

# SAL HEAVY LIFT



OFFSHORE SERVICES

## ABOUT SAL

**SAL Heavy Lift, a wholly owned entity of the Harren & Partner Group, provides offshore DP solutions and offshore support to customers around the globe.**

With a fleet of specialized heavy lift vessels with lifting capacities from 550 to 2000 mtons SWL, SAL is serving industrial clients with marine logistics and installation services. SAL offers a complete solution including Project Management, QHSE and Engineering.

Our in-house engineering entity develops customized solutions for transport and DP installation works, closely supervising projects from the planning stage through to successful completion.

*With our growing track record of successfully completed projects, it is our ambition to take on even more challenging work in the near future.*

## OUR SOLUTIONS



### OIL & GAS INSTALLATION: SUBSEA STRUCTURES

Transport and installation of:

- Deep and shallow water subsea structures such as templates, manifolds and subsea processing units
- Deep and shallow water spools and jumpers
- Small offshore platform jackets and topsides
- Midwater arches



### OIL & GAS INSTALLATION: MOORING SYSTEMS

Transport and installation of:

- Deep and shallow water mooring systems for floating installations such as FPSOs, FLNGs, TLPs and SPARs



# TARGET MARKETS



## FEEDERING

Transport and handover, on DP, to the installation vessel of:

- Windmill components such as WTGs, monopiles and transition pieces
- Subsea structures (WHS)
- Mooring chains
- Suction and driven piles
- TLP tendons
- Wet storage/parking



## OFFSHORE RENEWABLES

Transport and installation of:

- Transition pieces
- Pre-piles
- Subsea current turbines (tidal turbines)
- Subsea wave turbines (wave generators)



## OFFSHORE RENEWABLES – SHIPPING

Transport of:

- Transition pieces
- Anode cages
- Monopiles
- Jackets



# OUR BUSINESS AREAS – OFFSHORE



OIL & GAS

RENEWABLES

DECOMMISSIONING

NMF  
OUR SOLUTIONS

# » OIL & GAS

From mooring systems, subsea structures, spools, jumpers and small platforms – SAL is moving into the world of oil and gas installation. During the past years, we have become increasingly involved in providing transportation and installation solutions for complex offshore oil and gas projects. With our vessel's spacious holds and large deck areas, we can handle these types of projects extremely efficiently.



# MONOPOD AND TOPSIDE INSTALLATION IN ALASKA

MV Svenja serves as project platform for offshore development platform installation



1



Deutsche Oil & Gas

Subsea installation of Monopod

2



Installation of Modular Support Frame (MSF)

3



Installation of Topside

*“We appreciate the exceptional cooperation we received from SAL and the significant contributions they made to ensure the success of this project.”*

Johan Sperling, Vice President  
Crowley Marine Solutions

## ■ KITCHEN LIGHTS UNIT #3

### Location

Cook Inlet, Alaska

### Client-provided items (CPI)

Offshore development platform:

- Monopod
- Modular Support Frame (MSF)
- Topside
- Helideck

### Weight

1000 t (Monopod)

700 t (Topside)

### Dimensions

45 x 26 m (Monopod)

33 x 30 x 27 m (Topside)

### Vessel modifications and deck equipment

- Temporary living quarters for 60 supporting team members
- Ten additional mooring winches
- 3D Sonar System

### Scope of work

- Driving King Pile into seabed by hydro hammer
- Lift and installation of monopod on the seabed
- Installation of module support frame
- Installation of Topside and Helideck

### Specials

- Sole construction vessel in field
- Strong tidal currents
- Highly technical and complex installation of the complete offshore platform

# OUR SOLUTIONS

## ■ MA-D6

### Location

Offshore Kakinada, India

### Client-provided items (CPI)

Nine suction anchor piles  
One manifold installation suction pile  
One production manifold  
One STP buoy

### Maximum weight

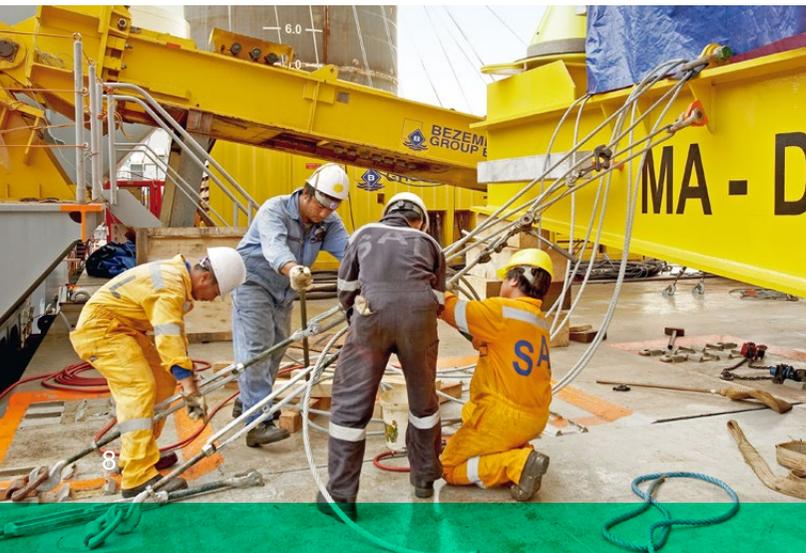
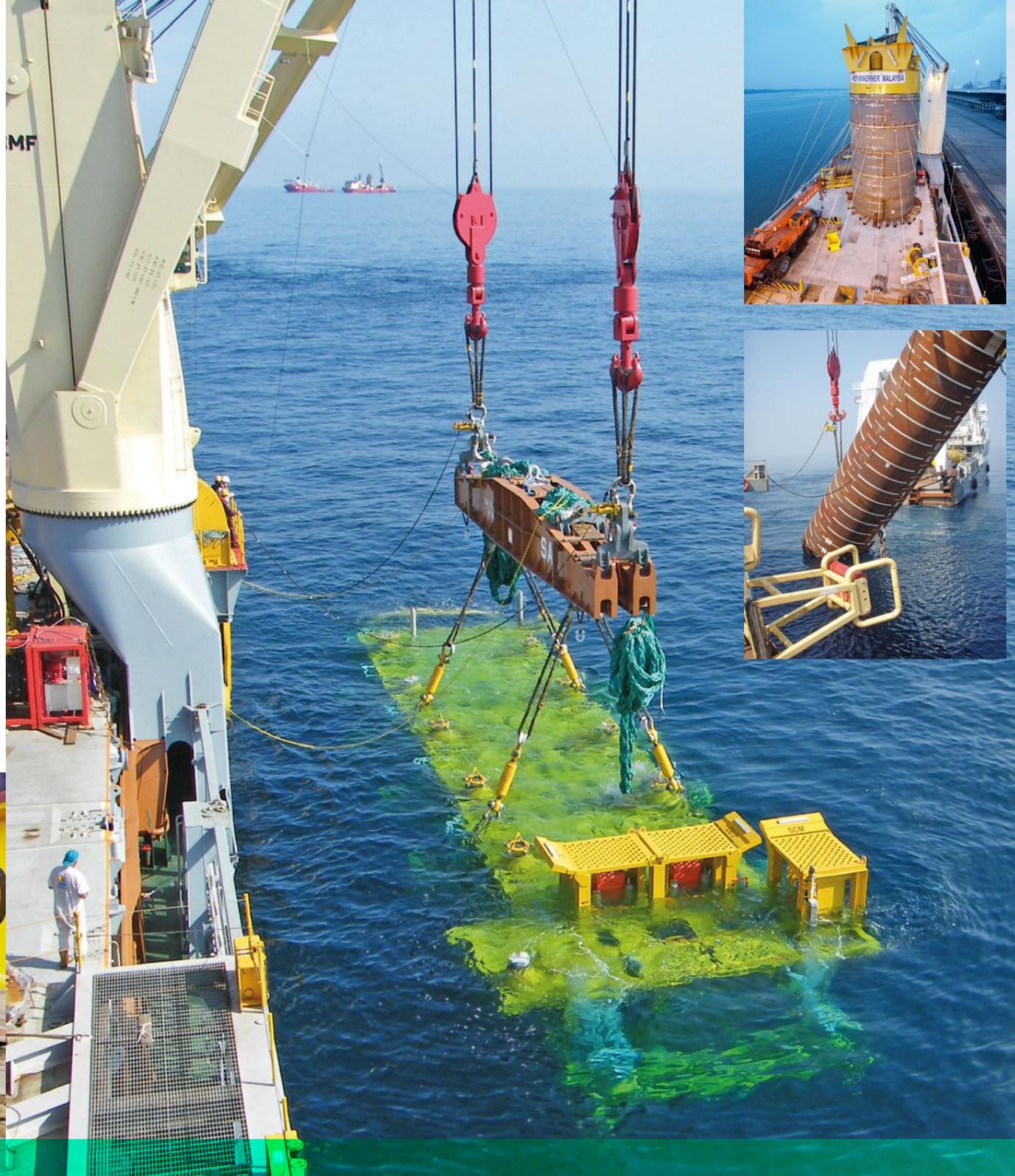
330 t manifold  
150 t suction piles

### Vessel modifications and deck equipment

The main deck equipment item was a 330 t linear winch and over-boarding sheave.

### Scope of work

- Transportation to site of the CPI
- Over-boarding of the subsea items followed by lowering to cross-haul depth
- Over-boarding of the STP buoy





■ HADERA

**Location**

Mediterranean Sea

**Client-provided items (CPI)**

One pipeline protection cover and one pipeline end manifold

**Maximum weight**

120 t

**Vessel modifications and deck equipment**

Hang off point with maximum rating 1 000 t

**Scope of work**

- Collection of the CPI from port and transportation to the offshore location
- Installation of the pipeline end manifold and the protection cover at water depths of 80 m and 120 m respectively

# OUR SOLUTIONS

## ■ STP BUOY

### **POL**

Batam, Singapore

### **POD**

Firth of Forth, Scotland

### **Weight**

1021 t

### **Dimensions**

Diameter: 22 m

Height: 18.8 m

### **Scope of work**

Transport

### **Specials**

- Fast voyage: average speed of 19.3 knots
- Direct handover to anchor handling tug



## ■ BOKOR & BLOCK H

### **Location**

Bokor & Block H field – offshore Malaysia

### **Client-provided items (CPI)**

Manifolds, reels spooled with flexible flowlines, misc. equipment

### **Weight**

Reels: up to 384 t, Manifold: 165 t

### **Scope of work**

Transport

### **Specials**

- Ship items from Tanjung Langsat (Malaysia) and Newcastle (UK) to Labuan (Malaysia)
- Supply of subsea structures and reels for the Bokor & Block H offshore site in two mobilisations
- Serve as feeder vessel to installation OCV in double banking
- Wet storage facility and transport of replaced units back to feeding port



OUR SOLUTIONS

# »RENEWABLES

The potential of the offshore renewable market is enormous, but generating energy offshore can be quite challenging for both the suppliers and the installation contractors. At SAL we want to help you rise to the challenges of this unique environment. With our dynamically positioned Type 183 vessels we not only offer tailor-made transport and installation solutions for transition pieces, tidal turbines and wave generators, we also provide feeder possibilities from port to installation site for windmill components. And with a 20 knots sailing speed, our vessels are much faster than a transportation barge.



# WINDMILL PILE TESTING CAMPAIGN – A CASE STUDY

## NINE PILES, THREE LOCATIONS, ONE VESSEL

RENEWABLES



Nine piles were driven into seabed at water depths of up to 40 metres, followed by strike and pull out tests. Once again MV Lone served as perfect project platform.



*The piling frame (template) and piles on deck*



*Hydraulic umbilical winch*



*Upending a pile using two cranes*

## OUR SOLUTIONS

### ■ WIKINGER WIND FARM – TEST PILE CAMPAIGN

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#### Location

German sector of the Baltic Sea,  
north-east of the island of Rügen

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#### Client-provided items (CPI)

Nine piles, largest: 36 m long,  
diameter approx. 1.4 m, weight up to 47 t

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#### Maximum lift weight

165 t (piling frame and hydro-hammer)

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#### Vessel modifications and deck equipment

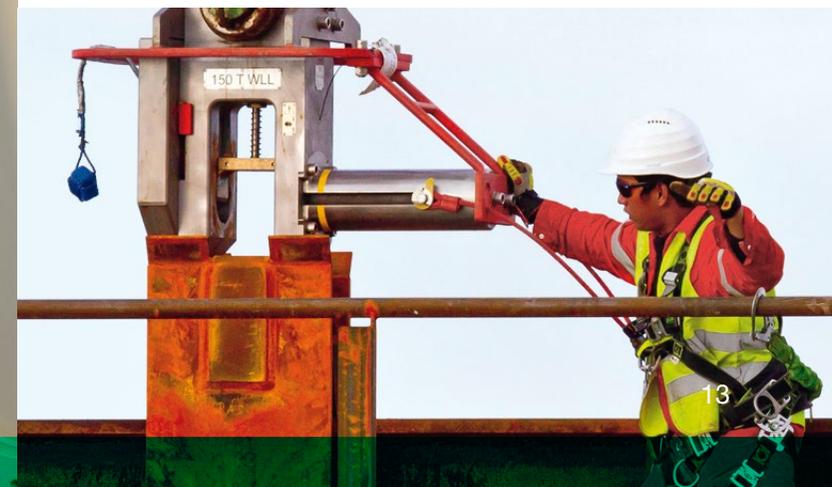
- Piling frame (“Triplex Template”)
- Piling hammer and follower
- Testing beam
- WROV
- Tugger winches
- Temporary accommodation units

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#### Scope of work

Transport and installation of nine test piles at  
three locations at water depths of up to 40 m

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# OUR SOLUTIONS

## ■ VOITH TIDAL TURBINE

### Location

European Marine Energy Centre (EMEC),  
Orkney Islands, UK

### Client-provided items (CPI)

Tidal turbine (VOITH Hytide 1000-13)

### Maximum weight

220 t

### Vessel modifications and deck equipment

- One light work-class ROV
- Various tugger winches

### Scope of work

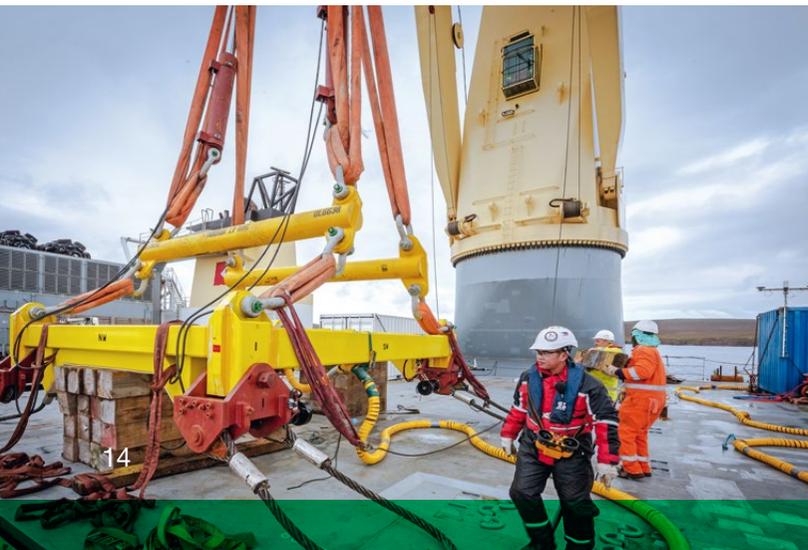
- Collection of the tidal turbine from port
- Transport to the offshore installation location
- Installation on a pre-installed monopile

### Challenges

A high cyclic tidal range through which the vessel was able to operate whilst remaining within its DP Class II operational limitations



RENEWABLES



OUR SOLUTIONS

# »DECOMMISSIONING & WRECK REMOVAL

In the decommissioning and wreck removal worlds we face new challenges.

Removing subsea structures, mooring systems, jackets, topsides and wrecks requires a wide range of skill sets far beyond heavy lift skills, therefore we partner with complementary companies when necessary to offer a complete solution.



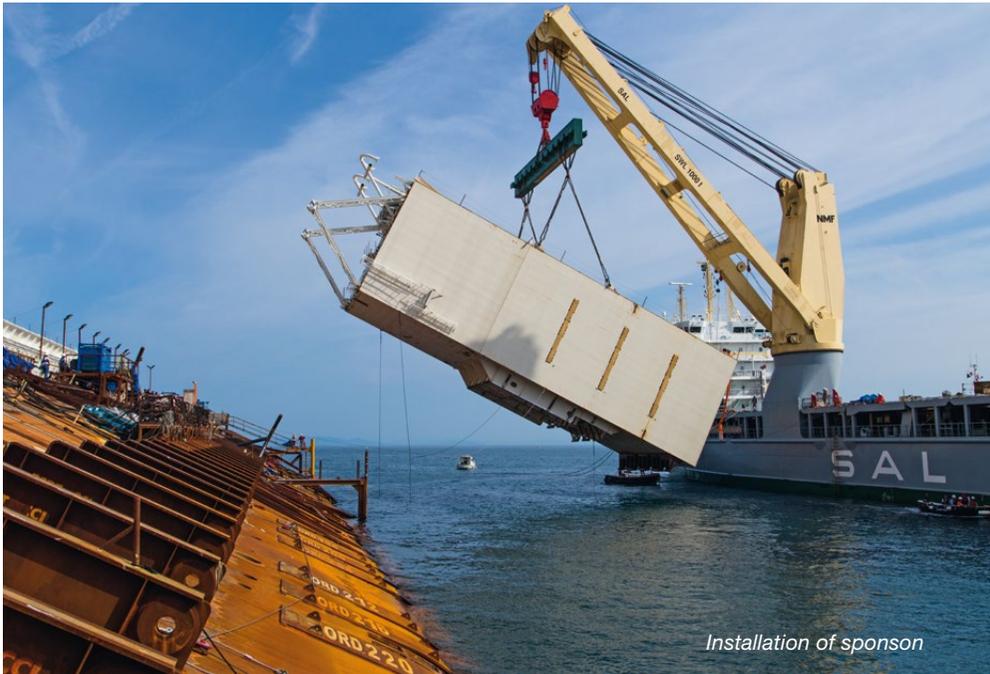
# 1000 TONS SUBSEA PLATFORM INSTALLATION

SAL Offshore was contracted to perform installation works on Dynamic Positioning in support of the Costa Concordia wreck removal at Giglio Island, Italy.



DECOMMISSIONING





Installation of sponson



Lift of blister tank

## ■ COSTA CONCORDIA WRECK REMOVAL

### Location

Giglio Island, Tyrrhenian Sea, Italy

### Client-provided items (CPI)

Four subsea platforms  
 11 floatation sponsons  
 One blister tank

### Maximum weight

Subsea platforms: 1000 t  
 Sponsons: 550 t  
 Blister tank: 1500 t

### Scope of work

Subsea platforms:

- Collection of three of the subsea platforms from port, receipt of the fourth at site
- Installation at 45 m depth in the pre-piled seabed

Sponsons:

- Collection from port
- Lifting onto the wreck of the Costa Concordia

Blister tank:

- Lift from a barge at site
- Placement in the water for collection by tugs

The Parbuckling Project is the best known wreck removal project on which SAL has proven its competencies in installation and decommissioning. With its Type 183 vessels MV Lone and MV Svenja, SAL installed subsea platforms in 45 metres water depth, as well as several floating sponson tanks and the blister tank which was essential to stabilize the bow of the “Costa Concordia”. The heaviest subsea lift was 1000 tons, the floating sponsons weighed 550 tons, and the heaviest offshore lift was the bow blister tank of 1500 tons.

## QUALITY MANAGEMENT & HSE

### QHSE POLICY

SAL Heavy Lift GmbH & Co. KG aspires to be the preferred carrier in the heavy lift shipping industry by providing our clients with an excellent quality service in every aspect of our operations, creating a safe working environment for people and minimizing our impact on the environment.

SAL is committed to the prevention of all incidents, injuries, occupational illnesses to all our interested parties. SAL is equally committed to the protection of the environment and to adopt a safe and efficient operating process in managing our business.

SAL fully complies with and maintains OHSAS 18001, ISO 14001, ISPS, MLC and ISM certifications and works according to the highest standards of the industry.

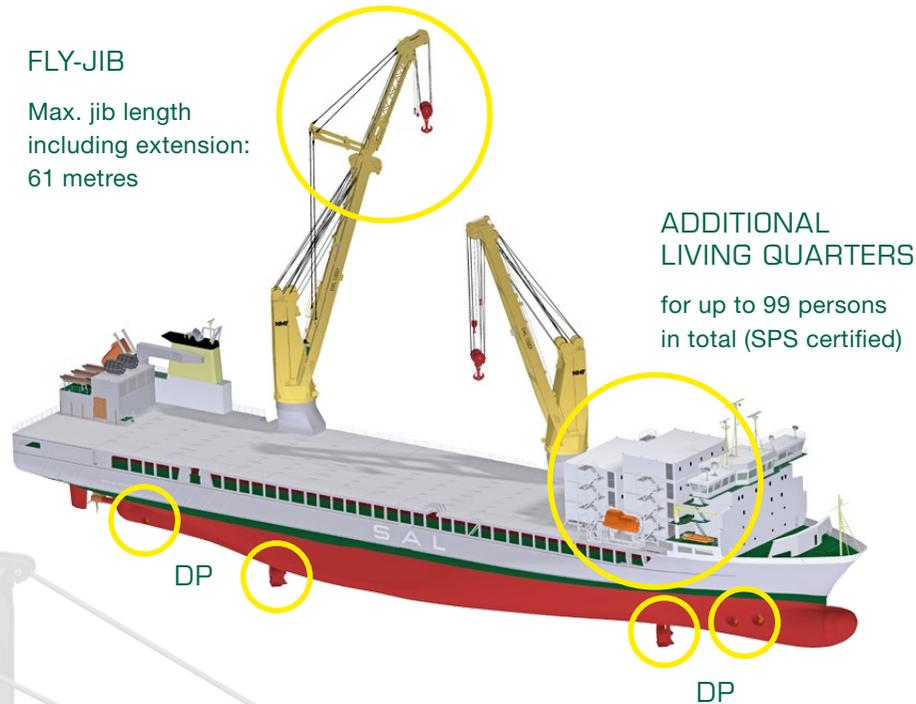
In SAL we are committed to stay "Safe & Sound" both ashore and onboard and run specific and detailed programs to ensure a harmfree and safe working environment.

You can read the whole SAL quality policy here:  
<https://sal-heavylift.com/company/quality-safety/qhse-policy>



# TYPE 183 DP II VESSEL WITH FLY-JIB

A VERSATILE MARINE PLATFORM FOR INSTALLATION AND TRANSPORTATION



FLY-JIB: MORE CRANE HEIGHT, GREATER OUTREACH

### Short configuration:

13 metres, maximum SWL of 625 tons, 8 falls, angle from main boom: -10°/-20°/-30°

### Long configuration:

23 metres, maximum SWL of 500 tons, 4 falls, angle from main boom: -5°/-10°/-20°

The Fly-Jib is dismantable and can be rigged for the cranes of a Type 183 vessel. Due to its design and configurability, it can remain mounted during sea transits.

### DYNAMIC POSITIONING

With its latest generation of high capacity Type 183 vessels, SAL Heavy Lift introduces a crane capacity of 2 × 1000 tons SWL. In addition, both heavy lift vessels are equipped with a class-leading Kongsberg Dynamic Positioning System: While MV Svenja is equipped with a DP I system, MV Lone has a DP II system providing more redundancy for safe offshore operations.

## MV LONE – DP CLASS 2

<b>Deadweight</b>	12500 t
<b>Tonnage</b>	15200 GT/4600 NT
<b>Class</b>	GL + 100 A5, G General Cargo Ship Strengthened for Heavy Cargo, BWM-S, EP, SOLAS II-2, Reg. 19, MC AUT
<b>Length over all</b>	160.50 m
<b>Beam</b>	27.50 m
<b>Deck</b>	128.50 × 27.50 m
<b>Hold</b>	107.10 × 17.00 × 13.70 m Adjustable tweendeck Capable of trading with open hatch
<b>Cranes</b>	2 electro-hydraulic turning cranes with a lifting capacity of 1000 t SWL each, both mounted on portside, combinable up to 2000 t SWL
<b>Crane outreach</b>	16 m – 1000 t 25 m – 800 t 38 m – 500 t
<b>Engine</b>	MAN 58/64 Diesel Engine 17 136 HP
<b>Service speed</b>	20 knots
<b>Shipyard</b>	J. J. Sietas KG Schiffswerft GmbH u. Co., Hamburg/Germany
<b>Delivery</b>	March 2011
<b>DP2 Facts</b>	Kongsberg K-Pos DP-21 dual redundant DP system  Bowthruster 2 × 1200 kW Sternthruster 1 × 800 kW Azimuth 2 × 1200 kW
<b>References</b>	DPS 232 DGPS DPS 122 DGPS 3 DPS DGPS RADIUS 1000 HiPAP 501

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All details are given in good faith but without guarantee of accuracy or completeness.

Photos, if not stated otherwise:  
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WE INNOVATE SOLUTIONS