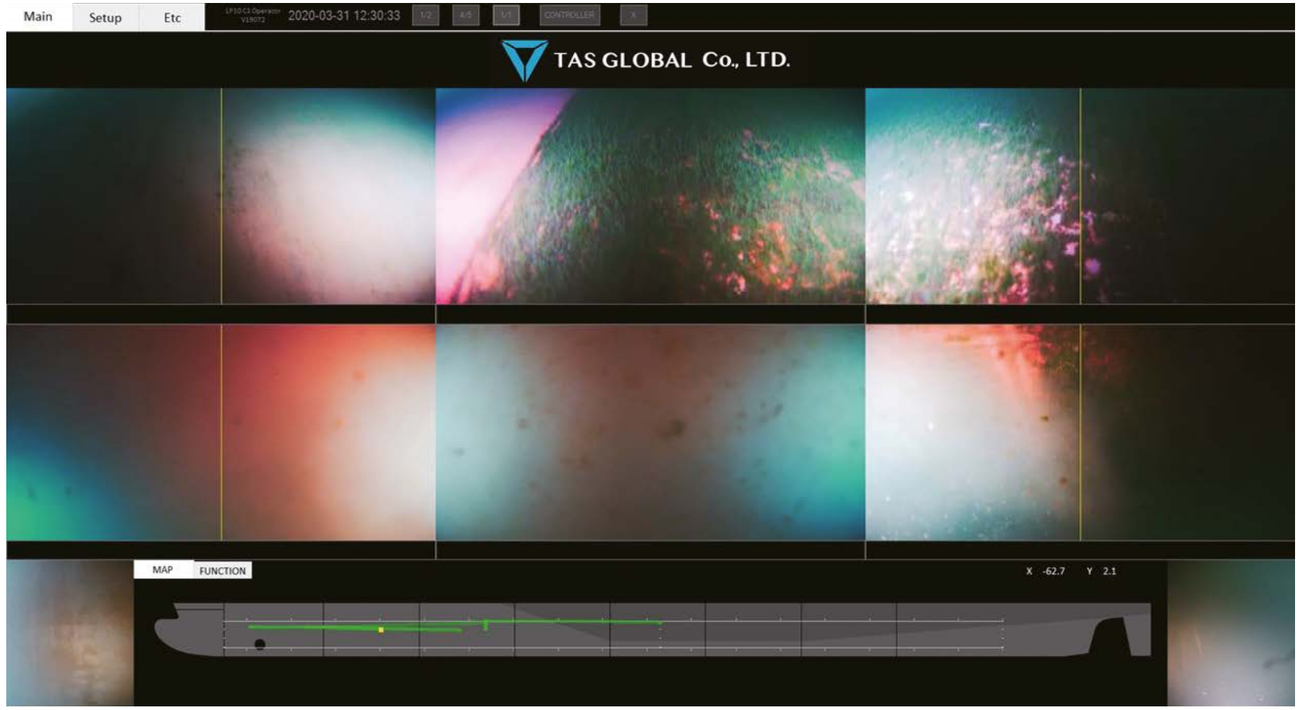




Reliable quality of cleaning

Transparent quality cleaning

Manual divers' hull cleaning only provide a fraction of pictures, approximately 1% of the whole area.
On our robot, 6~8 all around cameras can record cleaning quality of overall area.
Cameras are used for operation of robots, and also checking the quality of the cleaning.
Accordingly, cleaning quality check on entire hull condition becomes possible.



Underwater coating thickness measurement

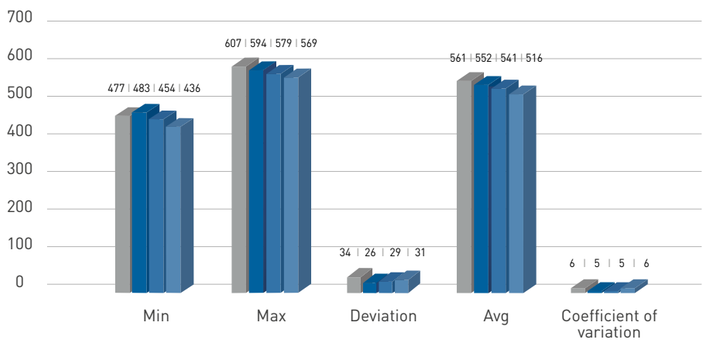
Underwater coating management

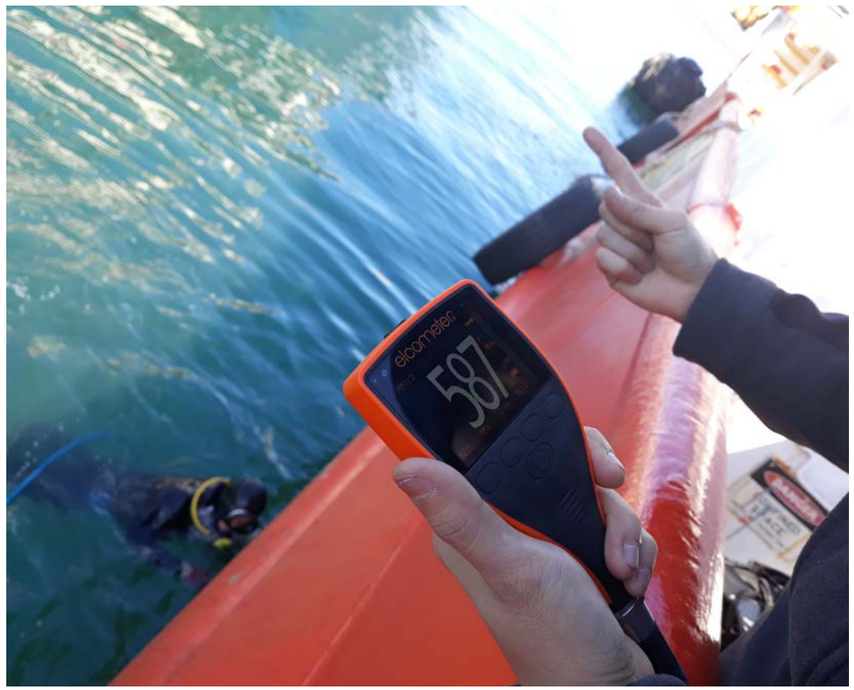
TAS GLOBAL has applied underwater coating thickness measurement method, which is generally carried out on dry dock.
Coating measurement data is used for devising best cleaning practice.
Coating measurement is available before and after underwater Hull cleaning.
Underwater coating measurement is a part of our optimal cleaning system in order to protect hull surface.
We recommend the best cleaning practice is to perform frequently with very soft cleaning.

COMPARISON OF BEFORE AND AFTER CLEANING

Comparison Chart

: Before
: Brush A
: Brush B
: Brush C





Top-class divers with various underwater experiences

SAFETY

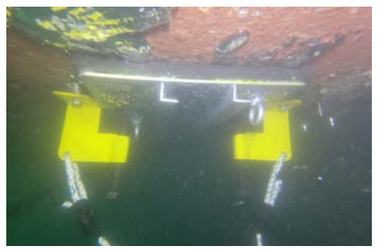
Our core value on the top priority is safety management under any circumstances in accordance with global standard and the relevant maritime policy.

ENVIRONMENT

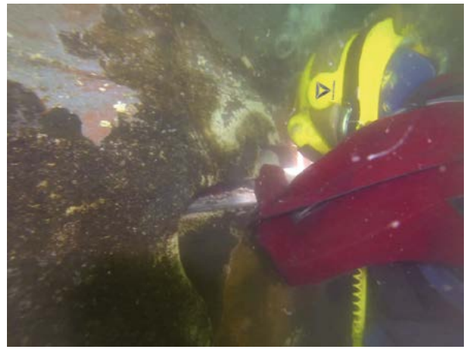
We continue to promote waste reduction and strengthen environmental protection activities together with the local community.

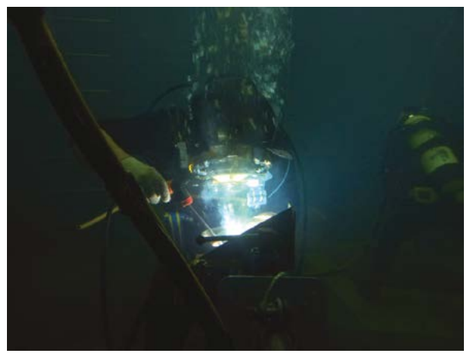
PROFESSIONALISM

Tas Global ensures that our divers are professionally trained and become a veteran with abundant underwater experience.
Through the Mentee/Mento training system of our divers, we deploy the ship-specialized best industrial divers.



TAS GLOBAL puts the most attention on our employee's health and safety.
Since we believe that happy and healthy employees can better contribute
to the shipping industry and our society.





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