

# Launch and Recovery Systems



## Launch and Recovery Systems (LARS)

Subsea Innovation is a world leader in the design and manufacture of ROV Launch and Recovery Systems (LARS) and Multi Purpose Handling Systems (MPHS) for specialist applications in the offshore oil and gas industries.

Manufacturing expertise has developed from 25 years of industry experience and the successful delivery of over 50 systems to ROV operators worldwide. Manufactured to perform in the most demanding environmental situations, including heavy weather and deepwater, the systems are approved to Det Norsk Veritas Standard for Certification of Lifting Appliances N2.22 October 2008.

For each system a team of experienced Subsea Innovation support engineers provide on-site commissioning, servicing and repair. The commitment to ongoing customer service is supported by Subsea Innovation manufacturing and storing a comprehensive range of proprietary spare components.

All systems are supplied with a ROV umbilical termination socket and, if required, a hydraulic power unit to operate the system.

System designs are generated using Autodesk Inventor and client files can be supplied for integration in to deck layouts.

- Quality build, heavy duty, reliable systems with an extensive operational track record
- Systems designed to meet clients exact requirements
- Fully certified to recognised third party specifications
- Hydraulically controlled swing frame (complete with self fleeting sheave wheel) designed to ensure that the umbilical is not damaged during high loadings in deep waters
- Base frames strengthened to remove the need for large sea fastening or expensive modifications to vessel decks
- Hydraulic components installed in a single stainless steel operating panel to simplify ongoing maintenance
- Remote radio control

Extensive investment in research and development, coupled with ongoing operational performance, has resulted in Subsea Innovation developing four standard variations of LARS.

With all manufacturing processes in-house Subsea Innovation provides the option of bespoke design and production with systems built to individual client specification.





## Tether Management Systems

Subsea Innovation's flexible VHSS and levelwind spooling systems are compatible with their Launch and Recovery Systems ( LARS).

The advanced design of the spooling system means that the TMS is simple, reliable and easily maintained. The VHSS does not require any electrical spooling control and spools automatically due to constant tension in the tether and the geometry of the spooling assembly.

The system is designed to be cable friendly and lightweight sheaves guarantee that the minimum bend radius of the tether is not exceeded. A hydraulically driven power sheave is positioned at the exit of the tether to avoid any potential drive slippages.

The winch drum is fitted with Lebus shells.

The docking assembly incorporates two sets of latching fingers with one set being failsafe to prevent accidental dropping of the vehicle during launch and recovery. Subsea Innovation also design and manufacture the compensators and electrical junction boxes that are integral to the TMS.

### Technical Specification

Safe working load (SWL)	10Te
Global design factor	3
Tether diameter	20mm to 50mm
Tether capacity	300m to 1,000m (dependent upon diameter)
TMS dimensions	2046mm diameter x 2220mm long
Gross weight	3.75Te
Operating depth	3,000m
Spooling system	30 metres / min
Design temperature	-20°C +60°C
Heavy lift system	15Te through frame 10Te latches, x3 DF

# Multi Purpose Handling Systems (MPHS)

Subsea Innovation design and manufacture bespoke Multi Purpose Handling Systems (MPHS) for use with a wide variety of subsea tools.

The MPHS sits over the moon-pool of the vessel and lowers tools subsea on a main-lift winch. The system can also be fitted with two or four guide wire winches.

Recent systems have incorporated a 35Te SWL active heave compensated main lift winch and 8Te SWL guide wire winches.

The tower features an integral control cabin complete with operator control chair, clear comms and video.

The main lift and guide wire hang-off positions at the top of the structure are adjusted hydraulically.

A complete skidding system is supplied which is sea-fastened to the vessel deck. The MPHS also provides tool storage and a rail system to transport the tools into the MPHS. Storage slots are modular and therefore additional sections can be added. The tools are moved using a hydraulic push/pull unit.

The base of the tower incorporates three platforms. The central moon-pool door lowers down into the moonpool and is fitted with a failsafe latching system that interfaces with the skidrails to prevent this door from accidentally opening.

Two side panel doors are provided for maintenance personnel and operate on independent hydraulic circuits.

A telescopic cursor frame is mechanically lowered into the moon-pool and requires no permanent welding to the vessel. A winch controlled cursor carriage is fitted with adjustable prongs to suit a range of subsea tools.

As standard, safety harness rails are fitted around the inside of the tower which is fully lit by spotlights - the upper walkway is fitted with four striplights.

The MPHS is designed, constructed and tested according to Det Norsk Veritas Standard For Certification Of Lifting Appliances No.2.22 October 2008 and subjected to independent third party approval.

Subsea Innovation service engineers perform installation and commissioning onboard the vessel.

## Technical Specification

Safe working load (SWL):	60 Te
MPHS dimensions:	7m x 7m
Operating depth:	2,000m
Guide wires:	4-off 8 Te SWL
Main lift winch:	35Te SWL
Guide posts:	4-off API 2586mm adjustable
Gross weight:	63 Te (excluding winches)
Design temperature:	-20°C to +50°C



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# Model HF-135 LARS

Subsea Innovation developed the HF-135 LARS to provide a greater outreach and to allow the boom to reach a horizontal position - a specific advantage for vessels with high free boards. The HF-135 LARS positions the ROV closer to the water and reduces the pendulum affect during launch and recovery.

The system can be fitted with an integral sliding deck which can be used to position the ROV or toolskid in differing locations along the skidbase for maintenance purposes.

The design capacity is 45Te design (15Te SWL) at 30 degrees side load with the possibility of increasing this by hydraulically retracting the boom during operation.

## Technical Specification

Safe working load (SWL)	15Te
Global design factor	3
Test load	45Te
Outreach	6.5m
Skidbase dimensions	4m wide x 6 m long
Gross weight	35Te
Telescopic boom extension	2m
Operating envelope	30 degs inboard/90 degs outboard
Design temperature	-20°C to +50°C

## Hydraulic Functions

- A-frame in/out
- Boom extension
- Snubber drive (thro axis)
- Snubber drive (cross axis)
- Snubber damping (through axis)
- Snubber damping (cross axis)
- Latch rotate
- Failsafe latch assembly
- Sliding deck

All functions can be operated remotely via radio controlled belly pack.

## Special Features

- Winch fleet angle compensating sheave
- Extendible boom for height adjustment, controlled landing and SWL increase
- Hydraulic tilting of latch/sheave wheel angle for deep water deployment
- Sliding deck for maintenance positioning of ROV/toolskid
- Controlled hydraulic damping of latch head for rough weather
- All moving points piped to accessible lubrication bulkhead
- Stainless steel hydraulic fittings throughout



# Model XW-90 LARS

The XW-90 LARS is the standard Subsea Innovation LARS with over 40 systems installed and operational worldwide.

The design capacity is 45Te design (15Te SWL) at 30 degrees side load with the possibility of increasing this by hydraulically retracting the boom during operation.

## Technical Specification

Safe working load (SWL)	15Te
Global design factor	3
Test load	45Te
Outreach	4.5m
Skidbase dimensions	4m wide x 6m long
Gross weight	27Te
Telescopic boom extension	2m
Operating envelope	45 degs inboard/45 degs outboard
Design temperature	-20°C to +50°C

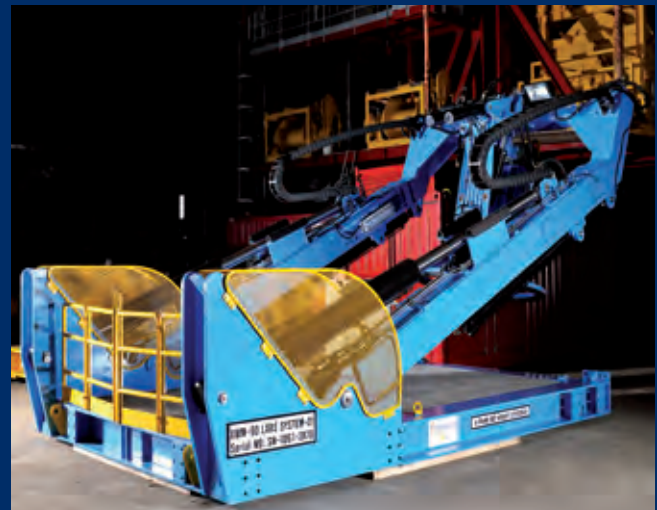
## Hydraulic Functions

- A-frame in/out
- Boom extension
- Snubber drive (through axis)
- Snubber drive (cross axis)
- Snubber damping (through axis)
- Snubber damping (cross axis)
- Latch rotate
- Failsafe latch assembly

All functions can be operated remotely via radio controlled belly pack.

## Special Features

- Hydraulic self-erecting
- Winch fleet angle compensating sheave
- Extendible boom for height adjustment, controlled landing and SWL increase
- Hydraulic tilting of latch/sheave wheel angle for deep water deployment
- Controlled hydraulic damping of latch head for rough weather
- All moving points piped to accessible lubrication bulkhead
- Stainless steel hydraulic fittings throughout



# Project and Risk Management

As a leading supplier of equipment and services to the international offshore energy and subsea sectors, Subsea Innovation is committed to providing systems which comply with highest levels of quality management standards.

Management system standard: BS-EN-ISO 9001:2008

Accredited by Det Norske Veritas

Certificate number: 09840-2006-AQ-LDN-UKAS

Subsea Innovation Project Management is carried to the international standard of DNV ISO 9001.

A fully dedicated project leader manages the design and manufacture of each project from initial acceptance through to final system deployment. Generally the process requires a biweekly sign off with Subsea Innovation providing relevant electronic reports.

Project schedule charts are supported by master documentation and an ongoing activity register which relate to the initial activity schedule as described in the accepted proposal.

Subsea Innovation systems perform in some of the most challenging engineering environments in the world where component failure can be catastrophic.

Our dedication to ensuring the implementation of quality procedures at every stage of the design, build and installation process is clearly demonstrated by the ongoing performance of our systems in the field.





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