



**SH DEFENCE**  
PART OF SH GROUP

# Custom-made equipment

For Coast guard, SAR and Navy vessels



# Equipment solutions

SH Defence master engineering, steel, hydraulics and automation. We combine these into reliable, secure and easy to operate machines and systems solving tasks above and below the waterline.



- 1 Stern door**
- 2 Hydraulic boat slipway/cradle**  
Launching and retrieval of RIBs and fast attack boats.
- 3 Rescue boats/Fast attack boats**
- 4 Winches**  
Winches for ROV, AUV or research equipment handling. Heavy work winches for handling of large modules, tools, trenchers, or fast attack vessels e.g.
- 5 Steering gear and controls**
- 6 Hydraulic Lifting decks**  
All kinds of side, stern, aft or deck ramps. Elevators for cargo or aircrafts.
- 7 Cranes**  
Marine and Cargo Cranes up to 120T as: Fixed, Knuckle or Telescopic Jibs.
- 8 Side doors/Hatches**  
Hangar doors designed to be light in construction, compact in size with maximum durability.

- 9 Davits**  
The Boat-In-A-Box™ davit system is installed with either hydraulically controlled davit arms or as a fixed installation. The modular concept means easy installation and easy maintenance.
- 10 Rescue boats/Fast attack boats**  
High Speed Rigid Inflatable Boats (RIBs), patrol boats, interceptors, workboats for all kind of Naval Operations.



- 11 Launch and recovery system for ROV/AUV/Drones**  
Deck mounted and ceiling mounted A-Frames for all purposes with dipping and non-dipping functionality.  
  
Extensive outreach for work class ROVs, wide-angle A-Frames to improve performance for launching large subsea tools and AUVs.
- 12 Hydraulic power units**  
Design of hydraulic power units and systems to power, control or regulate any machinery or solving any function
- 13 Deck equipment - Winches**  
Powerful hydraulic or electrical winches for anchoring or mooring functions
- 14 Deck equipment - Capstans**  
Anchor, mooring, and towing winches as electric or hydraulic drive systems.



- 15 Gangways**  
Ship to Ship (STS) motion compensated gangway solutions for personnel or cargo handling.
- 16 Moonpool Handling Systems**  
We design and produce complete systems with Passive Cursor Frames, AHC Winches, Sheave Units, Umbilical Service Winch, Umbilical Shock Absorber and HPU's and software controlled motion profile.





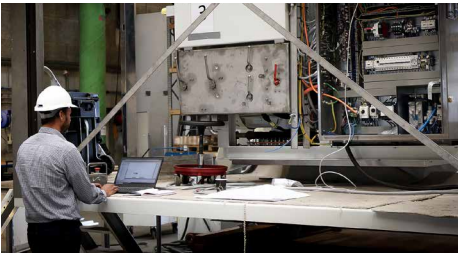
## Stern doors and Slipway

Launching and retrieval of RIBs and fast attack boats. SH Defence will provide cradle, roller guides, hydraulics, and control systems.



## Hydraulic power units

We design and build hydraulic power units and systems from the ground up (also in stainless steel) to power, control, or regulate any machinery or solving any function on request. Our engineering department will Shock test all components on the delivered equipment to simulate explosive charges in the water near a warship.



## Automation

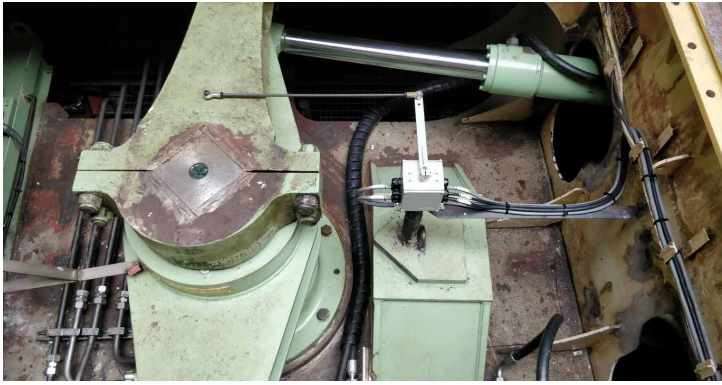
Design and manufacturing of control cabinets for naval control and automation applications. Tailor-made one-off projects or serial production to OEM clients. Engineering, documentation, software and assembly of cabinets at our in-house workshop.

## Valve capabilities

Sale, service and repair of valves, actuators, control panels and ancillary equipment. Installation and commissioning of new valves. SH Defence works with OEM's of the industry and provides original parts or in-house design and manufacturing.

## Deck equipment

Anchor, mooring, and towing winches as electric or hydraulic drive systems. Capstans and anchor capstans with electric and hydraulic drives. Single delivery or complete packages.



## Steering gear

We design and manufacture **complete steering gear solutions** including **digital control** system with multiple functions and features for all types of navy vessels.



## Davits

The Boat-In-A-Box™ davit system protects the boat, the winch, the hook system, as well as all components and wires.

The Boat-In-A-Box™ davit system is installed with either hydraulically controlled davit arms or as a fixed installation. The modular concept means easy installation and easy maintenance.



## Cranes

Whatever the configuration our cranes can be modified to do the job. SH Defence delivers Marine and Cargo Cranes up to 120T as: **Overhead, Fixed, Knuckle or Telescopic Jibs.**



## Hydraulic decks and ramps

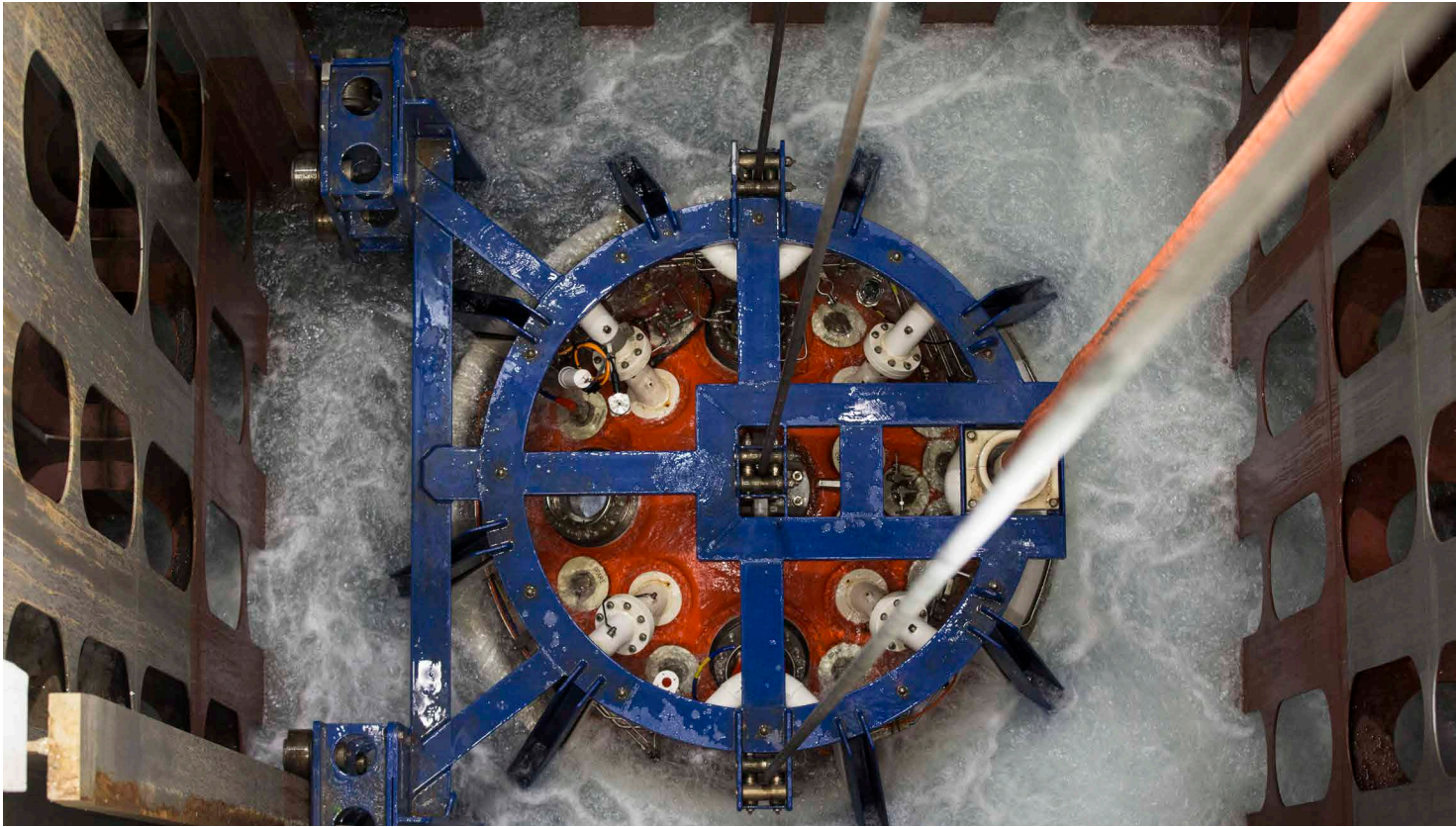
All kinds of side, stern, aft or deck ramps. Elevators for cargo or aircrafts.



## Control cabinets

SH Defence design and manufacture control cabinets for naval control and automation applications. Tailor-made one-off projects or serial production to OEM clients. Engineering, documentation, software and assembly of cabinets at our in-house workshop.





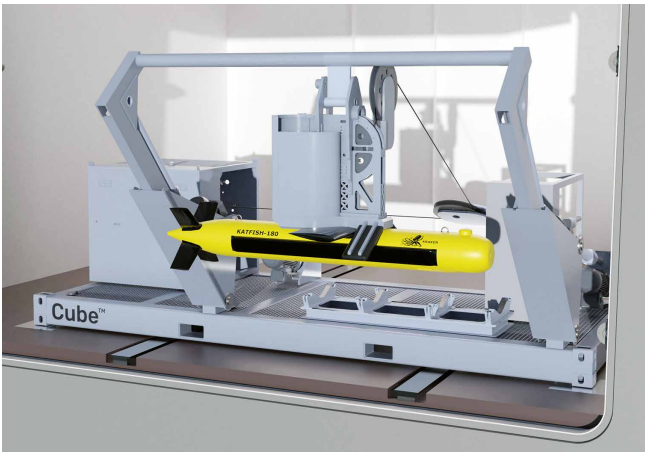
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Launch & Recovery Systems

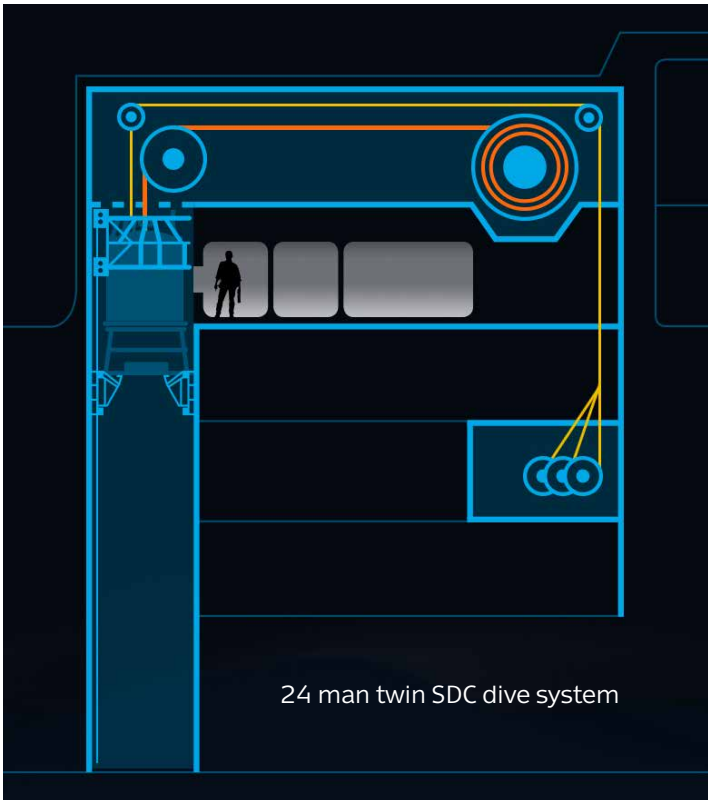
SH Defence Launch & Recovery systems combines the best from our **A-Frames**, winches, and software into complete, reliable, and easy to operate, systems. The systems are in operation on **navy, supply, and research vessels** around the world and assist scientists in mapping, and discovering marine life on the sea bed.

**AUV Recovery System**

With vast experience from hundreds of systems for recovery of ROVs, research equipment, large modules, tools and trenchers our engineering department know the importance of effective, reliable, and **safe handling of AUVs**. Carried out from a moonpool or from the stern, or midship.



Electrical Compact LARS (Winch and A-Frame).  
Drum capacity: 3300 meter Ø12.7 mm wire (Optional).

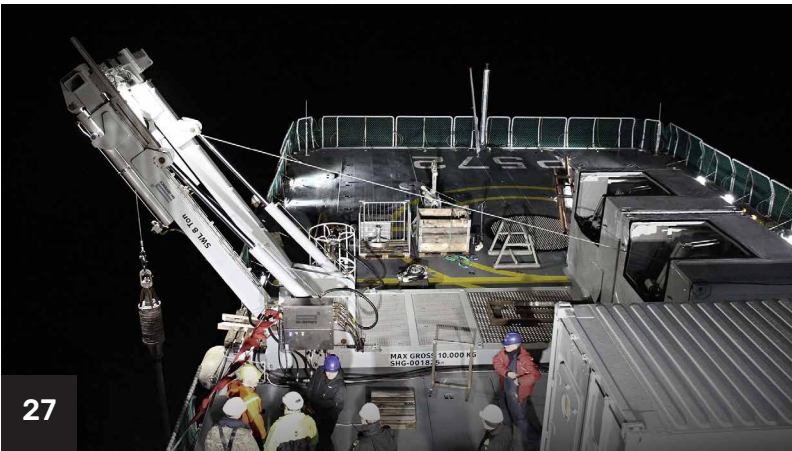


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24 man twin SDC dive system

Dive handling systems from SH Defence meets the highest standards for performance, reliability and safety. We design over-the-side systems and state-of-the-art twin bell moonpool systems for SDC.

The twin systems contains an A-Frame, Winch, Sheave Units, Moonpool cursors, Umbilical Service Winch, Umbilical Shock Absorber and HPU's.



2 x 3 pcs. AHC lift winches

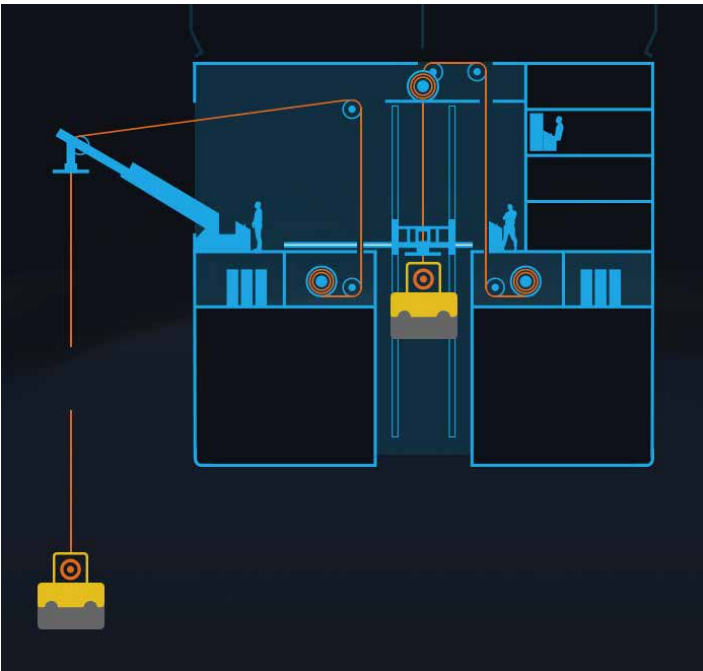
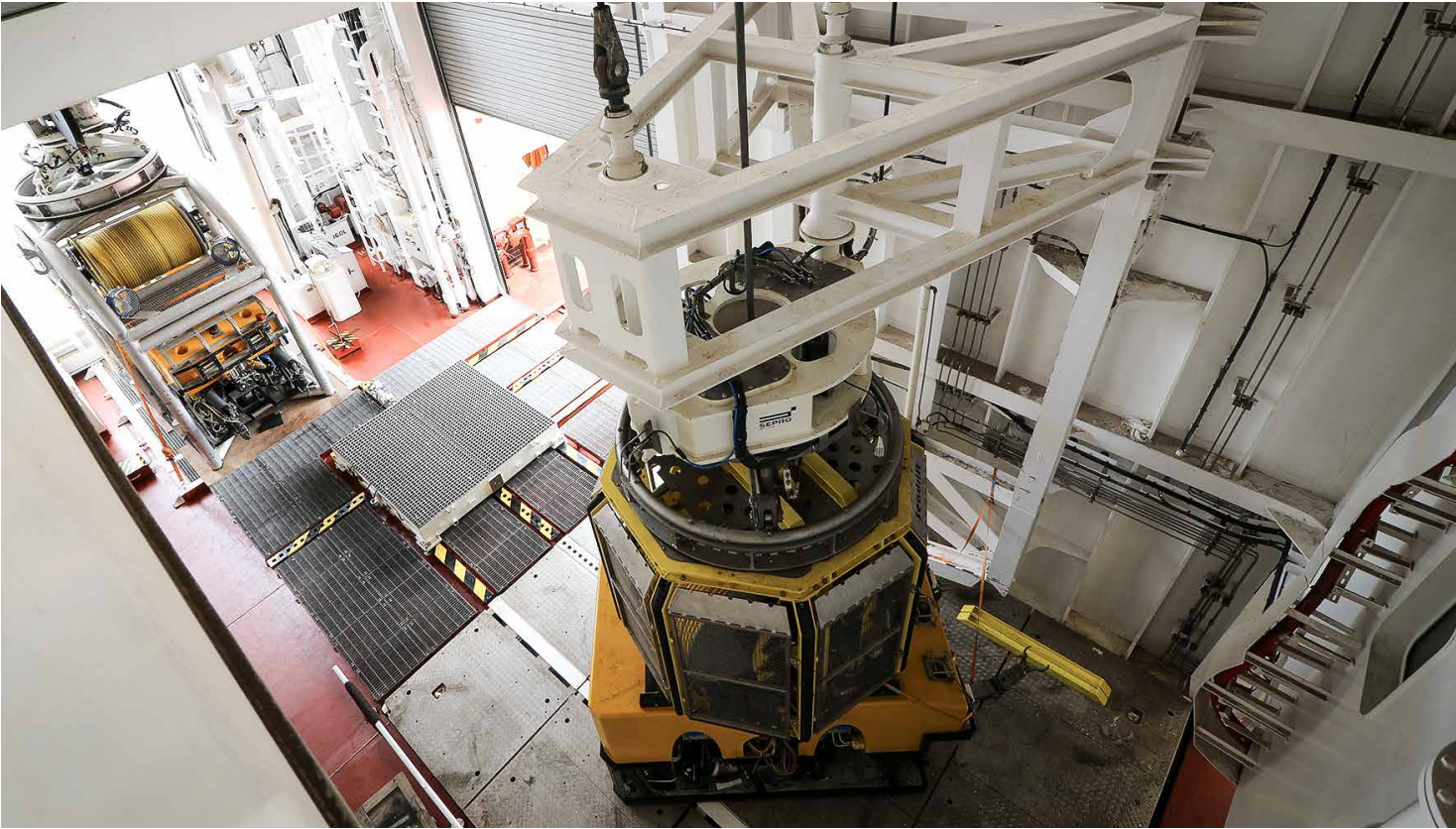


Redundant HPU's



Umbilical Service Winch





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**Launch & Recovery System for ROV and Module handling**

Passive cursor system. Cursor suspended in latch beam wire winch with AHC. Subsea latch for mating with TMS 30 meters below bilge.

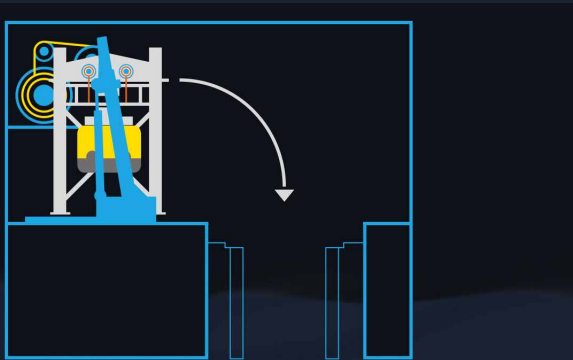
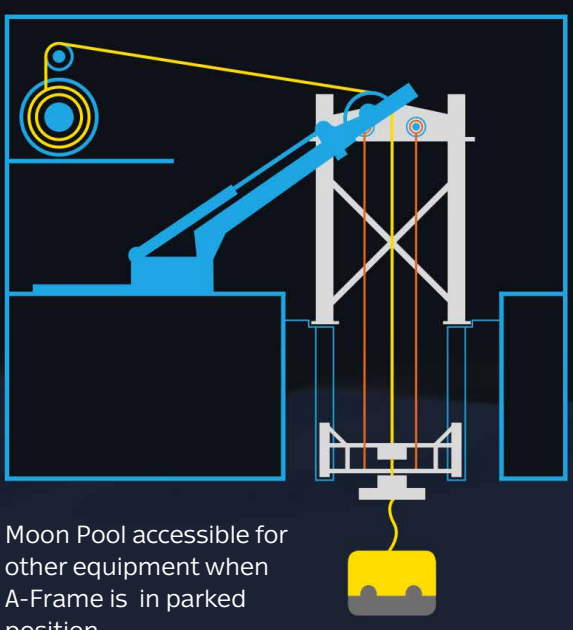


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**Twin A-frame launched moon pool system**

Active cursor system with latch. Cursor suspended in cursor winch wire. Automatic Launch and Recovery following software controlled motion profile. Automatic collision control (system software) to avoid A-Frame colliding with the ceiling A-Frame with special cursor rail. AHC Winch for Umbilical. Routing Sheave.

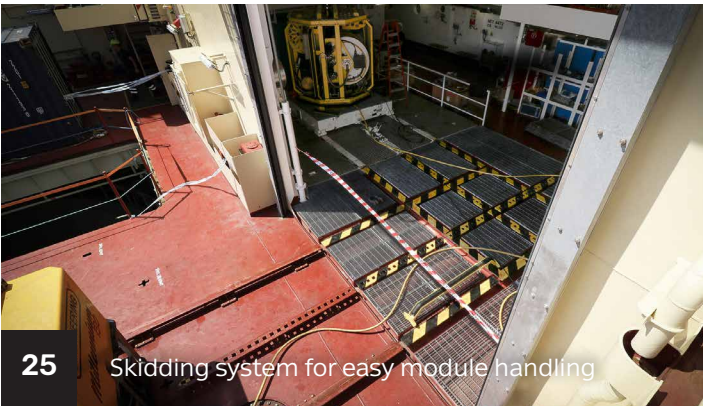
Moon Pool accessible for other equipment when A-Frame is in parked position



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25 Skidding system for easy module handling



24 2x AHC Winches





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Winches

**Rugged and reliable winches for extreme purposes**

With the highest quality in mind – From the inside and out SH Defence delivers state of the art winches being **reliable, secure, and easy to operate** in any weather, even the harshest conditions at sea.

With more than 20 years of experience and an excellent track record, SH Defence supplies winches for all types of requirements.

Winches for **ROV, AUV or research equipment** handling. Heavy work winches for handling of large modules, **tools, trenchers, or fast attack vessels** e.g.

Our winches are available in two main types. One is suitable for front spooling, and the other for right angle level wind spooling, allowing the winch to fit in a small hangar or a narrow space.

**Ship name:** Shinsei Maru

*Jamstec - Japan Agency for Marine-Earth Science and Technology*



Name	General Survey Winch	CTD Winch	Medium Wire Winch
Wire diameter	ø10 mm	Ø9,53 mm	ø10 mm
Wire length	7.000 meters	8.000 meters	7.000 meters
Pull on bottom	40 / 32 / top kN	40 / 32 / top kN	59 / 48 / top kN
Speed on bottom	100 / 122 / top m/min.	120 / 145 / top m/min.	120 / 147 / top m/min.
Main drives	2 x 37 kW @ 50 Hz	2 x 45 kW @ 50 Hz	2 x 75 kW @ 50 Hz
Level wind drive	1 x 7,5 kW @ 50 Hz	1 x 7,5 kW @ 50 Hz	1 x 15 kW @ 50 Hz
Frequency converters	2 x 45 + 1 x 7,5 kW @ 50 Hz	2 x 55 + 1 x 7,5 kW @ 50 Hz	2 x 90 + 1 x 15 kW @ 50 Hz
Weight winch	6.000 kg	5.300 kg	7.200 kg
Weight wire	2.520 kg	3.200 kg	3.360 kg
Weight of scientific equipment	800 kg	600 kg	1.000 kg



**Ship name:** Lauge Koch

Deep Sea research equipment for mounting on naval inspection vessel for arctic use. **Design Temperature is -30°C to +40°C.**

The LARS System consists of two hydraulic winches: 50 kN Winch/10 kN Winch and A-Frame 80 kN with a hydraulic extension boom to deploy and recover scientific instrumentation (CTD and water sampling rosette, seismic equipment and cable sheaves for up to 4000 m with 16mm rope/wire.

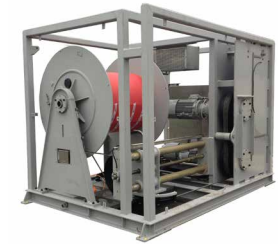
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The LARS system at the test chamber, where the equipment undergoes a realistic simulation of sea conditions like: Temperature, humidity and salt water. All factors that are essential to know, when the LARS system is in operation for scientific purposes in arctic places.



Large Wire Winch
Ø14 mm
10.000 meters
137 / 106 / top kN
120 / 156 / top m/min.
6 x 55 kW @ 50 Hz
1 x 22 kW @ 50 Hz
3 x 132 + 1 x 22 kW @ 50 Hz
23.000 kg
9.400 kg
1.500 kg

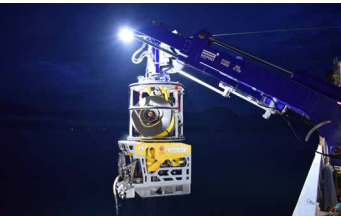
Deep Tow Winch
Ø17,4 mm
8.000 meters
98 / 67 / top kN
90 / 131 / top m/min.
3 x 55 kW @ 50 Hz
1 x 15 kW @ 50 Hz
3 x 75 + 1 x 15 kW @ 50 Hz
19.100 kg
8.480 kg
760 kg



Water Sampling Winch
ø14 mm
7.000 meters
19,6 / top kN
90 / top m/min.
2 x 22 kW @ 50 Hz
1 x 11 + 1 x 1 kW @ 50 Hz
1 x 44 + 1 x 11 kW @ 50 Hz
6.800 kg
3.640 kg
N/A



Mooring Survey Winch
ø14 mm
6.000 meters
22,5 / 14,5 / top kN
165 / 250 / top m/min.
2 x 37 kW @ 50 Hz
1 x 2 kW @ 50 Hz
1 x 75 kW @ 50 Hz
5.500 kg
910 kg
N/A



**Ship name:** G.O.SARS

*Institute of Marine Research, Norway*

- 1 x DPL 15 A-Frame
- 1 x Ocean Fighter 4400 AHC Winch
- 1 x ROV Container / Workshop with skidding pallet
- 1 x Routing Sheave Arrangement
- 1 x Mochness Winch: 6200m Ø16.3mm
- 1 x CTD Winch: 6200m Ø16.3mm
- 1 x Slow Tow Winch: 6200m Ø16.3mm
- 1 x Hydrographic Winch: 4550m Ø6mm
- 1 x CTD Winch: 4900m Ø8.15mm
- 1 x Deep Tow Winch: 7500m Ø14.3mm
- 1 x Multi Net Winch: 10000m Ø16.3mm
- 1 x Rope Winch: 2000m Ø16mm





- 1 Inboard top sliding stern door
- 2 Gangway with easy accessibility for maintenance
- 3 HPU with vibration absorbers
- 4 Emergency winch
- 5 Damper
- 6 Hook lock
- 7 Rail driven cradle with soft grip protective rolls or roller guides



Link to movie on YouTube  
[https://youtu.be/CJkClv\\_5E8I](https://youtu.be/CJkClv_5E8I)



# 1 Stern door with Boat cradle or roller guides

2 Slipway also tailor-made for drones and USV

Cradle (Example)	Boat (Example)	Winch (Example)	Stern doors (Example)
<b>SWL:</b> 7 Tons	<b>Length:</b> Up to 13 m (illustrated 7,25m)	<b>SWL:</b> 6.980 kg	<b>Opening:</b> 109°
<b>Ramp out:</b> 6,2 meter	<b>Width:</b> Up to 3,5m (illustrated 2,6 m)	<b>Wire length:</b> 21 m	<b>Height:</b> 6.530 mm
	<b>Weight:</b> Up to 30 tons fully loaded		<b>Width (total):</b> 3.900 mm

## Stern door

SH Defence hydraulic mission bay doors are customized to fit any requirements.

The door and all mechanical parts are made of seawater resistant material. The door itself is made in either steel, aluminium, bulletproof- or lightweight composite (lightweight armour plating based on sophisticated fibre composites), protecting personnel and equipment.

## Boat cradle

Flexible boat cradle system to accommodate RHIBs and special operation boats. The flexible cradle and launch and recovery system can handle a wide range of boats with different hull forms. Slipway also tailor-made for drones and USV.

The system is perfect for frigates, corvettes and OPV's with various missions and allows for one or two boats to be stowed behind each other. The LARS system is reliable, safe and fast to operate up to Sea state 6.





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### Mission Bay doors

SH Defence is your specialist of high quality and reliable doors for Mission Bays Doors in steel, aluminium, bulletproof- or lightweight composite (light weight armour plating based on sophisticated fibre composites) protecting structure, cargo and equipment.

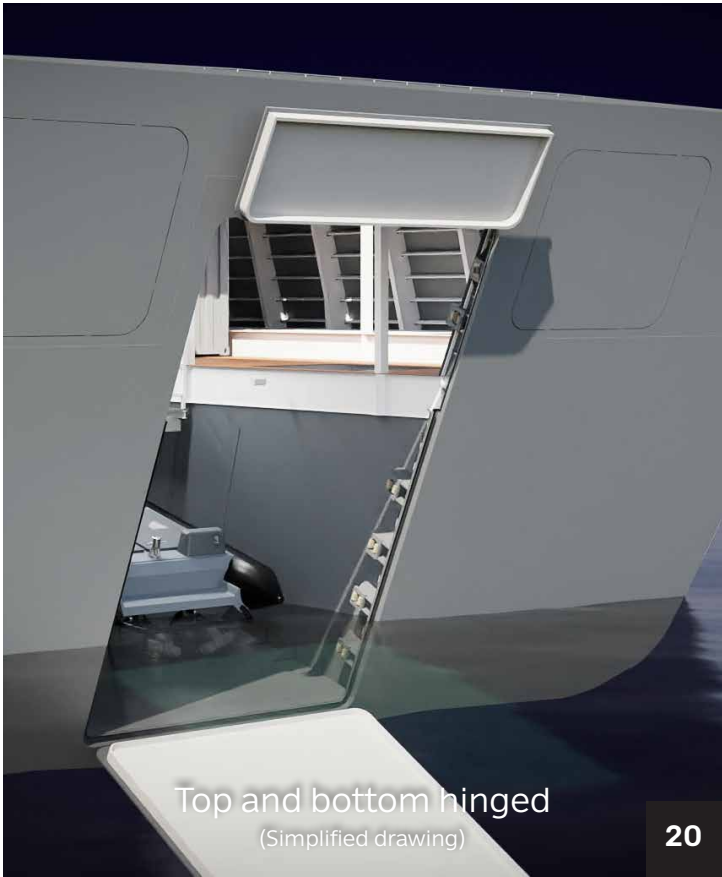
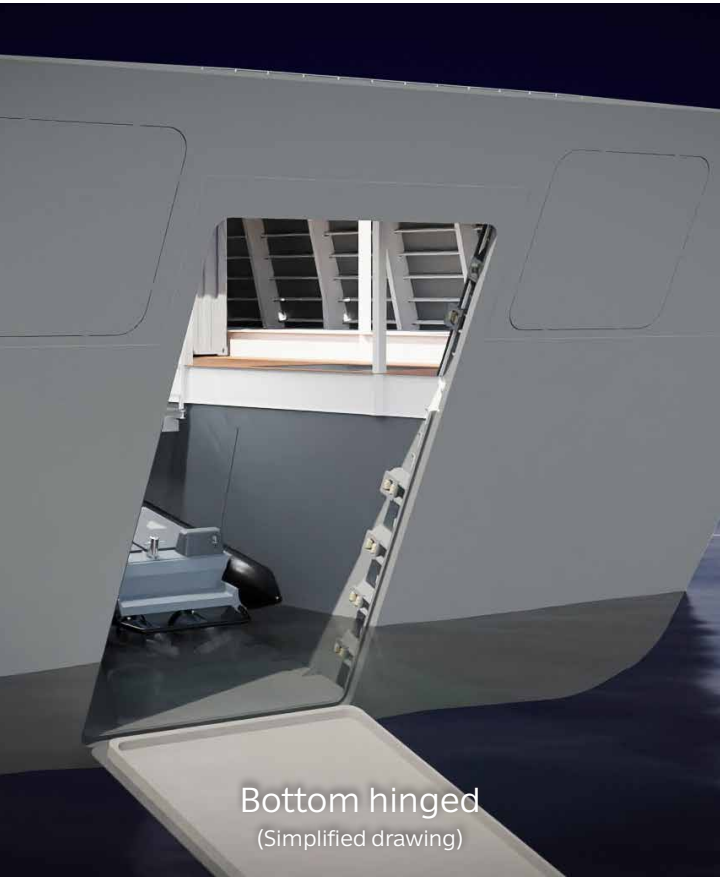
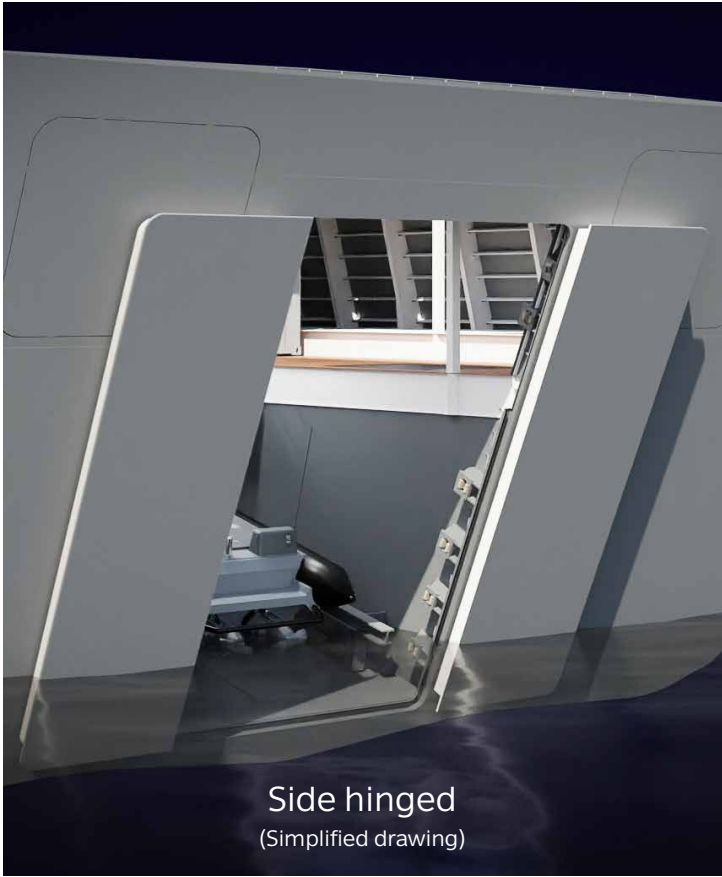
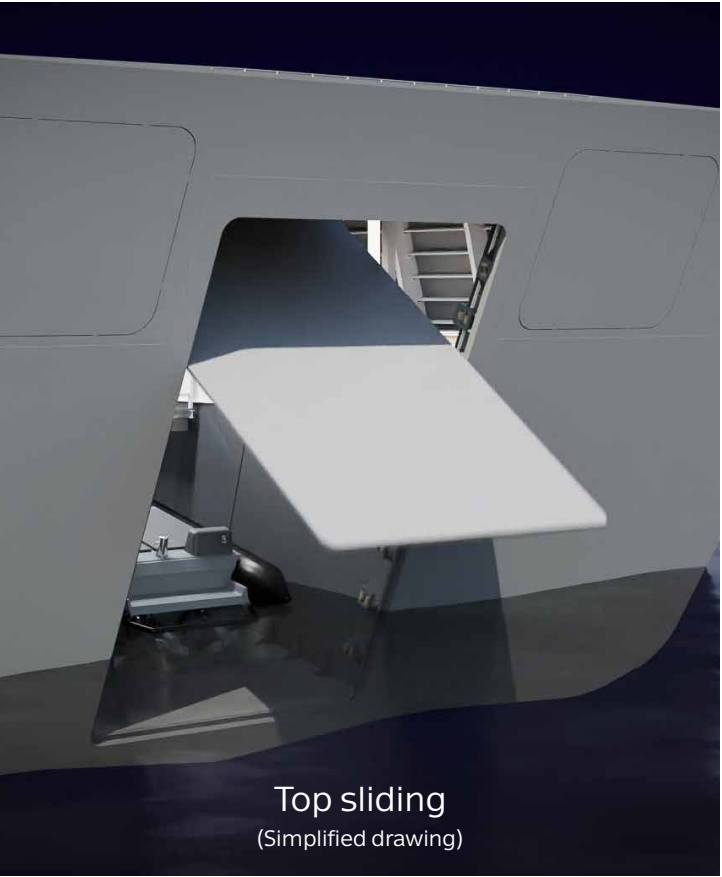
Modern naval vessels must be capable of carrying out different missions and roles in both peacetime and wartime. Our Mission Bay Doors are customized to fit any naval vessels no matter the purpose or requirements.

**Shockproofed**  
Steel. Aluminium. Bulletproof or Lightweight Composite



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## Stern doors with different opening options







# Skidding system

With pedestrian or remote-controlled tractor.  
Optional: Caterpillar for Artic use.



Link to movie on YouTube  
[https://youtu.be/f4dFI0dOu\\_4](https://youtu.be/f4dFI0dOu_4)



## Skidding system on wheels with battery-driven tractor designed for handling of Cube™ Multi-Mission Modules.

### Easy and compact onboard skidding system on wheels

The Skidding System with Tractor is ideal when you need to rearrange ISO containers (all standard sizes) or Cube™ Multi-Mission Modules on land or at sea.

The system consists of four separate bogie wheel units with a hydraulically operated lifting function that can lift and shift all standard ISO container sizes weighing up to 31 MT. Two of the bogie wheel units are connected to the manoeuvring mechanism which is connected to the battery-driven tractor.

The hydraulic lifting operation can be either manual or remote, and the battery-driven tractor is manually operated by the crew.



### Secure and compact storage during sea voyage

The system is provided with a docking station for secure storage of all system components. The docking station footprint is very small and provides optimum and compact storage during sea voyage. Moveable or fixed mounted docking station.



Description	Value
Bogie wheel units	
Bogie dimensions (H x L x W)	1577 mm x 700 mm x 400 mm
Unit weight	195 kg
Lifting capacity	Up to 31 MT
Lifting height (10 MT)	500 mm
Hydraulic operation	Manual (ill.) or remote

Description	Value
Tractor	
Unit dimensions (H x L x W)	1670 mm x 1660 mm x 1010 mm
Unit weight	1500 kg
Motor	3 kW
Battery	24V DC Exide Tensor
Pull/push capacity	22.5 MT
Operation	Manual

Description	Value
Docking station	
Unit dimensions (H x L x W)	2000 mm x 2350 mm x 1690 mm Optional: 10' ISO footprint
Weight (incl. skidding system + tractor)	2,6 MT Optional: 10' ISO: 3,8MT
Mounting	Welded to deck optional with twist lock