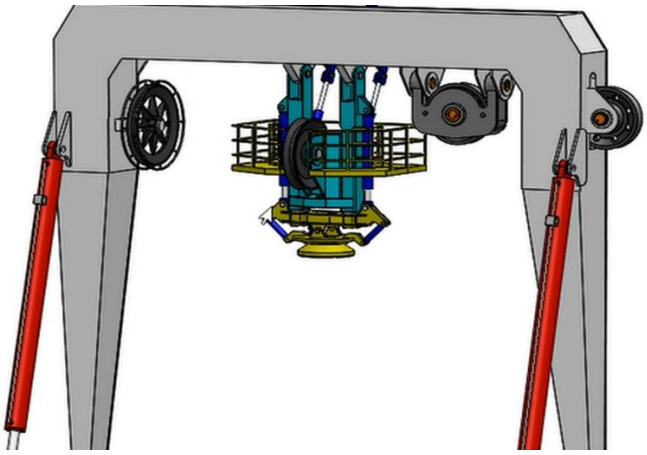
PRODUCT DATASHEET

# Dimension A-Frame LARS System (DIMS-AF-100)

100 Te SWL stern A-Frame with integrated Launch and Recovery Stabilization System (LARS) — two operating modes: wire-hung trenchers and umbilical-hung jetting ROVs, up to Sea State 5.

| 100 Te | 12.1 m | 11.0 m | 1.85 m | ≤150 s |
|---|---|---|---|---|
| SAFE WORKING LOAD (SS5) | OUTBOARD REACH | CLEAR WIDTH BETWEEN LEGS | DOCKING HEAD TRAVEL | OUTBOARDING TIME |





*Non-Contractual Reference (Under Progress on Left, Asso's Reference on Right)*

## Overview

The Dimension DIMS-AF-100 is a hydraulically luffed stern A-Frame rated 100 Te SWL for launch and recovery of trenchers and jetting ROVs from trenching support and construction vessels. Two box legs on combined pivot / cylinder-pedestal foundation boxes carry a crossbeam with an integrated LARS stabilization frame. In Mode 1 the vehicle is lifted on a steel wire from the vessel lifting winch, led over a leg-top sheave and a crossbeam sheave to the docking-cone axis, with the control umbilical over a leg-mounted sheave. In Mode 2 the vehicle is lifted on its lift-and-control umbilical over the fixed sheave in the LARS frame. In both modes the lifting medium carries the vertical load and the LARS frame provides docking, stabilization and lateral restraint with swing damping. Luffing from 35° parked to the 155° splash zone takes under 150 s.

Designed in-house by Dimension and fabricated by approved partner yards under ABS survey, the system is engineered and certified to the ABS Guide for Certification of Lifting Appliances (2024) considering CRC (OC-Subsea) notation requirements, and is delivered with structural and interface load reports, load-test certification, open PLC source code and installation and commissioning support.

## Applications

- Mode 1 — trenchers on a single-fall lift wire, vertical load carried by the wire
- Mode 2 — jetting ROVs on a lift-and-control umbilical, vertical load carried by the umbilical
- Subsea structure, tool and clump-weight overboarding to 100 Te
- Cable burial, pre-lay / post-lay trenching and backfilling campaigns
- New-build or retrofit to TSV / OCV / CLV stern decks; project-specific engineering

## Key Features

- **100 Te SWL to Sea State 5 –** rated for dynamic lifting through the splash zone with ABS dynamic factors, offlead and sidelead; 7.2 m inboard / 12.1 m outboard reach from pivot.
- **LARS stabilization frame –** docking cone with compliant snubber ring, 1.6 m vertical travel (1.85 m incl. control stroke), in-plane rotation, inboard/outboard swing damping; stabilization and lateral restraint, no vertical load.
- **Sheave arrangement –** leg-top and crossbeam lift-wire sheaves SWL 100 Te (Mode 1), fixed LARS sheave on the docking-cone axis (Mode 2), leg-mounted 12 Te control-umbilical sheave.
- **Hydraulic luffing –** two Ø650 / Ø300 cylinders, ≈6.5 m stroke, 350 bar, on raised pedestals with counterbalance valves; parked-to-splash-zone in ≤150 s.
- **Position monitoring –** A-Frame in/out sensors and cylinder-integrated transducers on docking-head lift and rotation; limit switches, proximity sensors and interlocks.
- **Open control system –** Siemens PLC and HMI with manual and automatic modes; full source code, project files and backups supplied without password restrictions.
- **Vessel interface engineering –** interface load report, local deck analysis, foundation arrangement and reinforcement drawings included.
- **Certification –** ABS Guide for Certification of Lifting Appliances 2024; CRC (OC-Subsea) notation considered; ABS-witnessed FAT and load test.

## TECHNICAL SPECIFICATION

| Capacity & Design | |
|---|---|
| **System type** | Dimension stern A-Frame with integrated LARS (DIMS-AF-100) |
| **Safe working load (SWL)** | 100 Te in all operating positions up to Sea State 5 |
| **Design load basis** | SWL × DAF 2.0 (200 t at the docking-cone axis) per ABS LA Guide 2024 |
| **Luffing system** | 2 × Ø650 / Ø300 cylinders, ≈6.5 m stroke, 350 bar, raised pedestals, counterbalance valves (TBC) |
| **Operating envelope** | Parked 35° from vertical (inboard) to 155° splash-zone position; ≤150 s outboarding |
| **Reach from base pivot pin** | 7.2 m inboard / 12.10 m outboard |
| **Vehicle compatibility** | Mode 1: trenchers on the lift wire; Mode 2: jetting ROVs on the lift-and-control umbilical; vehicle data to be confirmed |
| **Design code / certification** | ABS Guide for Certification of Lifting Appliances 2024; CRC (OC-Subsea) notation requirements |

| LARS Stabilization System | |
|---|---|
| **LARS stabilization frame** | Crossbeam-mounted; raise/lower, in-plane rotation, swing damping; no vertical load |
| **Vertical docking-head travel** | 1.6 m standard; 1.85 m incl. automation / control response stroke |
| **Snubber** | Docking cone with compliant rubber snubber ring, sized to the vehicle lift frame / bullet |
| **Swing damping / roll compensation** | Hydraulic inboard/outboard swing damping; docking-head rotation for vessel roll compensation |
| **Lift-wire sheaves (Mode 1)** | Leg-top and crossbeam sheaves; SWL 100 Te, Ø≈1.3 m |
| **Umbilical sheaves** | Leg-mounted control-umbilical sheave 12 Te, BR PCD 2,500 mm (Mode 1); fixed LARS sheave on the docking-cone axis, lined groove (Mode 2) |
| **Motion compensation** | Passive compliant docking standard; |
| **Operating modes** | Mode 1 wire-hung; Mode 2 umbilical-hung; LARS frame stabilizes and restrains in both modes |

| Environmental | |
|---|---|
| **Operating temperature** | -10 °C to +50 °C |
| **Survival temperature** | TBC (non-operating) |
| **Humidity / atmosphere** | Up to 100 % RH; marine, high salinity. Structure blasted to Sa 2½ and coated to an offshore |

| Dimensions & Weights | |
|---|---|
| **Overall envelope (W × H above main deck)** | ~14.2 m × ~16.9 m (parked) |
| **Clear width between legs** | 11.0 m |
| **Estimated dry weight (structure + LARS)** | Structure ≈115 t; LARS head ≈15–17 t; assembly ≈140 t (TBC) |
| **HPU, pedestal and control equipment** | Skid mounted HPU. oil; pedestal ≈0.5 t |
| **Transport** | Transport breakdown TBC |
| **Deck interface** | 2 combined pivot / cylinder-pedestal foundation boxes, bolted |
| **Foundation / deck reinforcement** | Bolted; interface loads, bolt pattern |

| Power & Control | |
|---|---|
| **Power supply** | Containerised HPU ≈480 kW (3 × 160 kW), 440 V / 60 Hz, 350 bar, L, water-cooled |
| **Control system** | Siemens PLC and HMI; manual / automatic modes; alarms, diagnostics and logging; open source code supplied |
| **Control positions** | Wired local Control & Diagnostics Pedestal (IP65 min.); vessel system interfaces |
| **Emergency & safety** | E-stops at pedestal and HPU; load-holding valves on all cylinders; safety interlocks and limit switches |

| Instrumentation & Access | |
|---|---|
| **Position monitoring** | A-Frame in/out sensors; docking-head lift and rotation feedback via cylinder-integrated transducers |
| **Safety devices** | Limit switches, proximity sensors, over-travel interlocks, hydraulic locking |
| **Lighting** | Floodlights |
| **Access** | Crossbeam walkway, sheave access platforms, leg ladders and handrails |

| Scope of Supply | |
|---|---|
| **Standard** | A-Frame structure with pedestals, luffing cylinders, LARS stabilization frame, sheave sets, HPU, control pedestal, PLC/HMI, instrumentation, interface load report and foundation design |
| **Options** | spares package; deck reinforcement design; installation and commissioning attendance |
| **Documentation** | GA, structural and interface load calculations, hydraulic and electrical schematics, FDS, FAT |

| | | | |
|---|---|---|---|
| | system (ISO 12944 C5-M / NORSOK M-501); exposed cylinder rods laser-clad with a corrosion-resistant coating. Full coating specification TBC | | reports, O&M manual, ABS certification |
| **Hazardous area** | Safe area (Zone 2 TBC) | | |

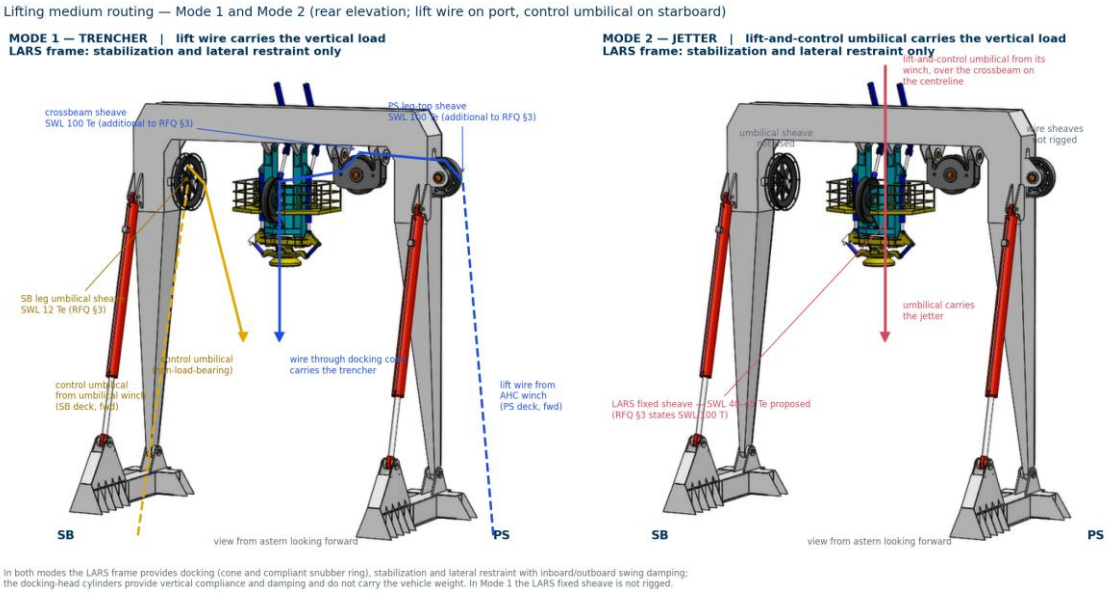



*Figure 1 — Lifting medium routing, Mode 1 and Mode 2 (rear elevation),* ***Note: Crossbeam sheave to be centered between LARS frame legs***

**Commercial & Mobilisation** Available for sale with project-specific engineering. Fabrication at Dimension approved partner yards under ABS survey; lead time TBC in proposal, schedule-driven options available. Engineers available for installation supervision and commissioning worldwide. Contact **sales@dimension.sg** for a technical and commercial proposal.

*Specifications are indicative and subject to change without notice. Final performance, weights and power demand are dependent on vessel motions, deck interface and project-specific engineering and class approval. Parameters marked TBC are to be confirmed during detailed design or proposed by Dimension in the technical proposal. Operating modes, design basis and outstanding technical queries for the present enquiry are given in Technical Note 541.01-ASG-TN-003-A, attachment to Budgetary Quotation 541.01-ASG-BID-001-A.*