# A Leading Global Manufacturer of Multi-functional Customized Wash Rig






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## Multi-Functional System

# MULTI WASH RIG

A leading manufacturer of Wash Rig for the Korean defense industry

GBI

# GBI KOREA



# ABOUT US

## A leading global manufacturer of multi - functional customized wash rig - **GBI KOREA**

GBI KOREA has been a trusted partner of the Korean government since 2011, playing a key role in modernizing the defense industry. With a strong focus on innovation, we lead the development and production of Multi Wash Rig that serve a wide range of industrial and defense-related needs.

GB INTERNATIONAL, INC.

- All multipurpose cleaning systems are designed, manufactured, assembled, and installed using a fully customized approach, tailored to the specific operational needs and environments of each customer.

- From design and production to completion and installation, all GBI KOREA cleaning systems are developed through a fully customized process, ensuring seamless integration into each client's unique environment and operational needs.

- From design and fabrication to final assembly and installation, all of our multipurpose cleaning systems are manufactured as mobile solutions. These systems are tailored to ensure ease of operation and are precisely adapted to the customer's intended use and site conditions.

- At every stage—design, production, completion, and installation—our multipurpose cleaning equipment integrates eco-friendly detergents developed to enhance safety and prevent critical accidents, ensuring each system perfectly matches the client's requirements and environmental conditions.









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# PRODUCT LINE-UP

| Name | Model | Application |
|---|---|---|
| **Multi Aircraft Engine Wash Rig** | **CLOVER-25-1000A**<br>Client : ROKAF | • Fixed-wing aircraft (fighter jets, transport aircraft)<br>• E737<br>• Army, Navy, and Air Force Maintenance, Repair, and Overhaul (MRO) facilities |
| **Pipe, Valve & Fitting Wash Rig** | **CLOVER-100A** | • All types of vessels (warships, submarines, commercial ships)<br>• Specialized cleaning of internal piping systems, valves, and fittings in tracked military vehicles, including tanks, armored personnel carriers, and self-propelled artillery<br>• Navy, Army, and Coast Guard Maintenance, Repair, and Overhaul (MRO) facilities<br>• Shipyard MRO |
| **Automatic Painting & Sanding Robot System** | **CLOVER-SB-300A** | • Exterior hull painting and sanding for all types of vessels<br>• Navy and Coast Guard Maintenance, Repair, and Overhaul (MRO) facilities<br>• Shipyard MRO |
| **Generator & Engine Wash Rig** | **CLOVER-7000A**<br>**CLOVER-7000B**<br>**CLOVER-7000C**<br>Client : ROKN | • All types of vessels (warships, submarines, commercial ships)<br>• Tracked vehicles such as tanks, armored vehicles, and self-propelled artillery<br>• Navy, Army, and Coast Guard Maintenance, Repair, and Overhaul (MRO) facilities |
| **Inbound Washing Automation System**<br>(Tank & Military Vehicle Washing Rig) | **CLOVER-8000A** | • Tracked vehicles such as tanks, armored vehicles, and self-propelled artillery Full, partial, and assembly-level cleaning applications<br>• Applied at Army Maintenance, Repair, and Overhaul (MRO) facilities |

# APPLICABLE FIELD



### Defense Industry

Advanced Cleaning Services for Piping, Valves & Fittings / Aircraft Engines / Generators & Engines / Paint Sanding



### Shipbuilding Industry

Advanced Cleaning Services for Ship & Naval Piping, Valves, and Fittings | Generator & Engine Cleaning | Exterior Hull Paint Sanding



### Electronics

Advanced Cleaning Solution for Rosin, Solder Stains, and Delicate Electronic Components



### Petrochemical Industry

Advanced Cleaning Services for Metal Filters, Chemical Vessels, and Exchanger Equipment



### Chemical Industry

Advanced Cleaning Services for Laboratory Tanks and Glass Components



### Optical Components

Advanced cleaning services for optical parts and lenses



### Device

Advanced Cleaning for Measuring Tools and Precision Parts Before Assembly



### Machinery Industry

Advanced cleaning Services for Oil & Grease Removal, Engine Cleaning, and Automotive Parts & Filters



### Surface Treatment

Removal of oil and rust prior to coating Cleaning and polishing before plating Residue removal

# CLOVER-25-1000A

## Multi-Aircraft Engine Wash Rig




## Key Features

- Applied twist power to cleaning nozzles for enhanced cleaning performance and efficiency
- Customized design and manufacturing tailored to user environment
- Cleaning tanks and baths constructed with SUS304 stainless steel for superior corrosion resistance
- Customized design for mobile cleaning equipment
- Developed eco-friendly detergents to ensure safety during cleaning operations and prevent serious accidents



## Specification

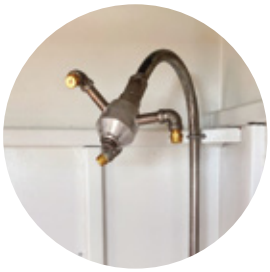
| | |
|---|---|
| **Dimensions** | • 2900*1000*1380 |
| **Tank Volume** | • (250L*2) = 500L |
| **Gross Weight** | • 450Kg |
| **Power** | • 220VAC, 3Phase, 60Hz |
| **Heating Power** | • 220VAC, 3Phase, 60Hz |
| **Injection Quantity** | • 1(min) - 23L |
| **Pressure(psi)** | • 15psi (3Bar~50Bar) |
| **Battery** | • 3 Horsepower |
| **Temp** | • 0~70℃ |
| **Items included** | • Tank1, 2 • Heating control • Rechargeable battery • High-pressure • Compressor • Level gauge • Trans former • Inverter • Adapter • Stopper • Heavy-duty w heels • High- pressure hose • Charger • Compressor hose |

## Applicable Field

- Fixed- wing aircraft (fighter jets, transport planes)
- Applied to E737
- Engine, engine compartment, and exterior cleaning
- Maintenance, Repair, and Overhaul (MRO) for Army, Navy, and Air Force maintenance depots

# CLOVER-100A

## Pipe, Valve & Fitting Wash Rig







## Key Features

- Customized design and fabrication tailored to user-specific operational environments
- Optimized mobile equipment design for enhanced portability and field use
- Eco-friendly cleaning detergents developed to ensure safety and prevent serious industrial accidents
- Integrated cleaning system combining high-pressure water and solvent-based cleaning
- Semi-automated system with manual cleaning room for direct operation
- Custom jigs designed specifically for cleaning pipes, valves, and fittings

## Specification

| | |
|---|---|
| **Dimensions** | • 1800*1200*1500 |
| **Cleaning fluid** | • Eco-friendly Detergent / ECO-1 Cleaner |
| **Gross Weight** | • 150Kg |
| **Power** | • 220VAC, single phase, 60Hz |
| **Pump** | • High-Pressure Pump |
| **Wash flow rate** | • Initial Cleaning Process |
| **Pressure(bar)** | • 50~300 bar (Adjustable based on usage) |
| **Heating System** | • 0 ~100 ℃ |
| **Temp** | • 20~ 30 ℃ |
| **Tank Volume** | • 1,000 ~ 2000 L |
| **Washing time** | • 5~10min (Adjustable Based on Contamination Level and Process) |
| **Items included** | • High-Pressure Cleaning Room • Turntable • Drain System • Jig Fixture<br>• Main Control Panel with LS Touchscreen • Pipeline (SUS304 Stainless Steel) |

## Applicable Field

- Total cleaning of internal pipelines, valves, and fittings for all vessels (warships, submarines, and merchant ships)
- Complete cleaning of internal pipelines, valves, and fittings for tracked vehicles, including tanks, armored vehicles, and selfpropelled artillery
- Maintenance, Repair, and Overhaul (MRO) services for Navy, Army, and Coast Guard maintenance facilities
- Maintenance, Repair, and Overhaul (MRO) services for shipyards

# CLOVER-SB-300A

## Automatic Painting & Sanding Robot System





## Key Features

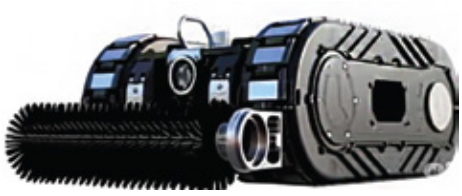
- Enables consistent sanding pressure on curved and geometrically complex surfaces using force sensors
- Improves paint sanding quality and uniformity
- Allows free movement through magnetic force and magnetic sensors
- Immediately captures dust generated during work to maintain a clean working environment
- Meets environmental safety standards with over 99% dust collection efficiency
- Applicable to various materials including metal, plastic, FRP, and painted surfaces
- Suitable for curved structures such as automotive exteriors, ship hull sections, and aircraft fuselages

## Specification

| | |
|---|---|
| **Dimensions** | • 500*800*350 |
| **Gross Weight** | • 45kg |
| **Robot System** | • Production-grade Coordinate AI |
| **Sanding Head** | • 500 ~ 3,000 rpm (based on pad rotation) |
| **Force Sensor** | • 0 ~ 20 Kgf/cm$^2$ |
| **vision sensor** | • Front camera, Rear camera |
| **3D scanner** | • FANUC |
| **Sanding Pad** | • Round Φ 300~500 |
| **Dust Collector** | • Over 99% (HEPA filter optional) |
| **Control system** | • Teach Pendant + HMI or Automatic Path Generation (CAD/CAM Integration) |
| **Working radius** | • Approx, 1,200 ~ 2,000 mm |
| **Power** | • 220VAC, single phase, 60Hz |

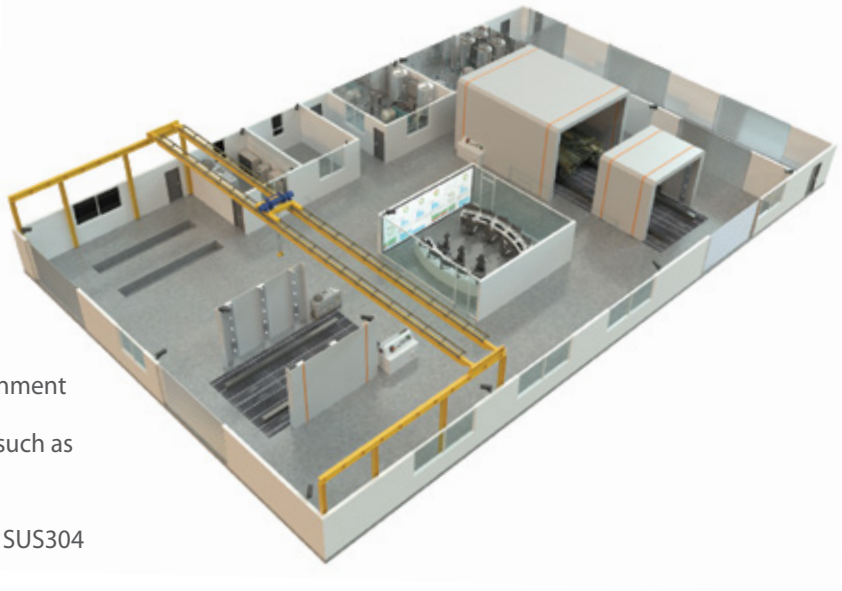
## Applicable Field

- Exterior hull paint sanding for all types of vessels
- Maintenance, Repair, and Overhaul (MRO) for Navy and Coast Guard facilities
- Shipyard MRO services



# CLOVER-8000A

## Tank & Military Vehicle Washing Rig



## Key Features

- Automation / Semi-Automation options available, with direct cleaning in manual wash rooms
- Customized design tailored to user environment
- Optimized for cleaning heavy equipment such as tanks and armored vehicles
- Wash rooms, tanks, and pipelines made of SUS304 stainless steel for corrosion resistance
- Developed eco-friendly detergents to ensure safety and prevent serious industrial accidents

## Specification

| | |
|---|---|
| **Dimensions** | • Size customized to meet the specific requirements of the end user |
| **Cleaning fluid** | • Eco-friendly Detergent / ECO-1 |
| **Robot System** | • Production-grade Coordinate AI |
| **Power** | • 380VAC 3phase, 60Hz |
| **Heating System** | • Hot Air Drying |
| **Wash flow rate** | • 30~60 L/min or more |
| **Pressure(bar)** | • 50~200 bar (Based on High-Pressure Cleaning |
| **Washing time** | • APPROX. 10~30min (Depending on vehicle size and level of contamination) |
| **Drain System** | • Down Flow |
| **Hot air dry System** | • Program Setting |
| **Pump** | • High Pressure Pump |
| **Dust Collector System** | • LG Touch screen |
| **Items included** | • High-pressure c leaning nozzles • Underbody cleaning system • Cleaning fluid supply unit • Pump system • Recirculation filtration system • Dust collection system • Drainage system • Hot air drying system - Robot integration • Main control panel (LS touch screen) |

## Applicable Field

- Comprehensive, partial, and assembly-level cleaning for tracked vehicles including tanks, armored vehicles, and selfpropelled artillery.
- Army maintenance depot MRO

# CLOVER-7000 SERIES

## Generator & Engine Wash Rig

## Key Features

- Automated / Semi-Automated (Semi-Auto) options available, with manual cleaning possible in dedicated cleaning rooms
- Twist power applied to cleaning nozzles for enhanced cleaning performance and efficiency
- Customized design tailored to user environment for optimal use of cleaning space
- Turntable optimized for cleaning heavy-duty equipment
- Developed and applied eco-friendly detergents to ensure safety and prevent serious industrial accidents

## Applicable Field

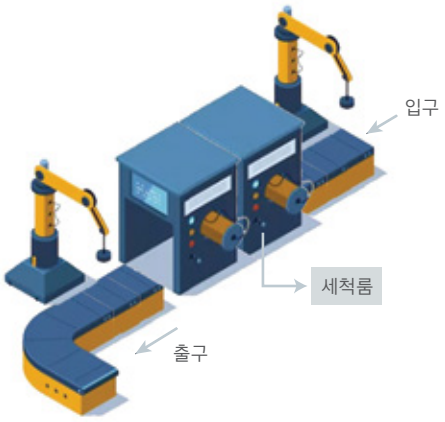
- Generator and engine cleaning for all types of vessels (warships, submarines, commercial ships)
- Generator and engine cleaning for tracked vehicles including tanks, armored vehicles, and self-propelled artillery
- Maintenance, Repair, and Overhaul (MRO) for Navy, Army, and Coast Guard depots
- Shipyard MRO services

## Specification

| Spec. | CLOVER - 7000A | CLOVER - 7000B | CLOVER - 7000C |
|---|---|---|---|
| **Dimensions** | 9000*5000*4500 (H) | 9000*6000*5500 (H) | 9000*6500*6000 (H) |
| **Cleaning fluid** | Eco-friendly Detergent / ECO-1 | Eco-friendly Detergent / ECO-1 | Eco-friendly Detergent / ECO-1 |
| **Gross Weight** | 10 Ton | 13 Ton | 15 Ton |
| **Power** | 380VAC 3phase, 60Hz | 380VAC 3phase, 60Hz | 380VAC 3phase, 60Hz |
| **Pressure(bar)** | 20 ~ 30 Bar | 20 ~ 30 Bar | 20 ~ 30 Bar |
| **Temp** | 0 ~ 100 ℃ | 0 ~ 100 ℃ | 0 ~ 100 ℃ |
| **Water Tank** | 2000*2000*2 | 2000*2500*2 | 2000*2500*2 |
| **Crane** | 5 Ton | 5 Ton | 5 Ton |
| **Option** | • Direct cleaning possible using cleaning guns | • Direct cleaning possible using cleaning guns<br>• Direct cleaning possible using joystick control<br>• Outdoor cleaning solution storage facility installation | • Direct cleaning possible using cleaning guns<br>• Direct cleaning possible using joystick control<br>• Installation of outdoor cleaning fluid storage system / Automatic transfer to drying oven after washing |

# CLOVER-7000A (Standard)

| | |
|---|---|
| Size | Customized |
| Operation Mode | Semi-automatic (Semi-Auto) + Manual cleaning room (Direct cleaning possible using joystick control) |
| Type | Dual-unit system installed beneath the equipment |
| System Components | Washing Room 1 & 2, Dust Collector, Overhead Crane, Drainage System, Turntable, Internal Rails, Main Control Panel with LS Touchscreen, SUS304 Piping System |
| Cleaner | Custom Eco-Friendly Detergent ECO-1 Cleaner |
| Customer | ROKN |




# CLOVER-7000B (Advanced)

| | |
|---|---|
| Size | Customized |
| Operation Mode | Semi-auto and manual cleaning room (cleaning via joystick control & direct manual operation) |
| Type | Dual-unit system installed beneath the equipment, with an outdoor storage facility for cleaning solution. |
| System Components | Washing Room 1 & 2, Dust Collector, Overhead Crane, Drainage System, Turntable, Internal Rails, Main Control Panel with LS Touchscreen, SUS304 Piping System) |
| Cleaner | Customized Eco-Friendly Detergent – ECO-1 Cleaner |




# CLOVER-7000C (Premium)

| | |
|---|---|
| Size | Customized |
| Operation Mode | Optional fully-automated or semi-automated system, combined with a manual cleaning room (cleaning via joystick control & direct manual operation), and an integrated drying oven with automatic post-wash loading |
| Type | Dual- unit system installed beneath the equipment, with an outdoor storage facility for cleaning solution. |
| System Components | Washing Room 1 & 2, Dust Collector, Overhead Crane, Drainage System, Turntable, Internal Rails, Main Control Panel with LS Touchscreen, SUS304 Piping System |
| Cleaner | Customized Eco-Friendly Detergent – ECO-1 Cleaner |

