



INNOVA Technology

Realising Ideas

iLARS

Patent Pending

Subsea lifting challenges today

- Object handling on deck
- Pendulum motion in air
- Slack slings/snatch loads in splash zone
- Vessel motions
- Weather limitations
- Can the known challenges been solved in a new lifting application?

ROV iLARS design objectives

- Safe ROV deck handling
- Umbilical snatch loads
- Lower the suspension point
- Umbilical distance to ship side
- Steel weight
- Mechanical integrity (DAF)
- Reduced complexity
- Improve the snubber design
- Competitive LARS solution

A-frame challenges



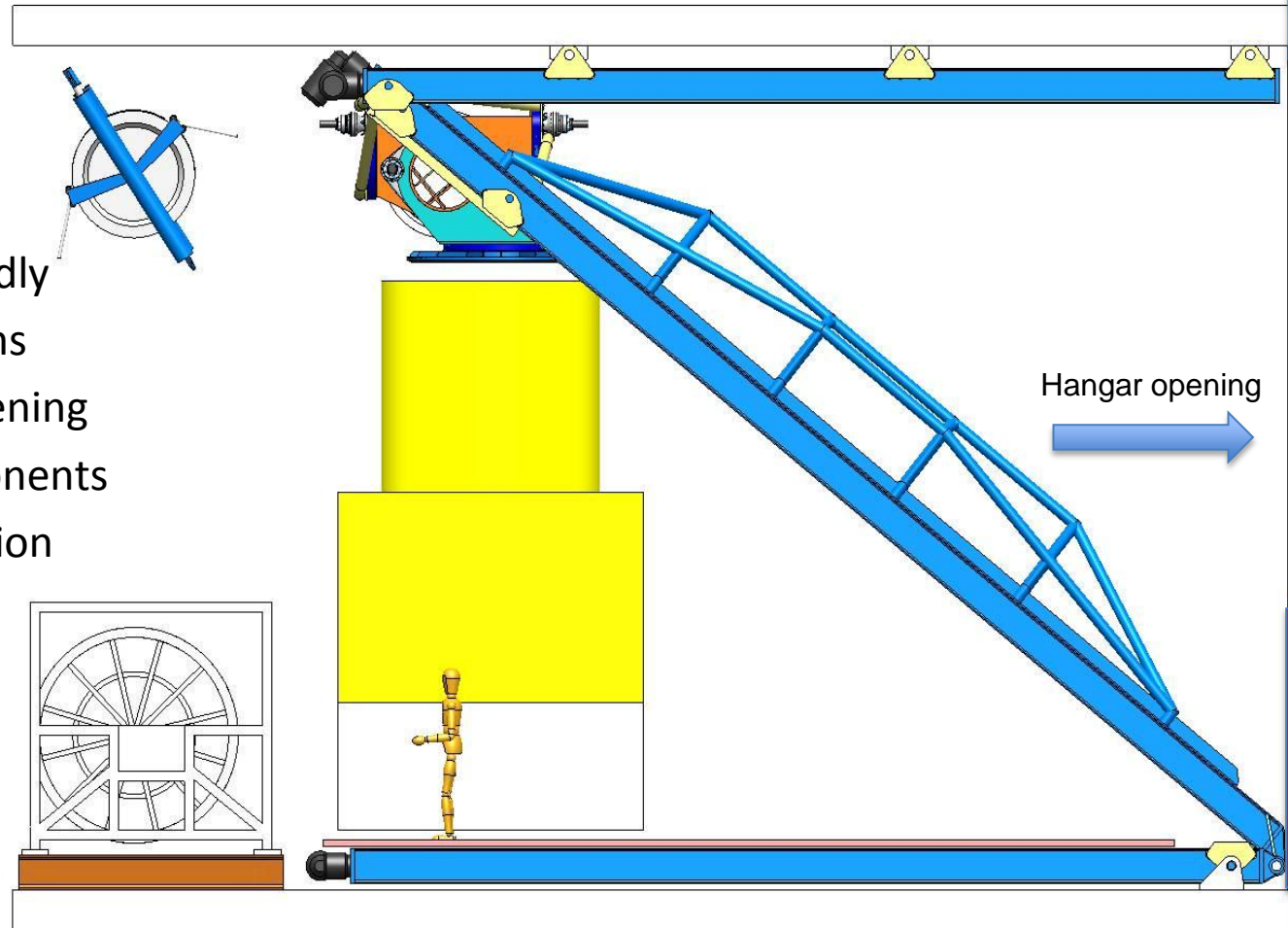


Realising Ideas



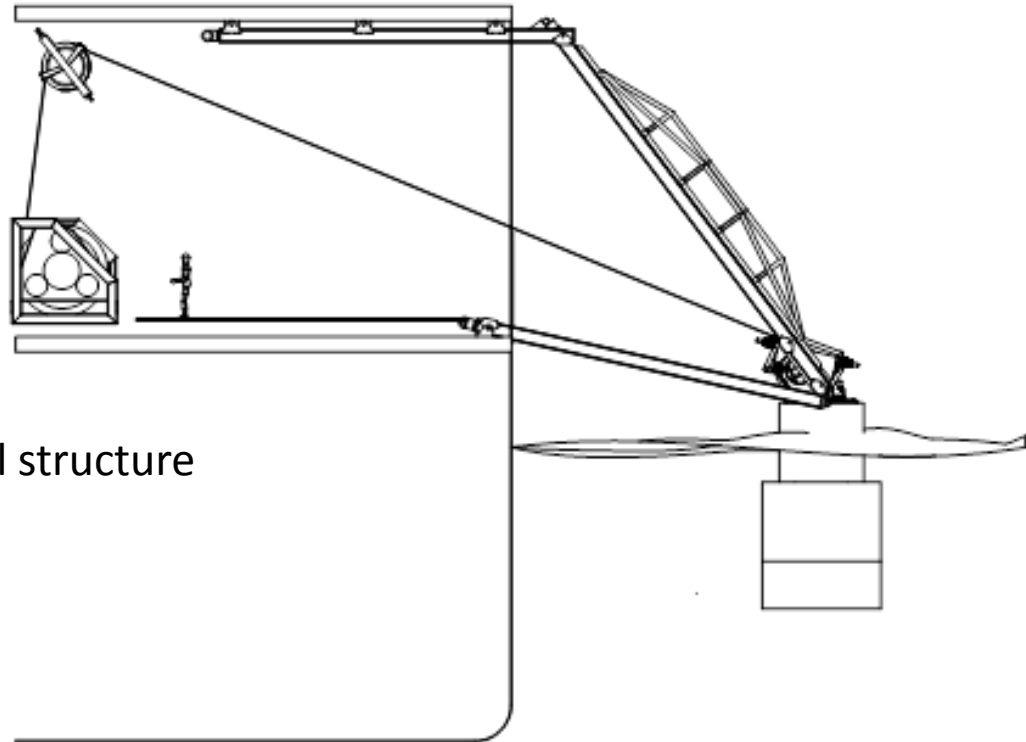
ROV iLARS

- ✓ Availability
- ✓ Maintenance friendly
- ✓ Linear drive systems
- ✓ Snatch load dampening
- ✓ Few, robust components
- ✓ Pendulum prevention



iLARS Advantages

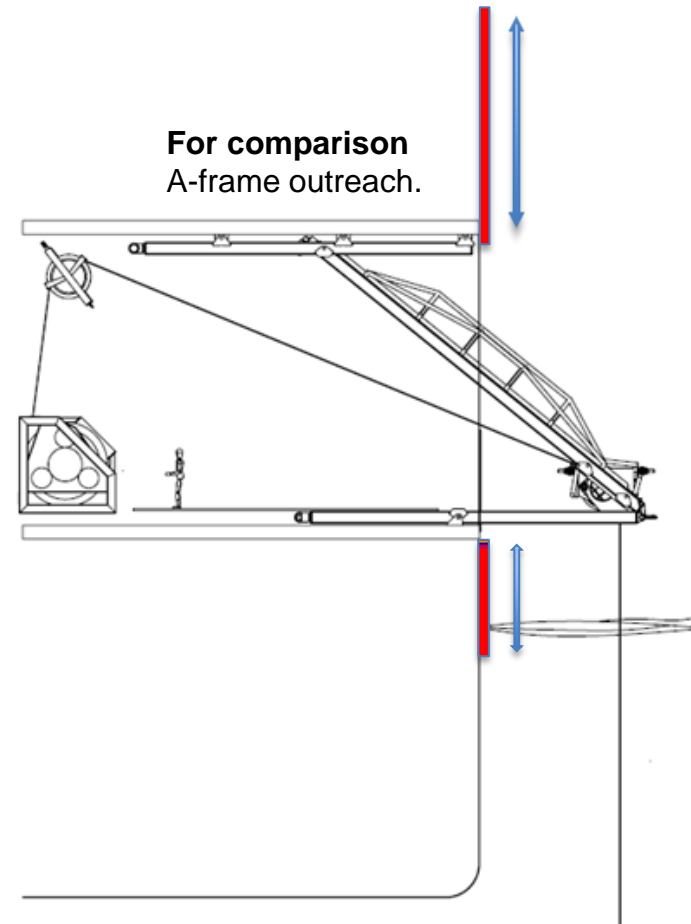
- Outreach capability
- Umbilical friendly
- Tilt up or down
- Low suspension point
- Horizontal load distribution
- Four attachment points to the vessel structure
- Electric or Hydraulic linear drive



iLARS versus A-frame

iLARS provides:

- ✓ Flexibility in hangar height / width
- ✓ Vertical sliding hangar door (prevent sea ingress)
- ✓ Increased margins
- ✓ Reduced need for deck stiffening
- ✓ Can replace existing A-frames
- ✓ In all, provide higher vessel utilization



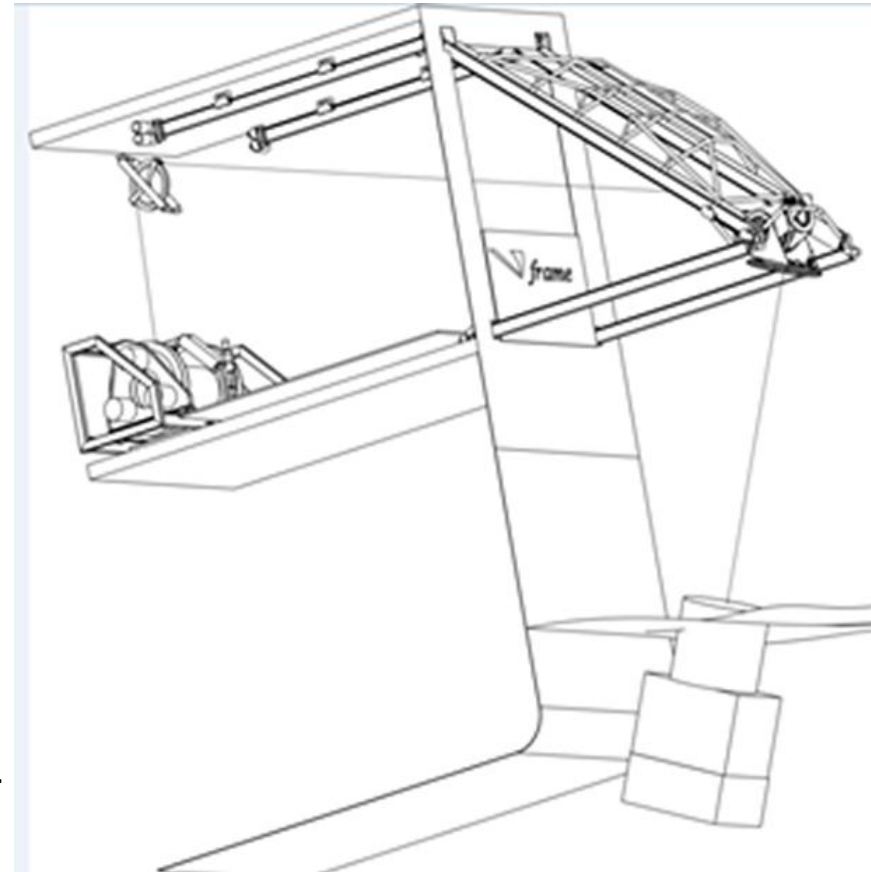
iLARS Hs5 (10 meter) ROV solution

Prevailing factors

- Extended outreach capabilities
- Enable “safety distance”
- Umbilical friendly
- Low suspension point
- Robust design. 60 ton line tension.
- Automated operation (optional)

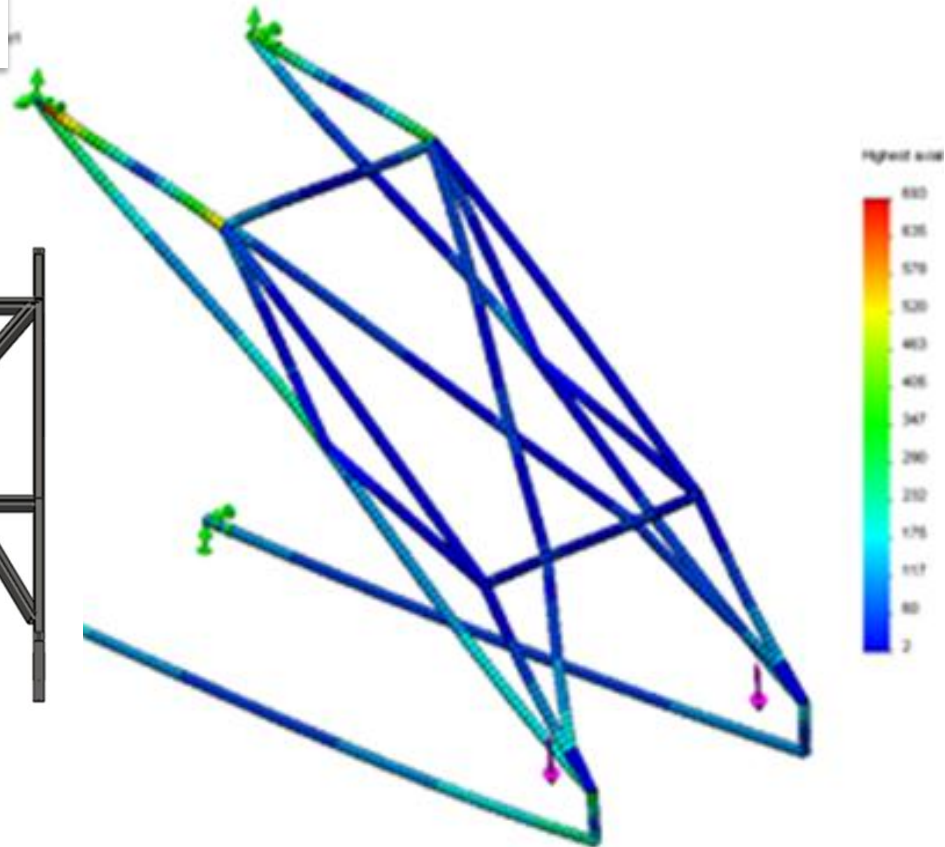
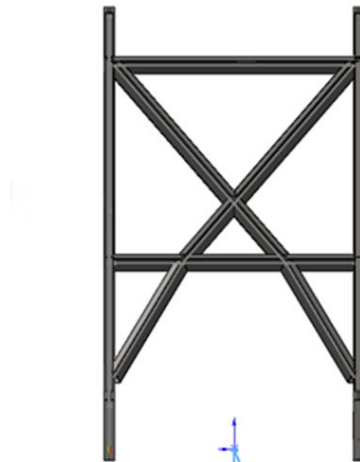
In all:

- Increases safety margins
- Options for increased personnel safety
- Extra 20-30% additional vessel days pr. year



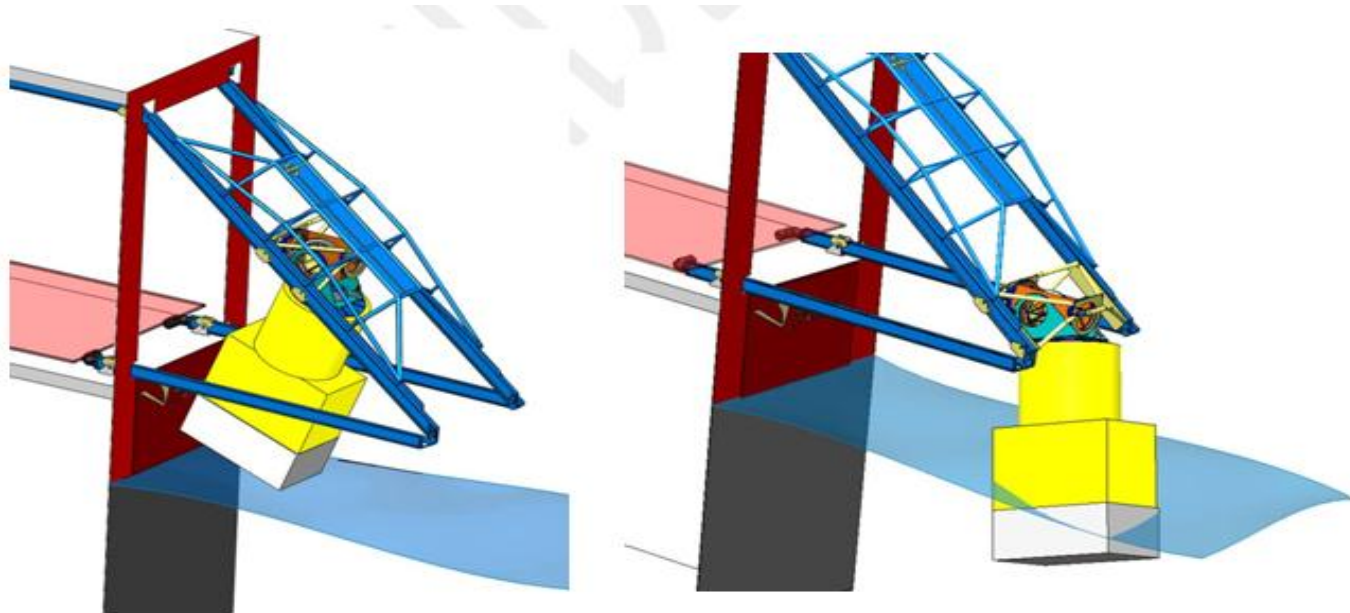
Simple strength calculation 60Tonn

- ✓ 25° umbilical angle
- ✓ New Geometry
- ✓ Beneficial loads distributed
- ✓ Open structure



Snubber

- Active electric pendulum dampening
- Option: Support beam & support arms
- Upgradable by customer

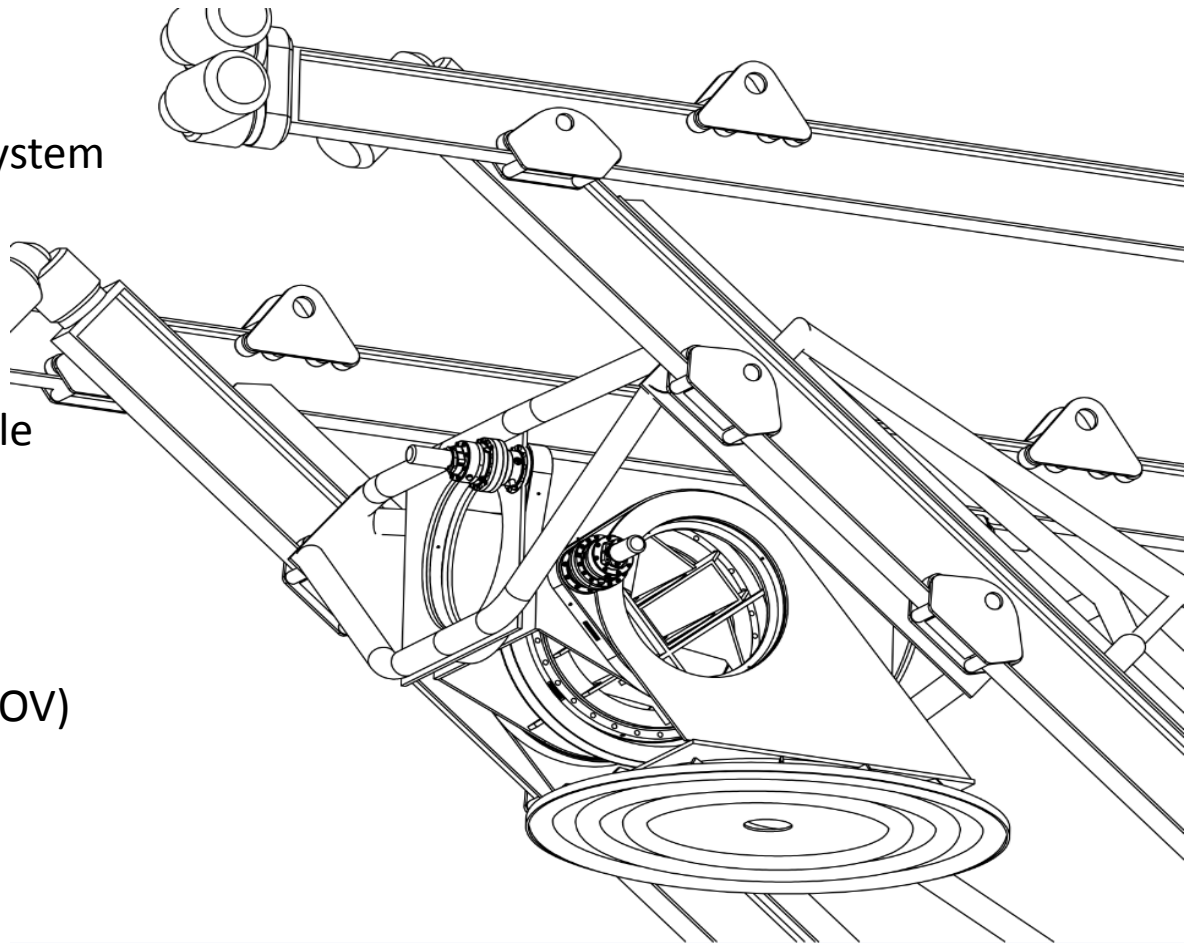


Snubber

- Electric or hydraulic drive system
- Improved motions
- Active control
- Active dampening
- Following the umbilical angle
- Key hole UTS lock

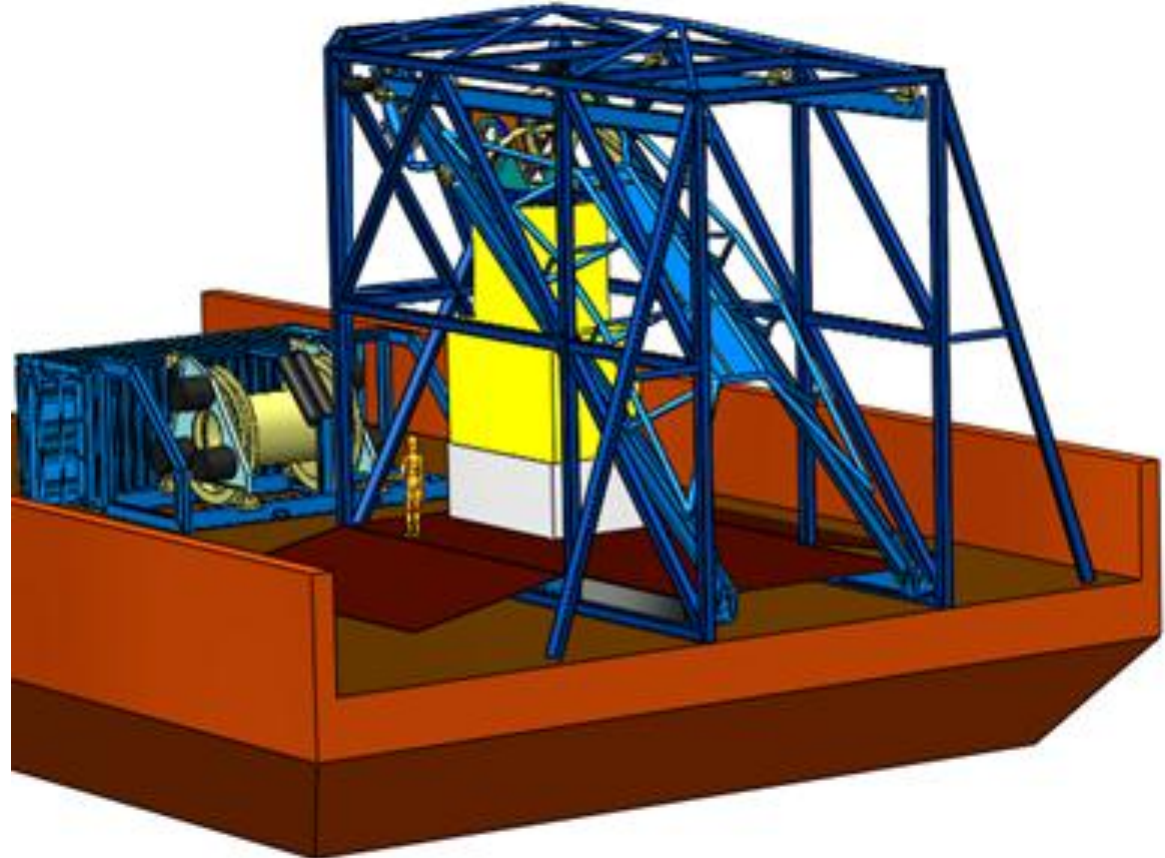
Utilization area

- ✓ Survey operation (free fly ROV)
- ✓ Tophat TMS/ROV system
- ✓ Cage/ROV system
- ✓ OBS ROV



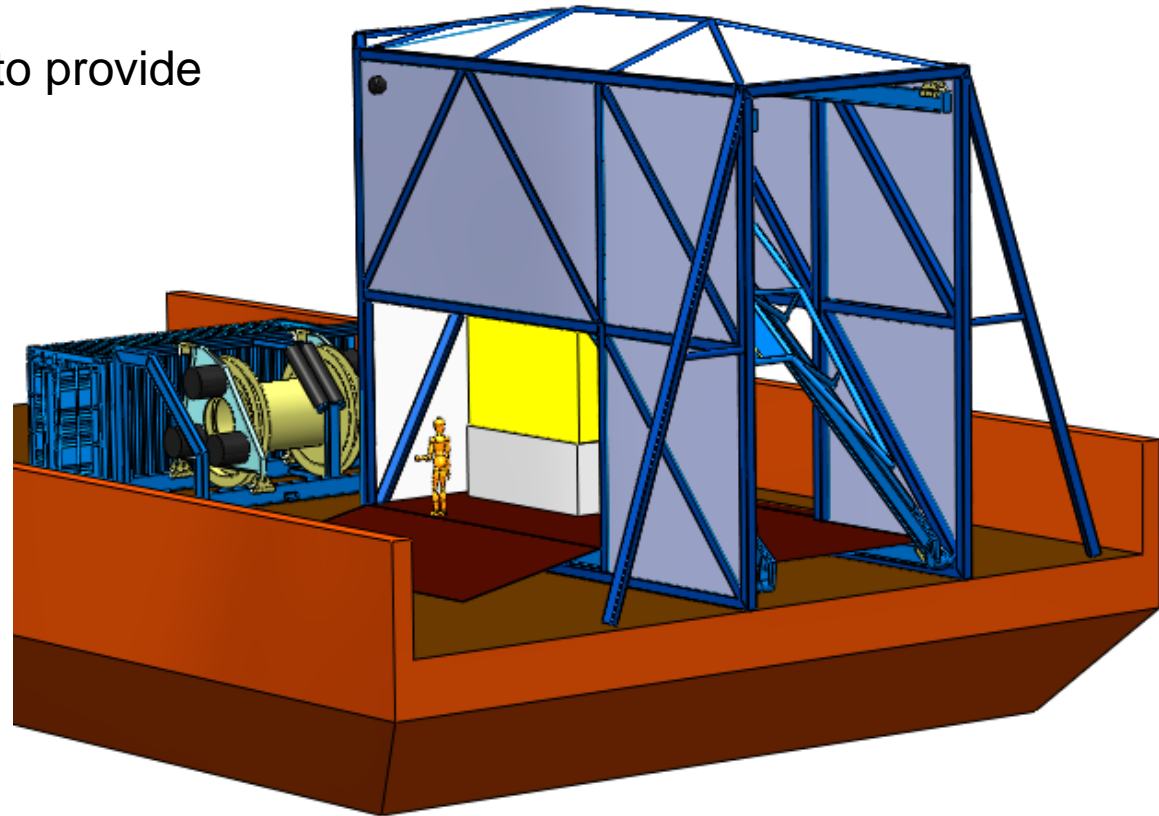
Stand alone iLARS

Steel framework required
for upper horizontal beams



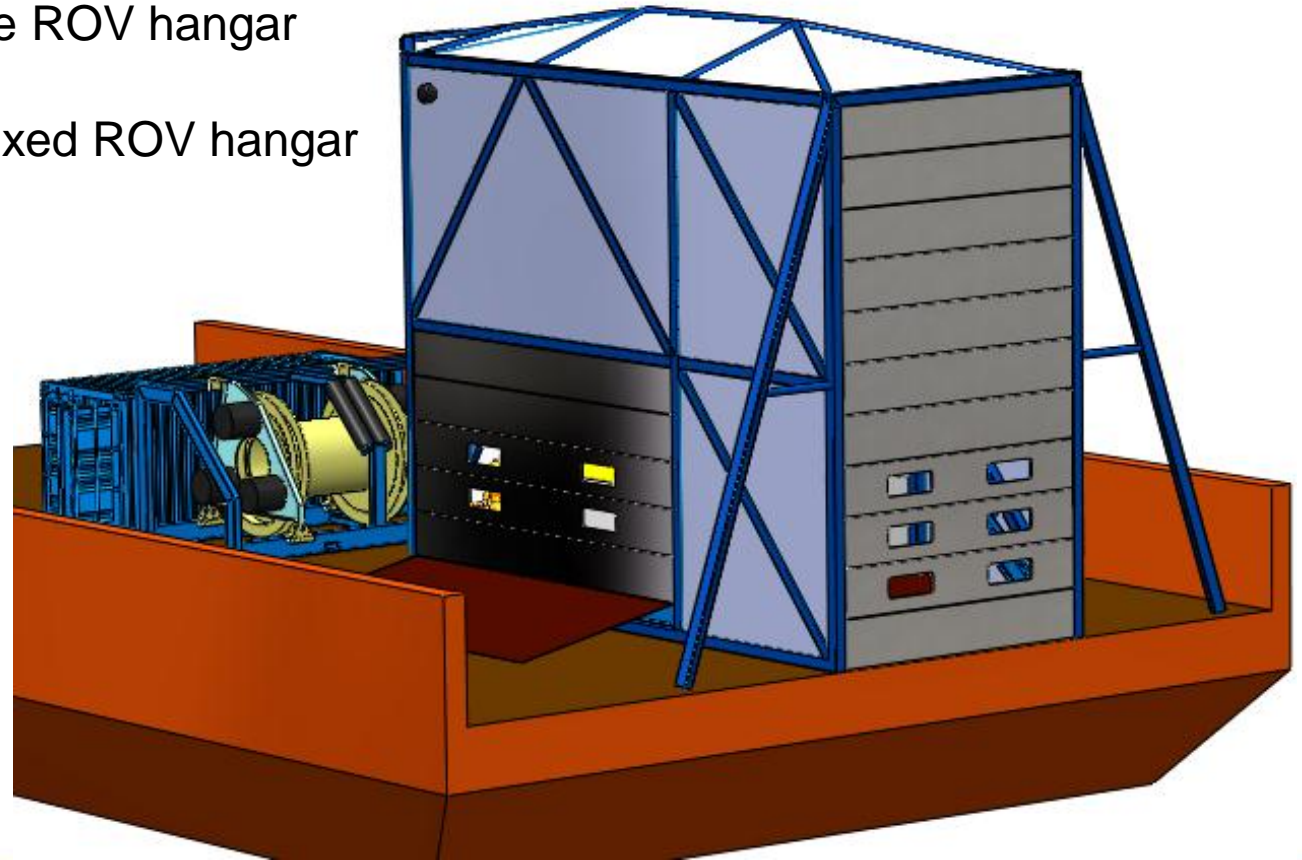
Aft deck shelter iLARS

Steel framework to provide some shelter



Sheltered ROV Solution

- ✓ Sheltered mobile ROV hangar solution
- ✓ Equipped as a fixed ROV hangar



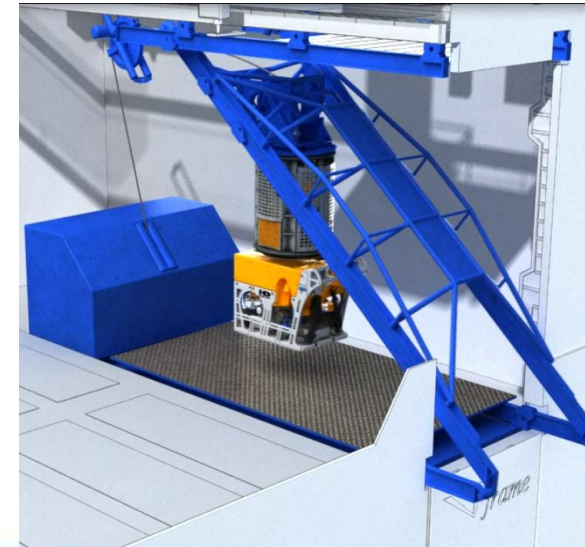
Aft deck solution



Source: www.subsea7.com



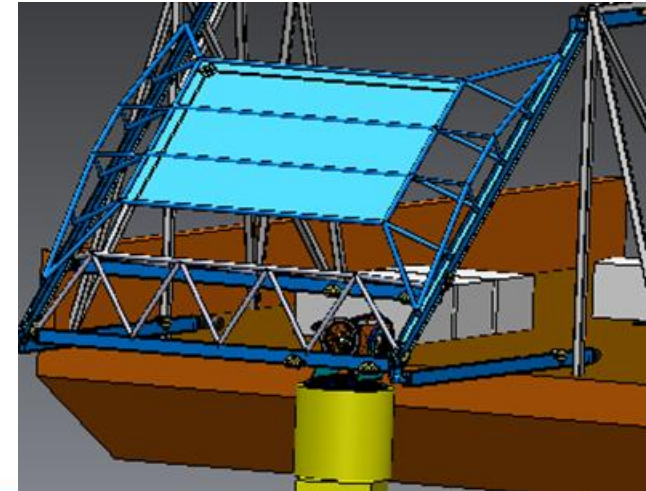
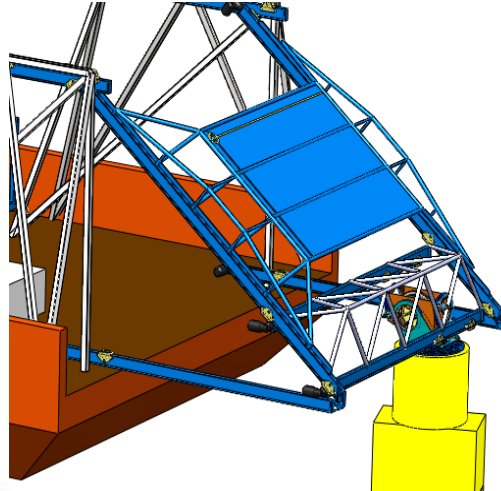
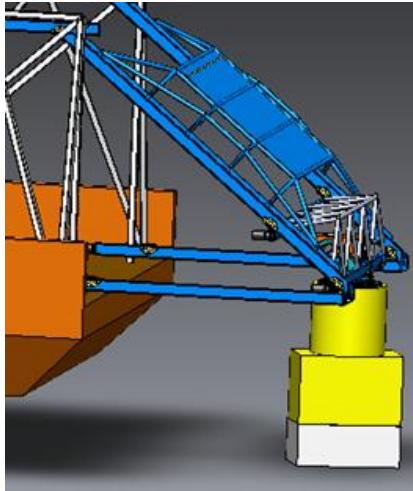
Source: www.ship-technology.com



iLARS for Heavy lift?

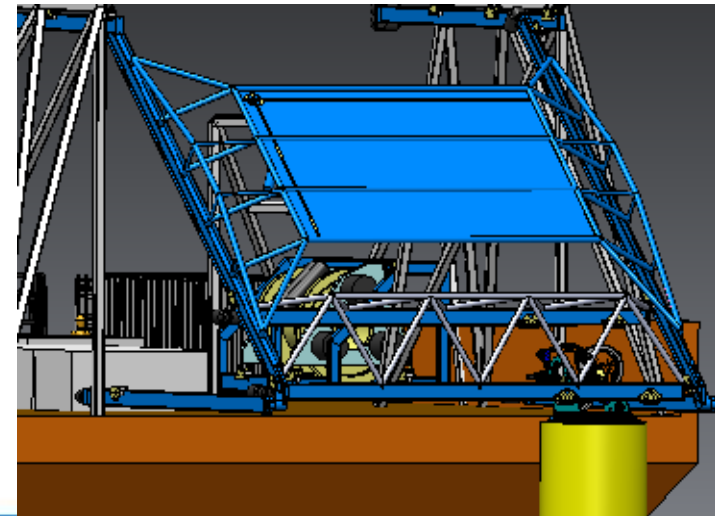
Benefits:

- ✓ Snubber on a traverser carriage
- ✓ Horizontal transfer
- ✓ Reduced safety distance
- ✓ Reduced need for hold-back winches
- ✓ Increased safety, allowing heavy lift in higher sea states



Safety during subsea lift

- ✓ Provide weather shelter.
- ✓ Synchronous operation of iLARS and Skidding pallet
- ✓ The stabilizing arms for pendulum control
- ✓ Tension up the guide wires, and lower the object to the seabed
- ✓ Object recovery from seabed !





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