Jason LARS Update

Goals

- Improve safety
- Increase weather window
- Reduce number of people to LAR
- Decrease turnaround time
- Retain heavy lift capability

New *Jason* Crane

- 4-function knuckle crane with integrated docking head
- Capacity: 24,361 lb @ 23 feet
- Complies with Appendix A&B of RVSS, and manufacturer recommends 45% derating for SS 5-6
- 72% load rating increase and greater reach
- 12,000 lb load with *Jason* and docking head
- Radio control
- Crane base in house with Glosten oversight
- Retain current HPU
- Delivery November 2011

New Effer Crane with Dynacon Docking Head

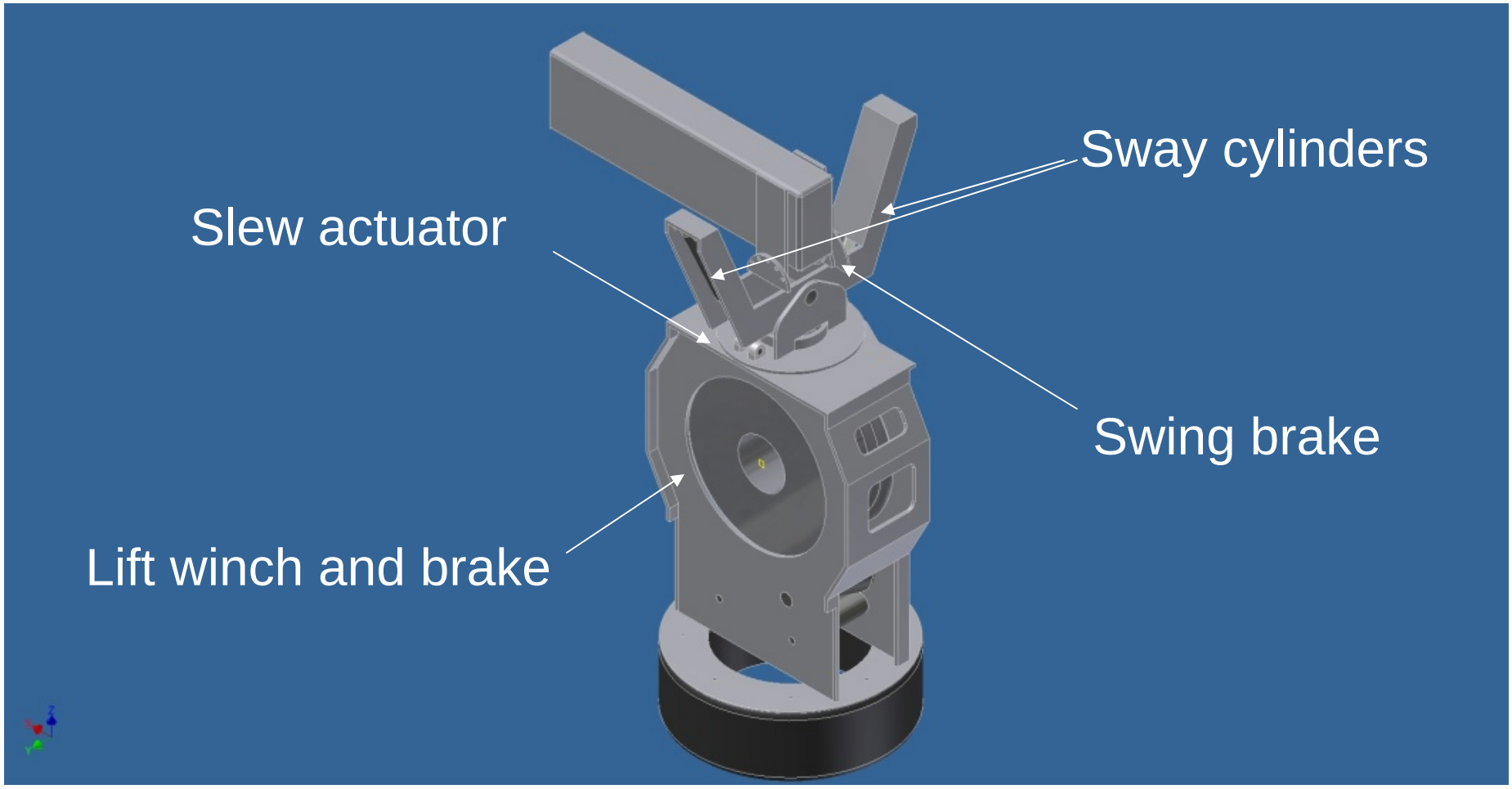
- Reasonable size for shipping
- 19K lb weight
- Dampens motion and rotates
- Eliminates people handling tether or vehicle →safer

Docking Head

- Height: 93” Length: 61 ¾ Width: 37” Weight: 3,150 lbs
- Lift winch speed (high speed/low torque): 112 fpm at 5,400 lbs /56 fpm at 10,000 lbs
- Safe Working Load: high speed: 5,400 lbs/low speed: 10,000 lbs
- Max line pull: 12,500 lbs
- Rotation angles swing and sway: inboard: 53°, overboard: 90°
- Latch load (brake holding load): 18,000 lbs
- Slew rotation: 270°
- Test loads: static structure pull: 20,000 lbs
  Maximum winch pull: 12,500 lbs
- Drum capacity: 150 ft of ¾” AmSteel Blue
- Required power: flow 24 GPM, pressure 3,550 psi
- Delivery October 2011, integration to crane November 2011

MH2

Docking Head Details

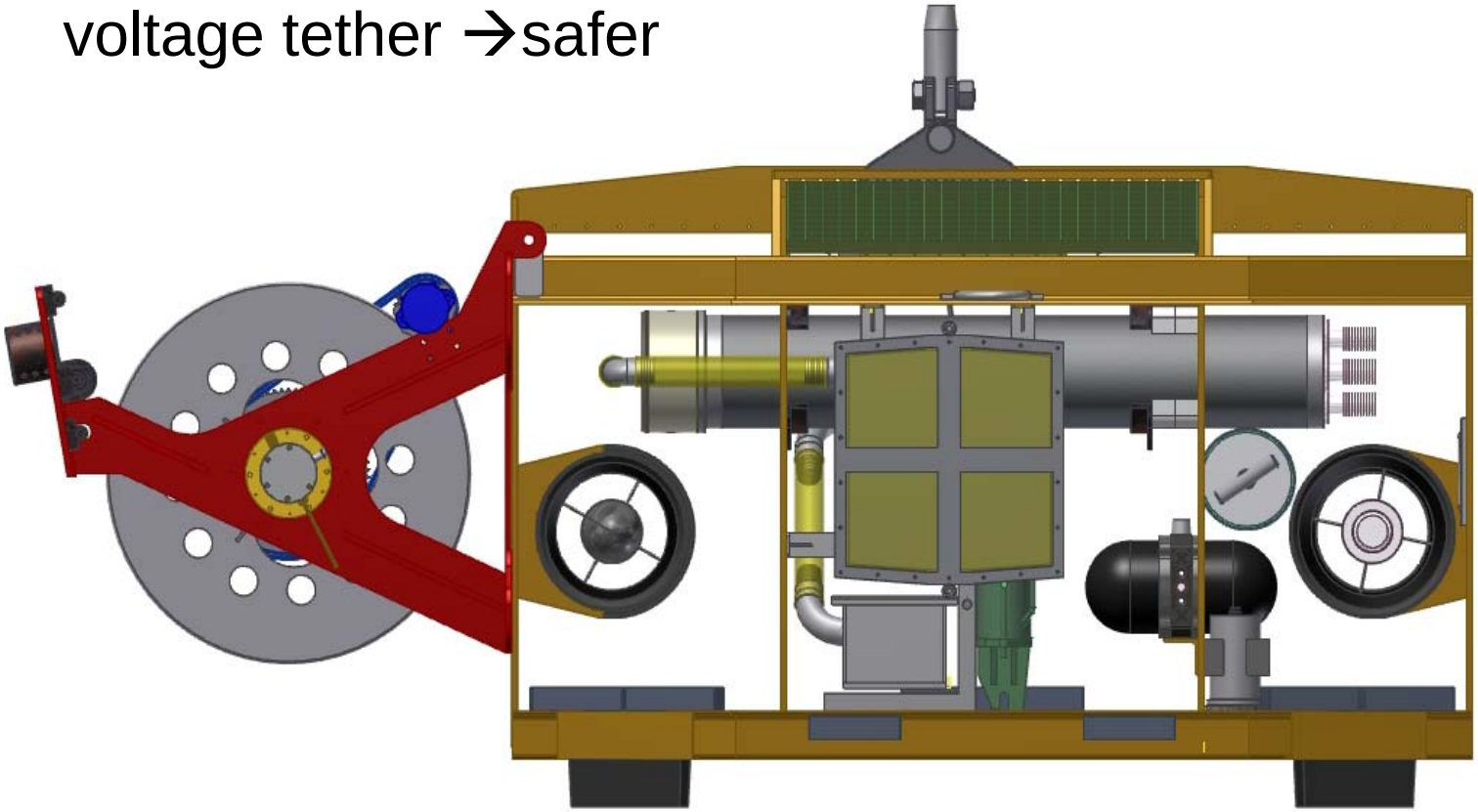


Slide 155

MH2 Matt Heintz, 6/16/2011

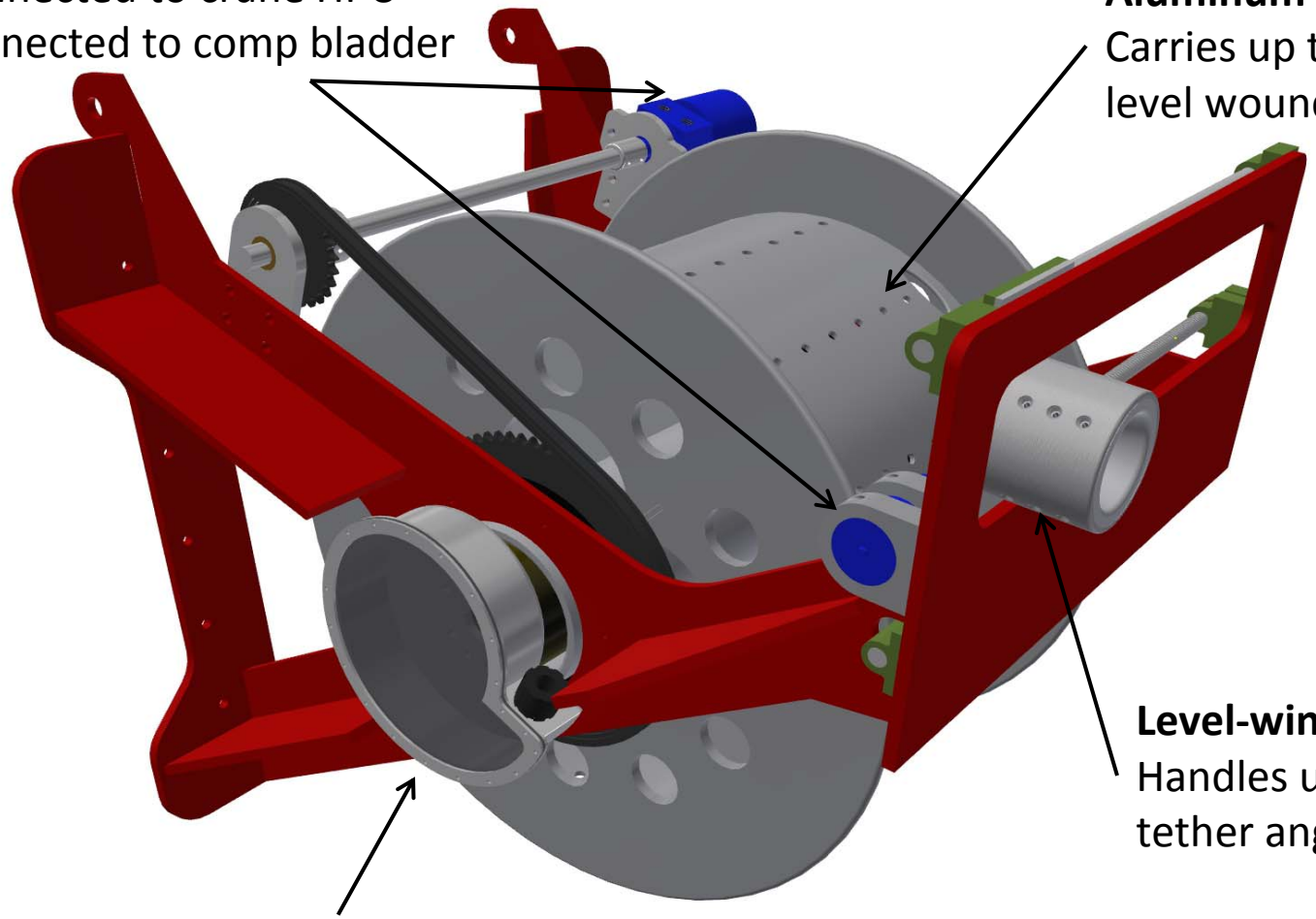
Medea Tether Handling Winch

- Pull *Jason* to the ship, store tether
- Eliminate people handling high voltage tether →safer



Medea Winch Details

Two **Char-Lynn Geroler hydraulic motors**
On deck: Connected to crane HPU
Sub-sea: Connected to comp bladder

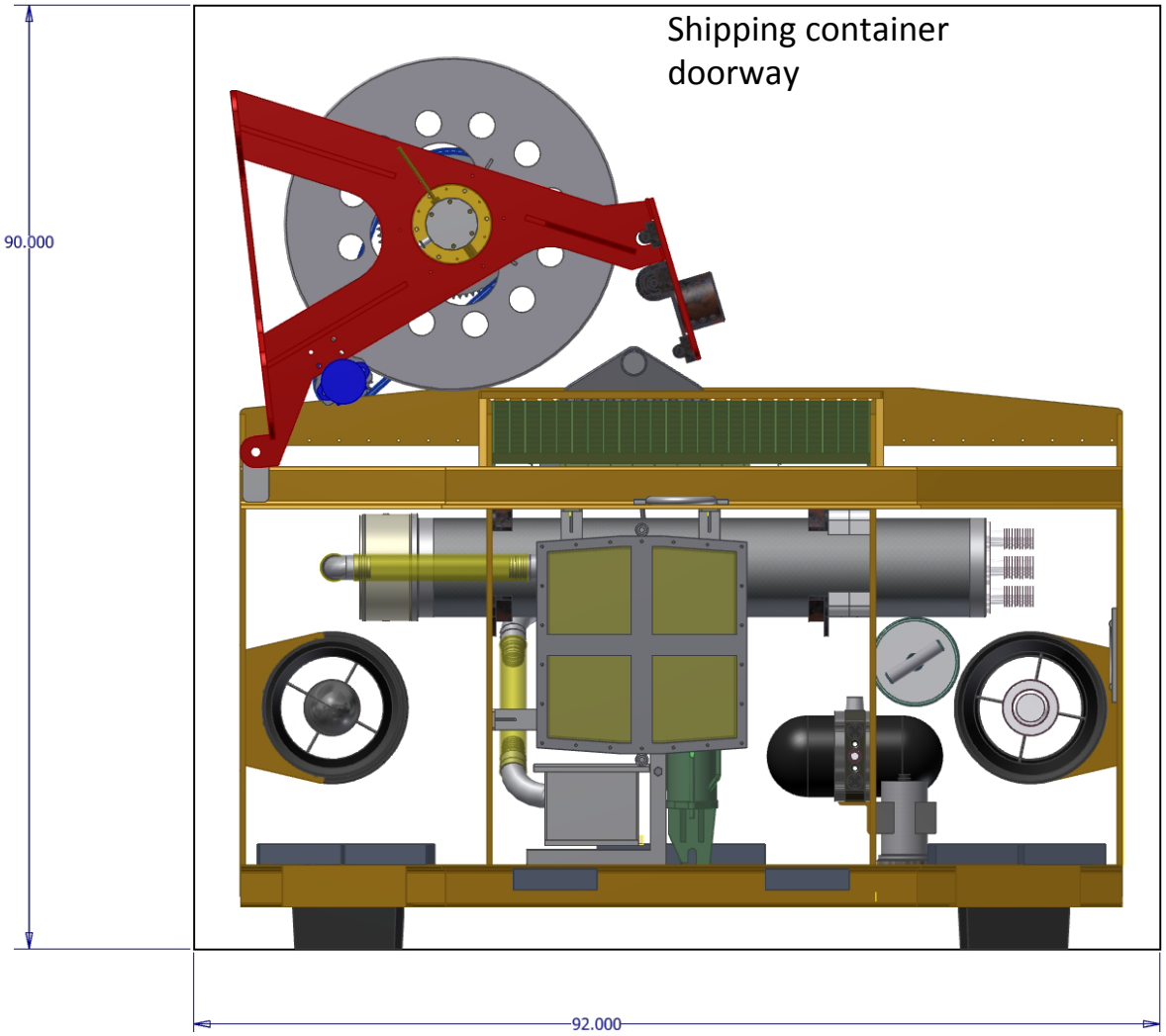


Aluminum drum
Carries up to 100m of level wound tether

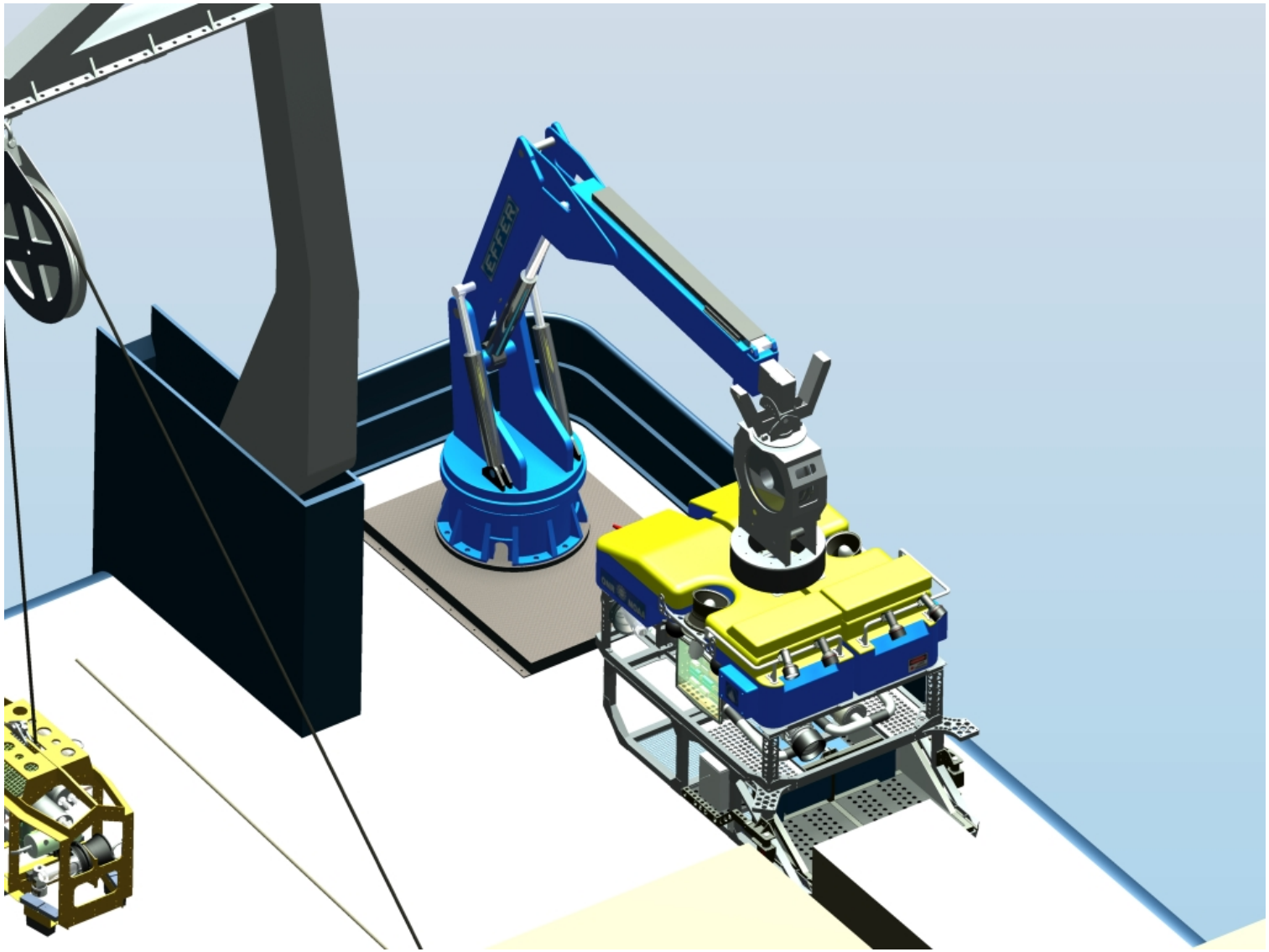
Level-wind
Handles up to 30˚ tether angle

Revolving **"Nautilus" J-Box** provides access to electro-optical connection between tether and **Focal 176 slip ring** (internal)

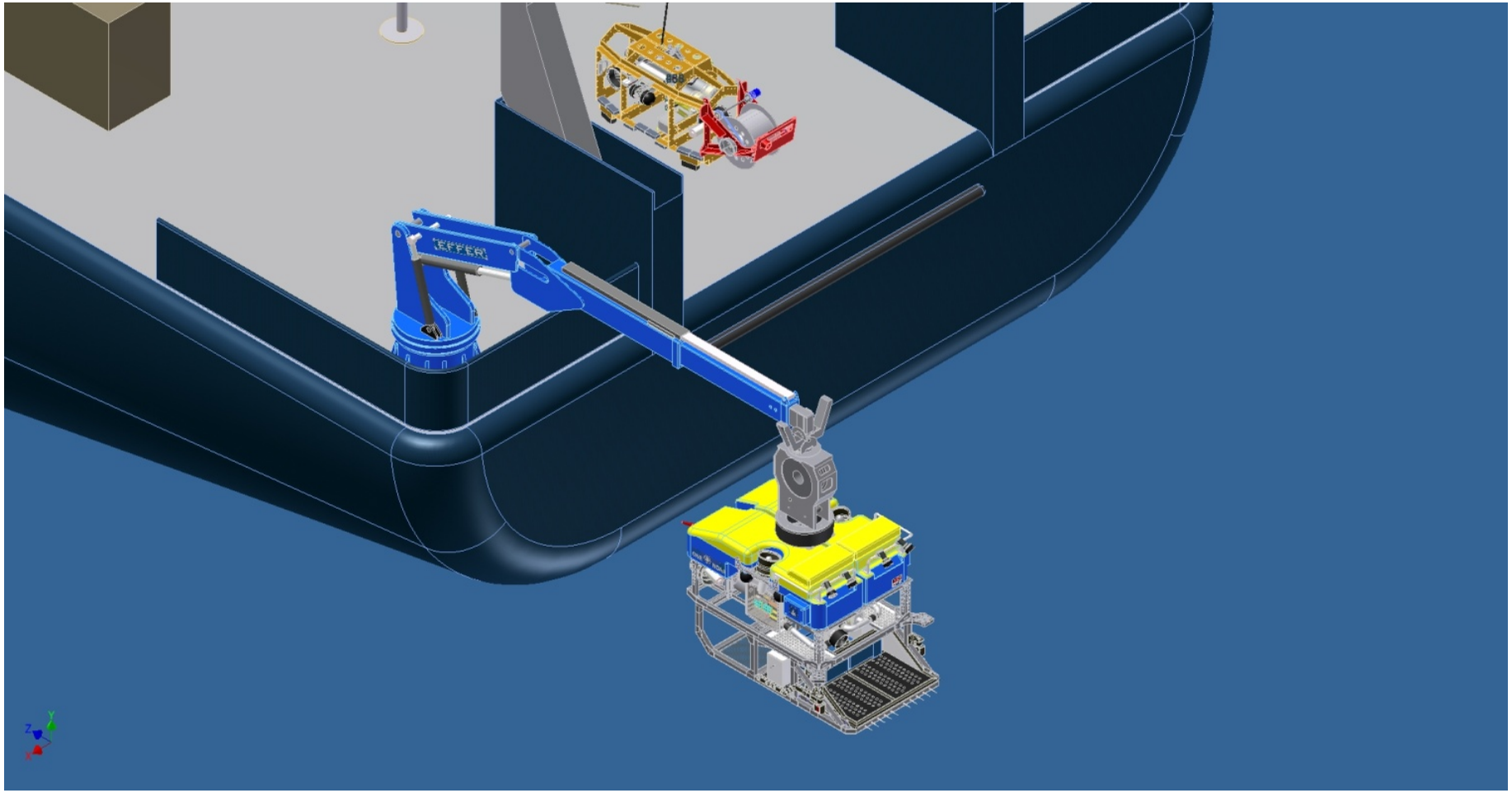
Stowed for Shipping



Ship Installation



Increased Reach



Personnel Requirements

Before LARs: 8 people on deck

- Crane/winch operator
- 4 x *Medea* tag lines and tether
- Tugger
- A-frame
- Deck Boss

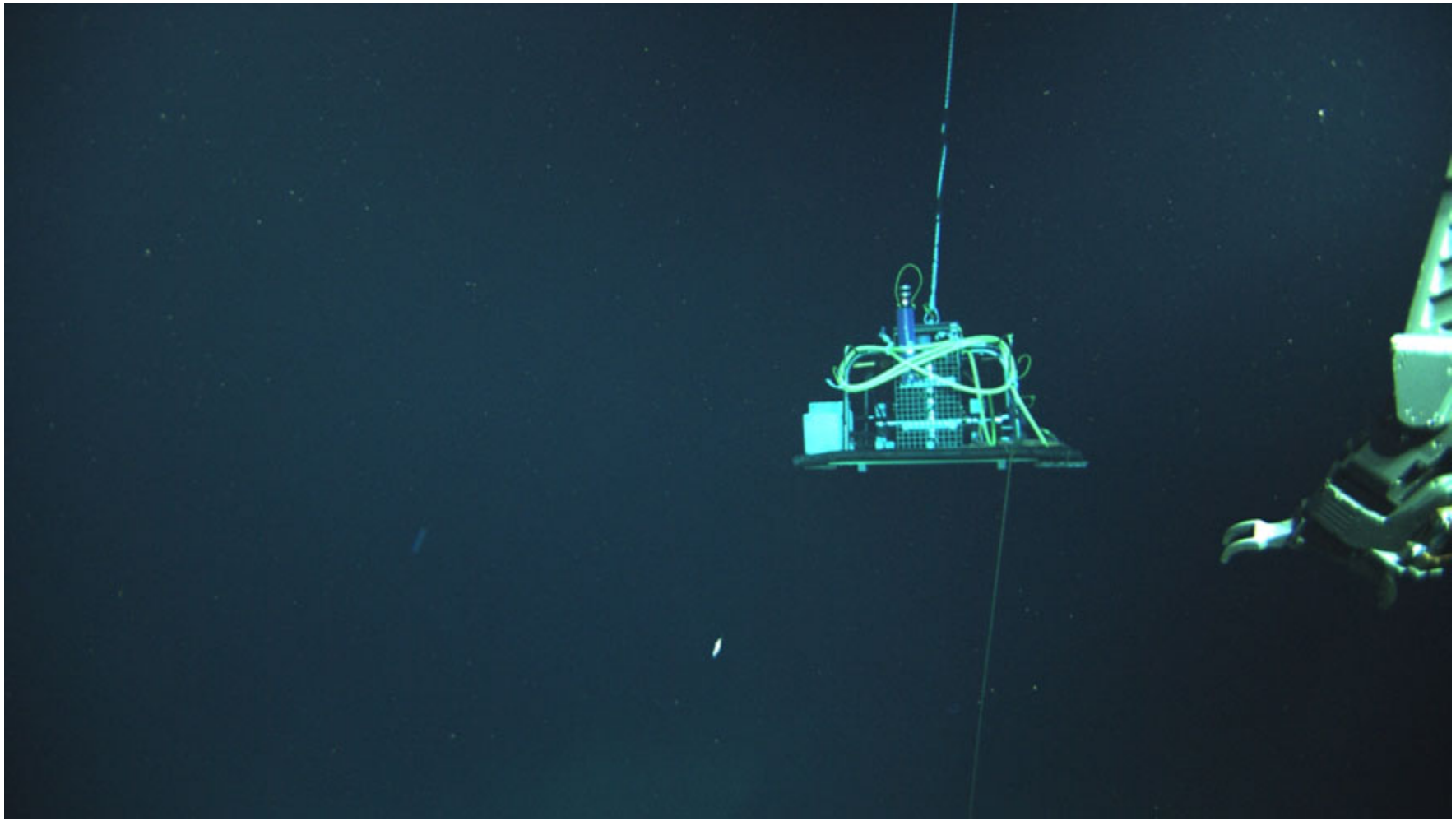
After LARs: 4 people on deck

- Tugger/floats/tether
- A frame/floats/tether
- Main winch/*Medea* winch/Crane
- Deck boss

Active Heave Compensation

- Working with McCartney Offshore to develop electric AHC to replace the current .681” FO cable winch systems, and separate AHC system to add to the retired *Jason* crane for package deployment
- Glosten performing ship dynamics analysis to provide data required for several class vessels
- Working with two alternate vendors
  - *Odim, Brooke Ocean*
- Expect PO by end of July 2011, delivery mid-2012
- OOI/IODP implications

ACO J-Box Deployment



ACO J-Box Deployed