HAWBOLDT INDUSTRIES

Designed. Built. Marine.

OVERHEAD CTD LARS

CTD
LAUNCH AND RECOVERY SYSTEM

HAWBOLDT MODEL – SPRL-4MT

The SPRL-4mT CTD LARS is used for overboard deployment and retrieval a CTD rosette in conjunction with a CTD winch. The CTD LARS is designed to be installed on a ceiling foundation of the vessel. The LARS extends outboard through vessel doors to achieve sufficient clearance from the side of the vessel. The boom is horizontal during cast/tow operations and luffs down toward the water to deploy and retrieve the package. The LARS is operated from a local control panel. During operation of the LARS the winch is set to an automatic mode which follows the LARS motion.

The LARS is hydraulically operated. It uses two parallel cylinders for luffing the boom, one cylinder for extending the boom, and a hydraulic motor coupled to an acme screw to drive the carriage inboard and outboard. The acme nut is mounted in a gimbal assembly which allows it to float and compensate for slight misalignment as the carriage traverses the I-beam tracks on low friction Nylatron wear pads. The wear pads are adjustable in order to compensate for wear over long periods of time. End of travel sensors halt the carriage when it has reached the end of travel. They also indicate when the LARS is fully inboard or outboard. A “boom-up” sensor indicates when the boom is fully horizontal.

The boom tip of the LARS is fitted with a metering sheave for payout/speed measurement and a flagging arm for cable exit angle measurement. The metering sheave includes a high-resolution stainless-steel encoder mounted on the sheave axle for accurate payout and speed measurement. The encoder is also used for the automatic control of the winch. The flagging arm includes a dual axis inclinometer to measure the exit angle of the cable as it exits the sheave. Rollers at the tip of the flagging arm are used to guide the arm as the cable angle changes.

A removable docking head is used for retrieval/deployment of the CTD rosette. The frame is a light-weight aluminum weldment which is electrically isolated for corrosion resistance. The design includes eight stainless steel springs which provide compliance between the rosette and the boom during retrieval and deployment. A soft D-rubber bumper is used as an interface between the rosette and the docking head.

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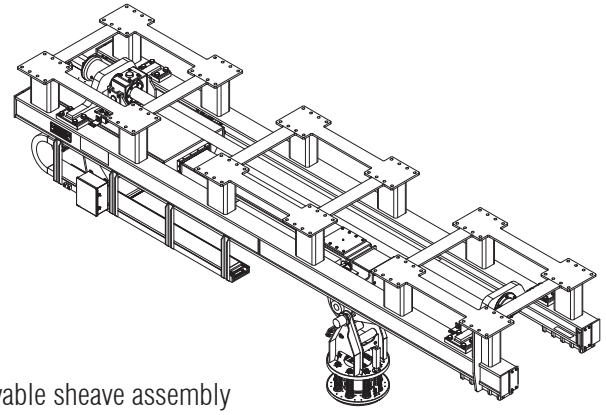
PERFORMANCE CAPABILITIES

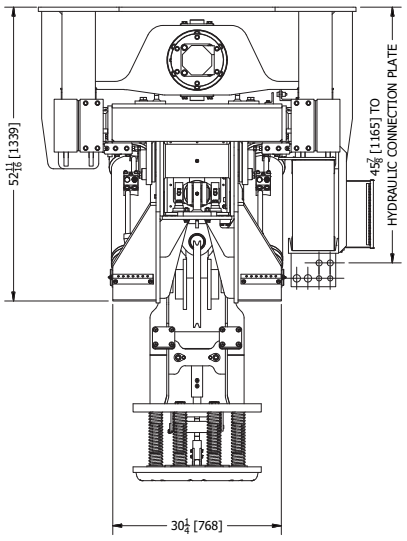


FEATURES

- ▷ All steel construction, designed & constructed according to DnV 2.22
- ▷ Hydraulic luffing & extension cylinders designed to marine standards
  - o Mounted counterbalance valves
  - o 316 stainless steel rods with hard chrome finish
  - o 316 stainless steel pins & bronze bushings
- ▷ Low friction, nylatron wear pads
- ▷ Removable docking head assembly
  - o Welded aluminum construction
  - o Stainless steel springs
  - o Plastic isolating bushings
  - o Rubber snubbing ring
- ▷ Flagging arm for cable angle measurement
  - o Welded aluminum construction
  - o Nylatron cable rollers with ball bearings
  - o Plastic isolating bushings
- ▷ Removable sheave assembly
  - o Large diameter nylatron sheave
  - o Integrated speed/payout sensor
  - o Replaceable sheave liner
- ▷ Acme screw carriage drive
  - o Split acme nut
  - o Gimbaled acme nut mount
  - o Low speed, high torque direct drive hydraulic motor
- ▷ Fully variable speed and direction controls with fine control at low speeds

SPRL-4MT PERFORMANCE SPECS

Outboard SWL	4,000 kg (all fixed positions with carriage fully outboard)
Inboard SWL	2,500 kg (all fixed positions inboard)
In-Motion SWL	2,500 kg (luffing, extending, inboard-outboard travel)
Side Load	1,000 kg (tow/cast position)
Maximum Reach	3.7 m to cable exit (tow/cast position)
Luff Cylinders	6.0” Bore, 2.75” Rod, 17.0” Stroke
Extension Cylinder	3.5” Bore, 2.75” Rod, 74.25” Stroke
Hydraulic Input	65 L/min @ 206 bar
Extension Speed	19 seconds extend/retract
Luff Speed	18 seconds extend/retract
Carriage Speed	60 seconds inboard/outboard



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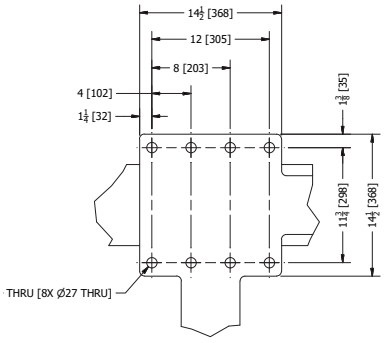
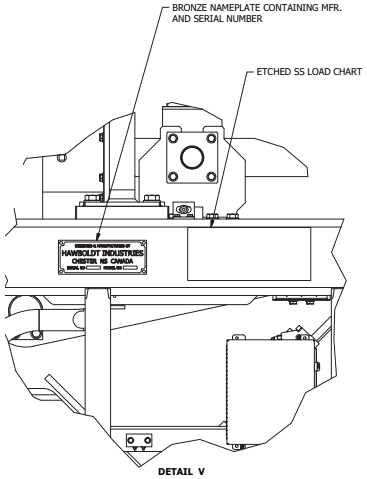
TECHNICALLY SPEAKING

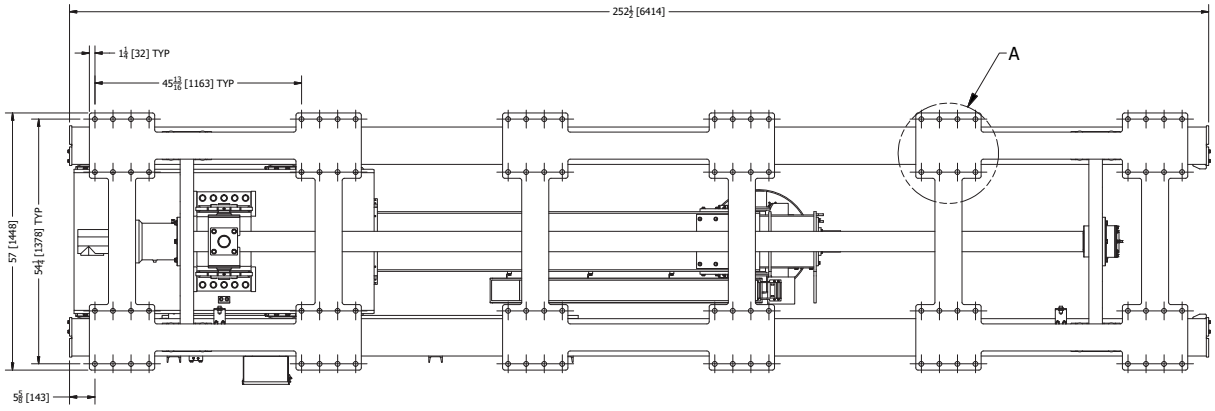


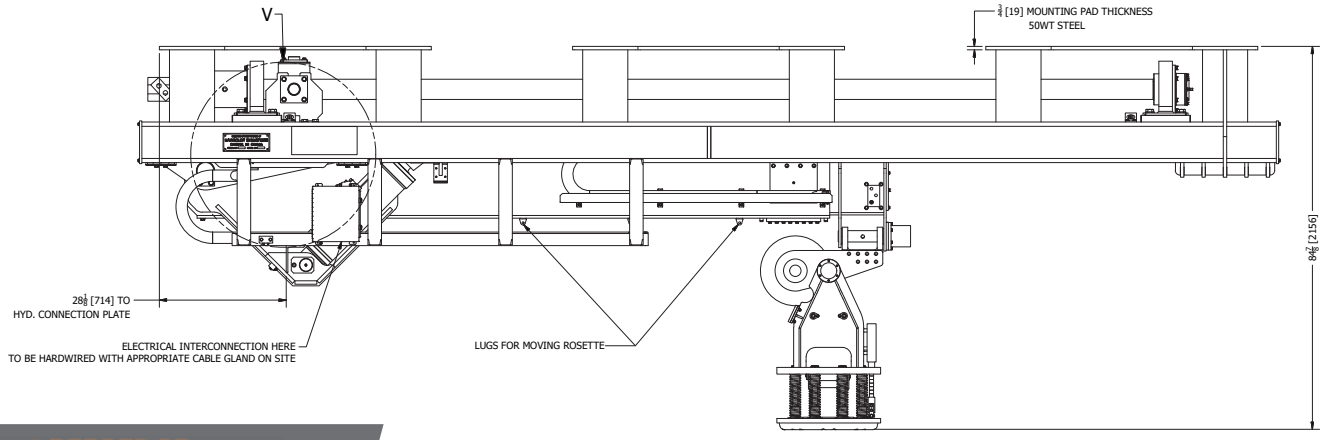
DETAIL A
SCALE 1/8

DECK INTERFACE - TYP 12 PLACES
QTY 96 X 1"-8 GR 8 FASTENERS
LUBRICATED AND TORQUED TO 616 Nm



DETAIL V
SCALE 1 / 8





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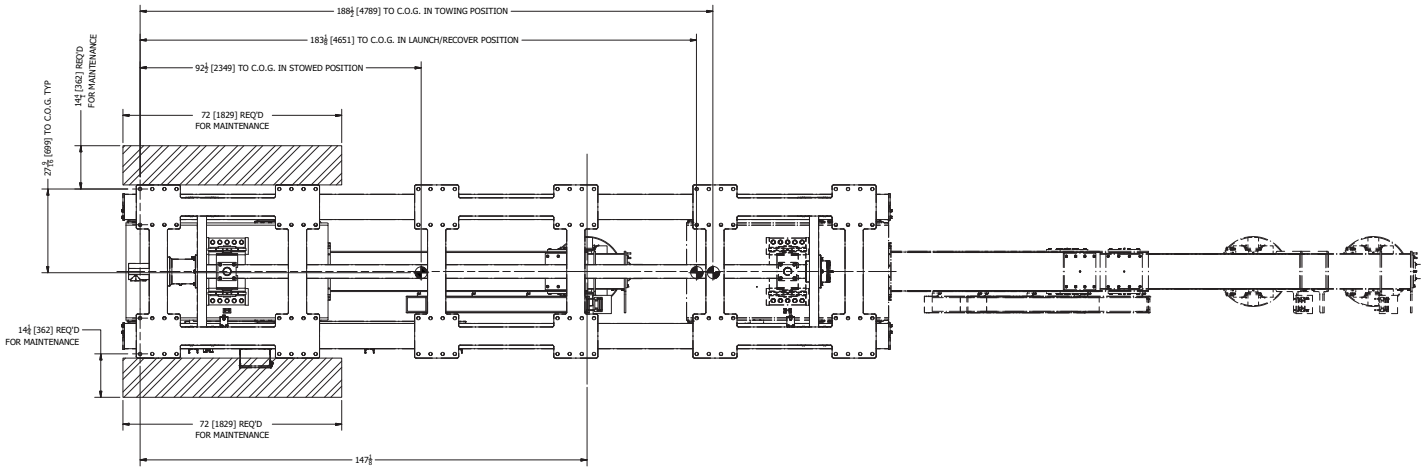
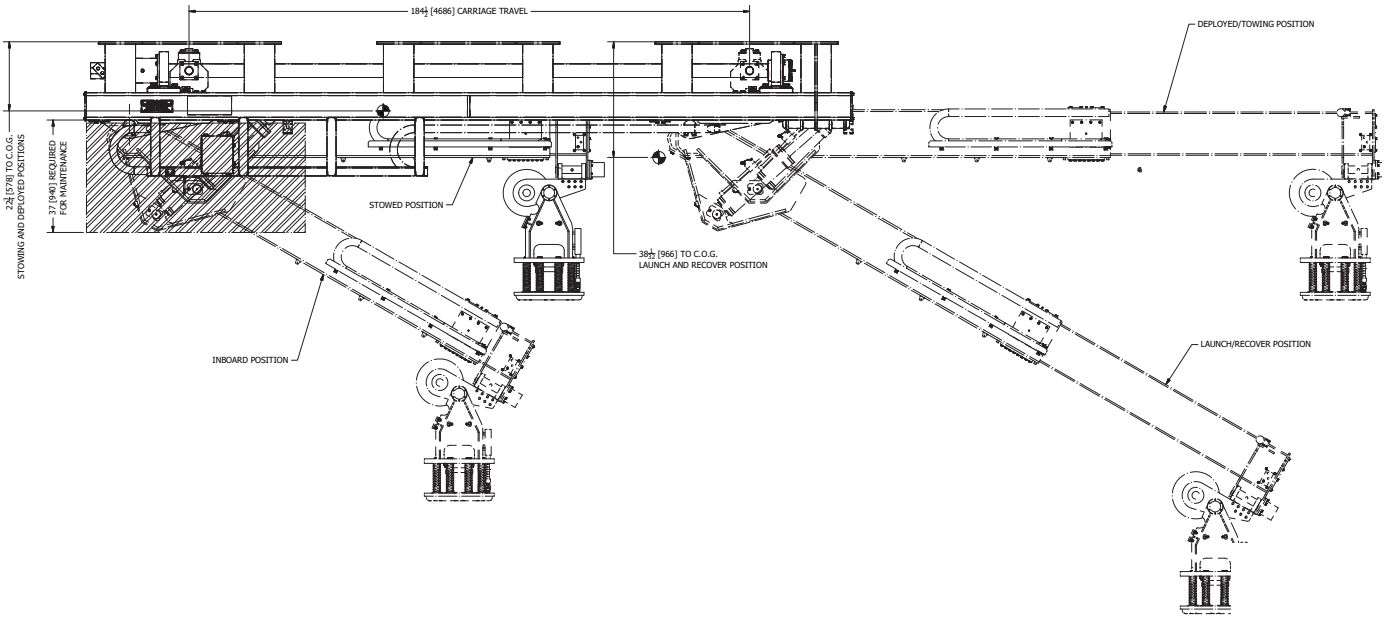
CTD LARS POSITIONAL REPRESENTATIONS





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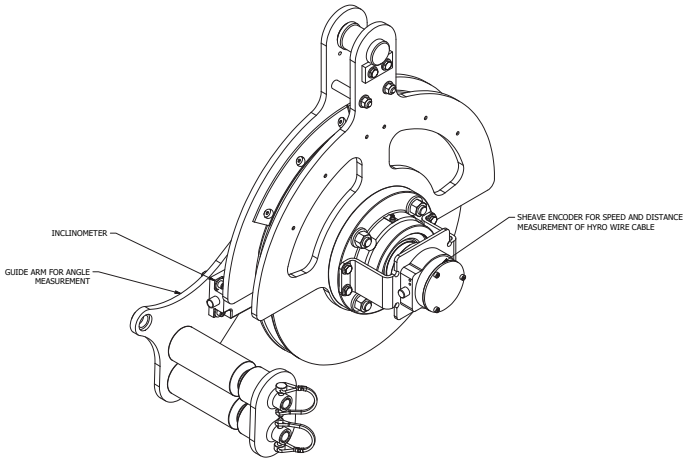
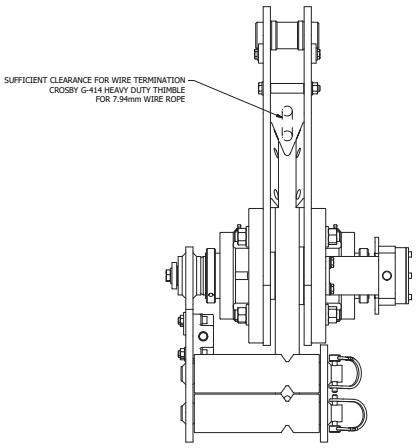
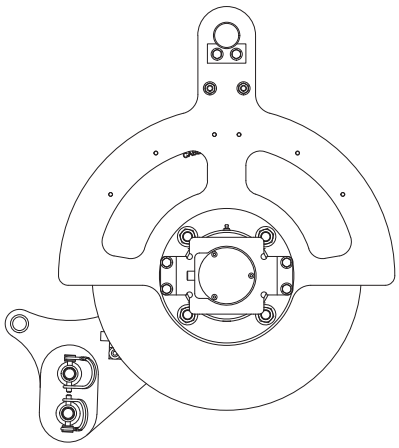
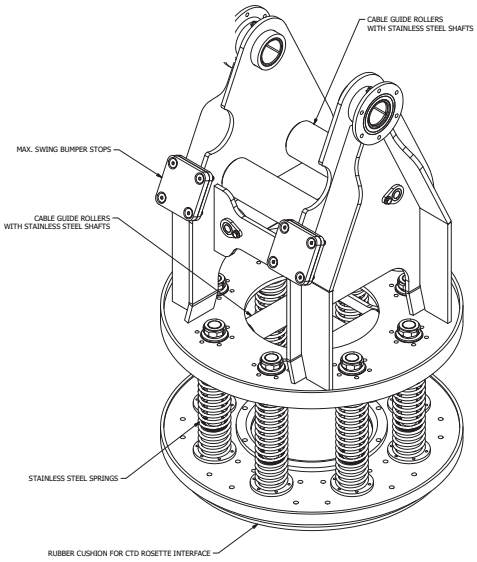
HANGING SHEAVE FOR HYDROWIRE APPLICATIONS

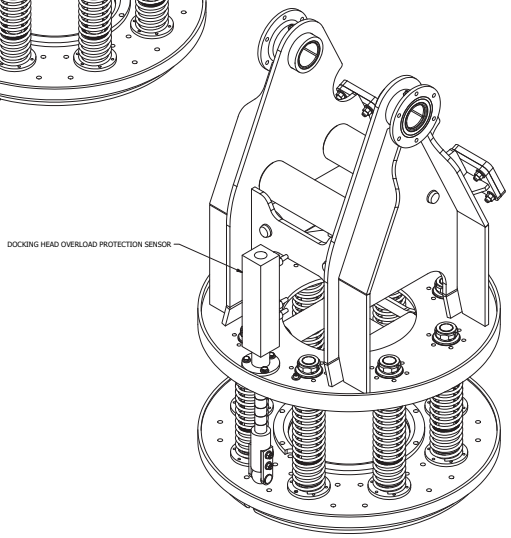






DOCKING HEAD FOR CTD APPLICATIONS





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