

Particular & Technical Specifications



18" (450mm) Dragflow Dredge Package Model DRG300/EL300HC *Preliminary Specifications*

(1) DRAGFLOW EL300HC PACKAGE composed of:

(1) DRAGFLOW DRH HULL COMPETE WITH HOIST GANTRY

Catamaran style pontoon

- Qty. (2) main steel assembled floaters – 11.5m (37.7') x 2m (6.56') x 1.8m (5.9') + Qty. (2) additional extension modules 2.5m (8.2') x 2m (6.56') x 1.8m (5.9') to fit Booster/VFD/Substation Arrangement
- Total Pontoon length: 14m (45.9')
- Handrails
- Skids under floaters
- Color: customer choice

Main features:

- Hulls are built in disassembled sections for easy container/road transportation.
- Planking gauge up to 5mm, calculated by our designer during the preliminary design phase.
(subject to changes during detailed calculation without any advice).
- Internal reinforcing structures and reinforced frames.
- Plates used for steel assembled floaters are made in F430B.
- Sandblast SA 2.5 – 2 layers of epoxy painting with additional layer of marine painting.
- Anti-corrosion protection by using anti-fouling varnish specific for crafts and cathode protection made of zinc-coated sacrificial anodes welded on the structure
- The floaters will be divided in the center line by a transversal bulkhead in order to grant the best floating and safety.
- Production will be carried out according to the standard R.I.N.A. specifications.
- Qty. (1) steel tripod for pulley and hoist support.

Qty. (1) DRAGFLOW ELECTRIC PUMP EL300HC

- Pumps with agitator to prevent solids from blocking the pump inlet and mixing them with the liquid, creating a slurry that can easily be handled by the pump.
- Solid concentration can vary from 5% to 70% by weight of pump capacity due to the kind of material to be pumped, the delivery distance, the working depth, static head and dredging operation. This parameter will be controlled by the control panel's automation function
- Note, you get the max production with sand and silt both well diluted while the efficiency decreases significantly with hard and plastic clay. According to the delivery distance, the static head and working depth, the pump changes the working point on the performance curve and as a consequence capacity and production (see performance curve).
- They are suitable to handle high abrasive materials thanks to low rotation speed which decreases wear and tear to the parts subjected to abrasion.

Technical specifications

- Voltage: 480 V
- Current: 380A
- Weight: 7.800 kg (17,196 lbs.)
- Cross Section (solid passage): ½"
- Impeller: 2 vanes closed / Diameter: 720mm (28.3")
- Delivery diameter: 450 mm (17.7")

Electric motor

- Phases: 3 / Poles: 8 / Frequency: 60Hz
- Motor output: 240 kW (326 HP)
- Speed: 894 R.P.M.
- Motor insulation: Class H

Materials

- Main body: Hardened Material - Spheroidal Cast Iron GS500
- Motor housing: Cast Iron G25
- Wearing parts: High Chrome
- Main Shaft: Austempering NiCrMo4 Steel

Seals

- Motor zone: Qty. (1) set of regreasable lip seals
- Impeller zone: Qty. (1) set of lip seals

c/w

Pump is supplied with automatic greasing system for the seals in order to reduce maintenance operations

DREDGE MOVEMENTS + PUMP LIFTING

Qty. (1) ELECTRIC DRIVEN HOIST FOR DREDGING UNIT

- Line pull: 4500 daN (10,116 lbs.) (at the 4th layer)
- Motor kW: 15 480V 60Hz
- Rope length: 50m (164 ft.) (Maximum 20m (65.6 ft.) working depth)
- Gear lubrication in oil bath
- Negative multi-disc brake with 120 daNm (1,062 lbf-in) of static torque
- Equipment according to UNI ISO 4301/1
- Includes Pulley arrangement with encoder pulley for working depth measurement

DREDGE MOVEMENT: Qty. (4) SWING WINCHES

- Qty. (4) electric driven winches for movement with the following features
- Driven by 3-phases electric motors 480V-60Hz
- 1,435 RPM
- 1.5kW (2 HP)
- IP55
- Capacity 210m (688 ft.)
- Control Box Upgrade to drive winches

Qty. (1) OPERATOR CABIN

- Full Operator cabin with air conditioning and operator seat for full control of the dredging operation.
- Space for 2 persons.
- Includes front and side window panels w doors on both sides
- Includes Control panel housing and full cabin setup

Qty. (1) COOLING RING SYSTEM

- Cooling system to be used in partially submersed applications.
- A steel frame with nozzles is placed on top of the pump and shoots a flow rate of 50m³/h at the pump motor for increased cooling.

- Includes:
 - Secondary pump to mount on pontoon. Will be pumping the surface water of the surface area.
 - Nozzle Frame to mount above pump
 - Suction and discharge Piping

Qty. (1) DENSITY METER – FLOW METER – PRESSURE METER – DEPTH METER PACKAGE

Depth Meter installed on the dredging pump

Densimeter

- Non-nuclear device
- Based on sonic measurements
- Up to 16bar pressure
- DN450

Flow Meter

- Electromagnetic flow sensor
- DN450

Pressure Meter

Qty. (1) DRAGFLOW ELECTRIC CONTROL PANEL & MONITORING-TRACKING PUMP PERFORMANCE PACKAGE + AUTONOMOUS DREDGING SET

- Dragflow Control Panel is designed to drive
 - Inverter Driving for Dredging Pump EL300HC
 - Reactor Starter Driving for Cooling Ring Centrifugal Horizontal Pump
 - (EXEL20 Side Excavators not included in this quote but can be added at a later stage)
 - DOL Driving for Winches and Hoisting Equipment
 - Dragflow Autonomous Dredging:
 - Through reading the density meter data the PLC will try to adjust initially the pump position acting on the hoist. If the loading cell is not allowing to go deeper (loading cell set can be adjusted by the operator) the PLC will act on the Inverter modifying the pump speed. PLC will receive continuously data from Density meter
 - Thermal protection
 - 480V +/- 10% -
 - Protection IP55
 - Phase Control
 - Voltmeter / Ammeter / Power ON
 - All signals coming from Density Meter, Flow Meter and Pressure Meter are collected and recorded by a storage device
- (All data can be monitored on a remote device (i.e. Tablet) supplied together with the control panel)

Qty. (3) FLEXIBLE RUBBER DREDGING PIPES - Length 11.6m (38 ft.)

- Flexible Discharge Hoses – Vulcanized Flanges Version:
- Dredging hose suitable to be used with sand, gravel and abrasive materials
- Diameter: 450 mm (17.7")
- Complete with screw and bolts
- Reinforcement: high strength synthetic cord divided by layers of natural rubber which help maintaining the section and the flexibility
- Cover: black, smooth, synthetic rubber, resistant to sea water, weathering and abrasion
- Working pressure 8 bar (116 PSI). Burst pressure 24 bar (348 PSI)
- Vulcanized rotating flanges PN10 (UNI 2277-67)
- Sections of Length 11,6m (38 ft.)

Qty. (1) DECK-MOUNTED BOOSTER STATION including:

- Georgia Iron Work LCC28 Dredge Pump
- 400 HP TEFC 1,800 RPM Inverter Duty electric motor

- Belt drive system with guarding
- 400 HP Toshiba HX7 Plus Pack 6-pulse Variable Frequency Drive (VFD) in a NEMA 3R enclosure
- 4,160 VAC/480 VAC deck-mounted transformer with 5 kV switch
- 18" Fixed steel deck suction and discharge piping
- Qty. (1) 18" x 15' 150 PSI Salem Republic dredge discharge hose from connection to floating pipeline

Qty. (1) RONAN LOW-LEVEL NUCLEAR DENSITOMETER including:

- RLL1 Source Holder
- 90 uCi Cesium-137
- Scintillation Detector
- Explosion-proof Detector Housing
- Microprocessor
- X96S Density Software
- 4-conductor inter connect cable
- Mounting bracket for 18-inch pipe

Note: *Specifications may change due to continual product improvement*