



The world's leader in portable dredges.

24" x 20" DredgeMasters Cutter Suction Dredge

Model HPC-20PR-M

Non portable welded hull construction

Manufactured 1975 for Port of New Orleans

Decommissioned 2010 due to larger replacement dredge

General

Main Hull Center Section	50' x 14' x 8'
Hull Side Sponsons (4)	50' x 10' x 8'
Ladder length	85'
Spuds	85' long x 24" diameter
Estimated Operating Weight	700,000 lb.

Main Power

The dredge pump is driven by two (2) Caterpillar model D-398 engines with a combined continuous rating of 1700 bhp @ 1200 RPM

Auxiliary Power

Caterpillar D-348 diesel engine with a intermittent rating of 425 bhp @ 1800 RPM

Main Dredge Pump

The pump is a DMI Model HDM 50-20, 24 inch suction, 20-inch discharge, with 4 vane impeller. The HydraMaster pump is driven by the main diesel engines through a specially designed, ruggedly constructed, totally enclosed oil lubricated speed reduction gear. The main diesel engines and drive are arranged so that either or both engines can drive the dredge pump.

HaulMaster Hauling and Hoisting Machinery

The PowerMaster series features a powerful, compact, four drum HaulMaster winch for swing and spud operation. This unique winch, engineered specifically for rugged, has a single line pull of 50,000 pounds at 60 feet per minute. The swing drum capacity is 375 feet of 1-inch cable and the spud drum capacity is 220 feet of one-inch cable. Each of four drums are fitted with modern air-tube, multi-disc clutches and cylinder operated band type brakes, all air controlled from the lever room. Anti-friction bearings are used throughout. The HaulMaster winch is driven by a single slow, speed, high torque, piston type hydraulic motor with full speed control accomplished by a variable volume, closed loop, hydraulic system. Power transmission is through fully





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enclosed, oil lubricated reduction gearing. There are no chain drives, belts or open gearing on HaulMaster winches.

The ladder is operated by a single, direct drive hydraulic winch. The ladder winch has a rating of 20,000 lbs. at 100 feet per minute, and is designed to carry 750 feet of 1 inch cable.

DynaMaster Cutterdrive Assembly

The unit is equipped with a DMI engineered DynaMaster underwater cutterhead drive system rated at 500 continuous horsepower. This powerful, modern system utilizes four low-speed, high torque, radial piston type hydraulic motors integrally mounted to, and driving through, a totally enclosed, heavy-duty reduction gearbox. The 67- 1/2 " one piece, heavy duty cutterhead is designed and manufactured by DMI specifically for rugged dredging duty. The cutterdrive operates in a variable speed range at constant torque up to approximately 30 RPM. The alloy steel shaft turns in heavy duty water lubricated cutless bearings for precision operation.

Dredging Ladder

The PowerMaster dredging ladder, 85 feet long, has been carefully designed by DMI. The ladder structure, featuring heavy structural steel construction designed to withstand various bending and stress loads imparted by the cutterhead and winch forces. A renewable, heavy wall, cast alloy steel suction bell-mouth is provided at the suction opening. The suction pipe is suspended from the ladder by U-bolts to permit rotation to equalize wear. DMI designed counterbalanced swing sheaves with large diameter, machine-grooved sheaves, bearings and heavy steel mounting brackets.

Main Hull Center Section

The main hull section, of welded steel construction, measures 50' long, 14' wide and has an 8' molded depth. The hull design utilizes a single, continuous, heavy longitudinal frame extending from the hinged type spud brackets to the ladder trunnions. All of the main machinery, including the diesel engines, main dredge pump, main gearing and winch, is mounted to this single frame, assuring proper transmission of all stresses and alignment of the various drive components. All structural work is in conformance with accepted marine standards.

Hull Side Sections

The standard overall side section dimensions for this model are 100' long by 10' wide by 8' molded depth. Each side section is divided into 6 water-tight compartments. Rubbing guards of half round or trapezoidal section not less than 3/8" thickness shall





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be installed the full length of the hull, around the sheer and at load waterline to provide protection from striking docks and other vessels.

Dredge Deck House

The deck house is designed to provide appropriate shelter for the machinery and security when the dredge is unattended. The removable louvered side panels provide adequate engine room ventilation without sacrificing security. The interior is roomy and is brightly lighted by fluorescent fixtures.

Control Room and Controlmaster Console

The control room is carefully planned to provide the operator all-around visibility, exceptional comfort and efficient one-man control. The ControlMaster console is constructed of heavy gage formed steel, fitted with simplified controls designed to assure maximum control and full utilization of all of the dredging machinery. The carefully arranged combination of control levers, gages, meters and warning devices minimize the margin for error, assuring maximum productivity per operating hour. Heating and air conditioning equipment are furnished for year-round operator comfort in the control room.

Hydraulic System

The system utilizes three separate circuits, one for the DynaMaster cutter drive, one for the HaulMaster winch unit and one for the ladder hoist. The hydraulic pumps are driven by the auxiliary diesel engine through totally enclosed gearing, eliminating belts, pulleys, adjusting plates, etc. All hydraulic lines are provided with filtration systems located at convenient points. Pressure relief valves in each circuit prevent damage due to overload or stalling. Only highest grade industrial hydraulic hose, valves and fittings are used.

Spuds, Frames and Rigging

Two heavy wall tubular steel spuds, 85' long, with cast steel points, positioning holes and pins are provided, each complete with heavy steel, self-centering, sliding side lift collars. The ladder A-frame, gallows frame and spud frame feature heavy duty box beam construction and are each pin connected for assembly and disassembly. All deck brackets for frame feet are mounted on heavy reinforced doublers plates. Two (2) heavy anchor booms, 85' long, shall be furnished with separate anchor handling hydraulic winches, capable of handling the 750 pound anchors furnished with the dredge.





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Miscellaneous Auxiliary Equipment

The following auxiliary equipment shall be furnished with the dredge:

1. Combination: fire and bilge pump
2. Air compressor and storage tank of sufficient capacity to handle starters, air controls and horn.
3. Auxiliary service water pump for supply water to the cutterhead bearing and main pump stuffing box.

Instruments:

The following additional instruments shall be furnished:

1. Vacuum and Discharge gages
2. Pressure gages for all hydraulic circuits
3. Service water and air pressure gages
4. Controls on cutterhead, winch speed and direction
5. Engine tachometer for each diesel engine
6. Electrical control panel located in the lever room, for all lights and Electrical convenience outlets aboard the dredge
7. An air operated horn (Kahlenberg Duplex or equal)
8. 12-inch incandescent searchlight (Carlisle-Finch or equal)
9. Power outlets and mounts for customer furnished communications equipment.

