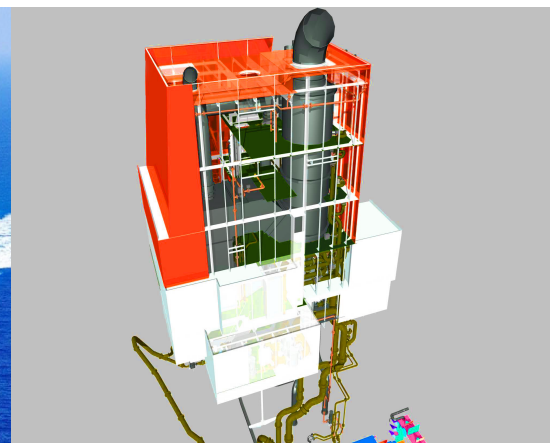


For the Successful installation,  
we provide the most reliable retrofit solutions.

## Our Advantages

- Effective total installation cost and time
- Experience for the various system and retrofit installation
- No using the engineer outsourcing
- Exact analysis consulting data

# Retrofit Engineering for Ballast Water Treatment & SOx Scrubber



# PanStar TechSolution

PanStar TechSolution core business is Ballast Water Treatment and SOx Scrubber Retrofit Engineering. Our specialist team of engineers, technicians and sales people assist shipyards and ship-owners world-wide. All staffs have experience in the maritime industries, knowing the challenges and needs of our customers. PanStar TechSolution has the competence to provide technology from conceptual ideas to fully engineered solutions.

## Our Retrofit Solutions

Being operated the highly experienced engineer with qualified skills.  
Possessing 3D Scanner & Reverse engineering program for retrofit design.  
Providing the accurate design through on board inspection & 3D laser scanning.  
Providing detailed design level can be saved the installation cost and time.

## Installation Considerations of BWTS & SOx Scrubber

System  
Lead-time  
CAPEX & OPEX  
Operation  
After-Service  
  
Timeline  
Construction place  
Installation environment and period

Installation Space  
Maintenance space  
Equipment moving route  
Power consumption  
  
Engineering  
3D reversing technology  
Drawing technology  
Experience of Installation



## Our Services

### Consulting Service

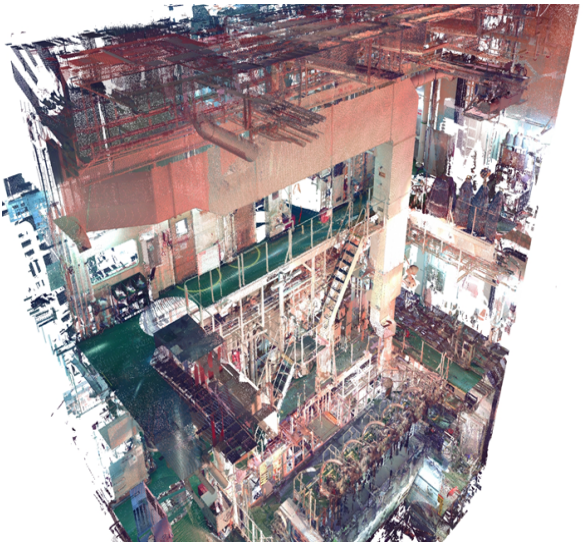
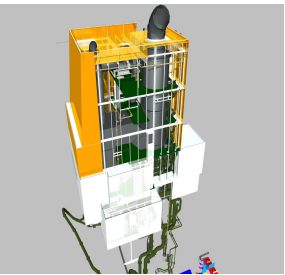
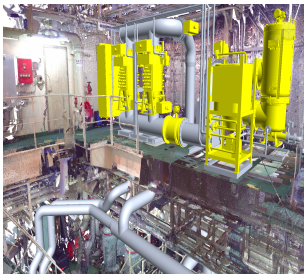
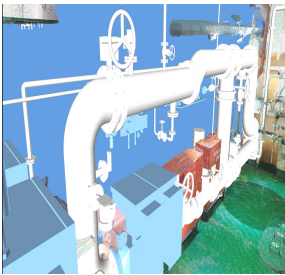
We provide consulting report which is analysed the considering various factors that occur during the Ballast Water Treatment System and SOx scrubber's installation.

Technical Specification of System  
Alteration items of the ship according to installation of System  
Installation position of System  
Material and other equipment for System  
Management factors for operation of System

### Engineering Service for Installation

We have the competence to provide technology from conceptual ideas to fully engineered solutions for the successful the Ballast Water Treatment System and SOx scrubber's installation.

Preliminary Inspection with 3D scanning  
Reversing through 3D data and detail drawing with drawing approval  
Installation with supervision  
Onboard test with witnessed by class surveyor  
Crew training



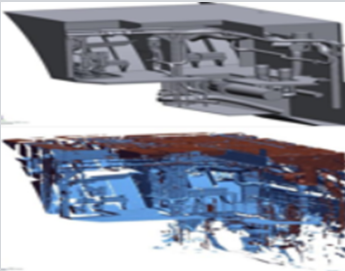
## General Installation Process



On board survey



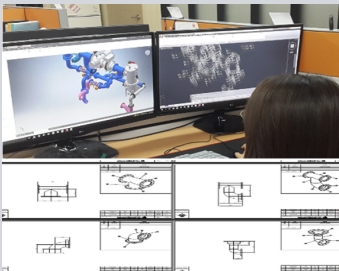
3D laser scanning



To reverse  
the 3D data



To submit  
the engineering  
report



To submit  
the detailed drawing  
& drawing approval



Pipe Spool  
Fabrication



Installation  
& Supervision



Commissioning