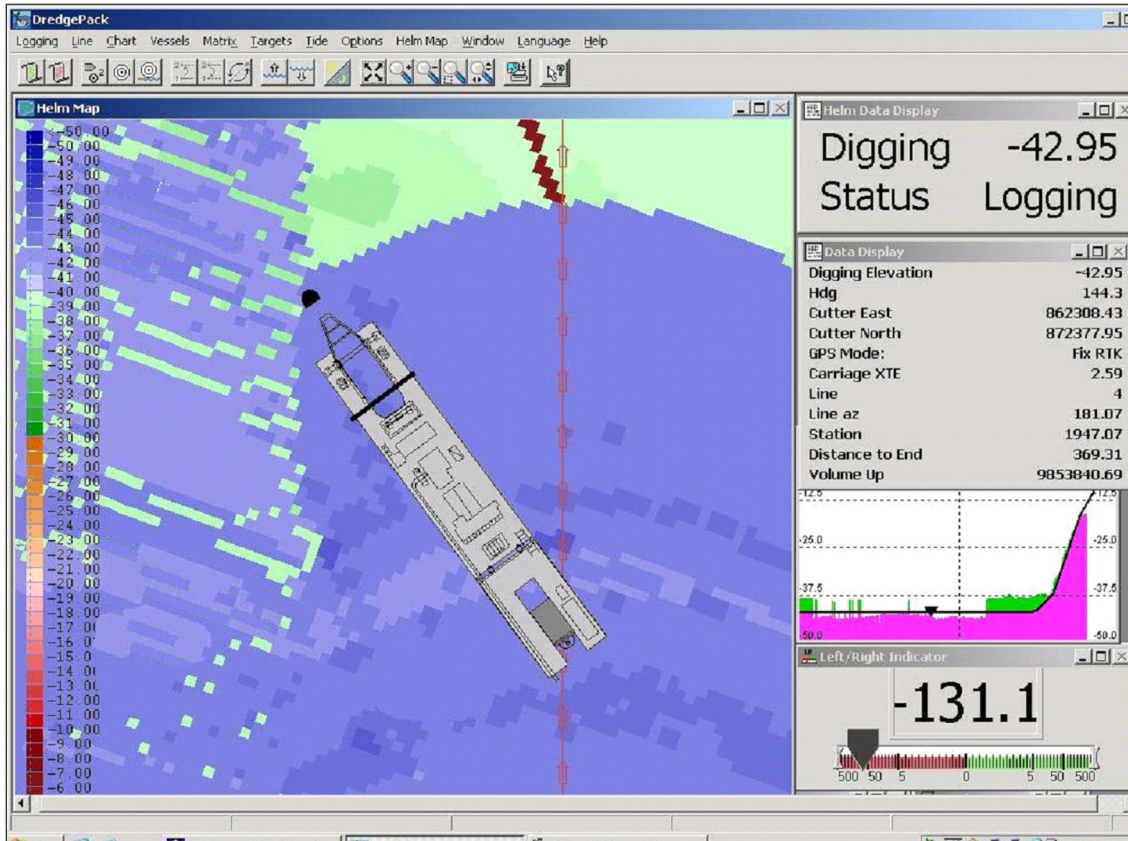




# DREDGEPACK® Cutter Suction System

By Lourdes Evans



This document describes all the components included in our complete cutter suction system including hardware, software and training.

## ***CUTTER SUCTION DREDGE SYSTEM OVERVIEW***

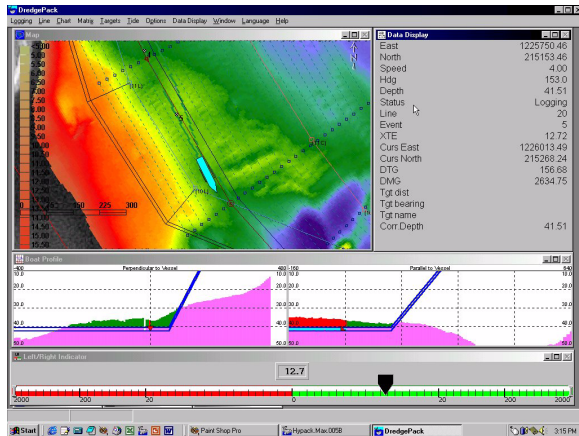
Our DREDGEPACK® cutter suction dredge positioning (CSDP) system consists of:

<b>DREDGEPACK®</b>	Real Time Dredge Positioning and digging software
<b>Dual Antenna DGPS:</b>	For dredge positioning and heading.
<b>Depth sensor:</b>	To calculate cutter depth
<b>PC System:</b>	PC for data collection and data display
<b>Tide Gauge:</b>	Real time tide correction
<b>Pitch and Roll sensor:</b>	For barge or dredge pitch and roll correction
<b>Rotation Sensor</b>	For rotation of swinging ladder

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## DREDGEPACK® REAL-TIME DREDGE MANAGEMENT SYSTEM



DREDGEPACK® enables you to monitor and track digging operations for hopper, cutter, and other dredge types. DREDGEPACK® monitors the position and depth of the cutting tool on the operator's screen in real-time and re-maps the bottom based on the depth and location of the digging tool. The color-coded depth information is displayed in plan and sectional views to show the “As Surveyed” and the “As Dredged” depths for millions of cells. This enables you to maximize digging efficiency while providing a record of digging operations.

DREDGEPACK® is not meant for hydrographic surveying. It is a stand-alone product and the only requirement is to feed it with an XYZ file for the dredging area. To produce such a file you need other tools to produce a hydrographic survey. HYPACK® Max is preferred, but you can use any other survey package.

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## DATA REQUIREMENTS IN DREDGEPACK®

In DREDGEPACK® there are three pieces of information we need to know:

- Dredge position
- Dredge heading
- Depth of the digging tool

## DREDGE POSITION AND HEADING : DIFFERENTIAL GPS

**Dredge position:** Most dredges now operate using a differential or RTK GPS receiver.



**Dredge heading:** There are several solutions available for vessel heading. We offer a Dual Antenna GPS. A DGPS Heading and Positioning Receiver is a modular, dual-antenna system for marine construction and hydrographic survey.

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## CUTTER DEPTH

For cutter suction dredges, the preferred method to calculate the depth of the cutting tool is to use an angle sensor (also called clinometer or inclinometer) installed on the ladder. Knowing the geometry of the ladder and the angle, we can calculate the depth of the cutter head. Most hopper dredges use either a pressure transducer installed on the ladder near the cutter head or a series of inclinometers.



## ROTATION SENSOR FOR SWINGING LADDER DREDGE

A rugged absolute encoder designed for heavy duty industrial is use.

### PITCH AND ROLL (OPTIONAL)

To correct for pitch and roll in the positioning calculation from GPS antenna to Suction Tube Inlet, a pitch/roll sensor must be installed. As the pitch/roll sensor is placed inside the vessel, it is not placed in a watertight housing.

## PC SYSTEM

The **MiniPC** is a computer designed for reliable operation in dirty, wet environments. The system is waterproof, sealed and ideal for operation in extreme conditions. All of our sealed systems use a unique and specialized heat pipe providing fanless cooling. A solid state drive provides a *no moving parts* solution. A wide variety of configurations and I/O options are available.

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## REAL-TIME WATER LEVELS

A tide gauge or RTK GPS is used for real-time water elevation.

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## *ONSITE INSPECTION*

On-site Inspection is recommended prior to ordering the system. It allows a HYPACK® specialist to inspect the dredge to ensure that all needed equipment is ordered. The technician can also provide guidelines for installing the equipment to ensure it will be done correctly. On-site inspections are usually 1 day.

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## *CALIBRATION AND TRAINING*

**The equipment must be installed and configured prior to the on-site calibration and training visit.** The customer will be responsible for the mechanical parts of the installation such as welding and placing of the sensors, etc. HYPACK® technicians will calibrate the system. Calibration should take 1 day. Once the calibration has been completed, training will take 3-5 days.

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## *MAINTENANCE PLAN*

First-time customers receive a free, 1-year subscription to our Maintenance Plan.

The HYPACK® Software Maintenance Program provides the following:

- The newest versions of DREDGEPACK® software automatically upon release, at no charge.
- Access to program updates, patches and technical documentation on our support site.
- Prompt, courteous and knowledgeable technical support via telephone, email, or fax. For any technical questions, contact [help@hypack.com](mailto:help@hypack.com).
- Reduced registration fee to our annual HYPACK® Training Conference.

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## *PRICING*

For pricing or for additional information please contact [sales@hypack.com](mailto:sales@hypack.com)