

SPECIFICATIONS

DSC 750 SERIES SHARK DREDGE 14" x 12"

GENERAL

Overall length (with ladder)	83' 6"
Overall width (with side tanks)	18'-3"
Hull depth	5'
Mean draft (with fuel)	34"
Ladder Length (with Cutter)	43'
Spud length (each)	40'
Spud weight (each)	3,000 lb
Approximate dredge weight - dry	120,000 lb

OPERATING CONDITIONS

DIGGING DEPTH

Minimum	5'
Maximum	30'

MAXIMUM CUT OF DREDGE (SINGLE CUT)

@ Minimum digging depth	90'
@ Maximum digging depth	70'

DREDGE SPECIFICATIONS

HULL

Three (3) piece sectional hull,	
Side sections (2)	55' x 4'-10 1/2" x 5'
Center section (1)	35' x 8'-6" x 5'
O.A. dimensions	55' x 18'-3" x 5'

PRIME MOVER

Manufacturer:	Caterpillar
Model:	Caterpillar 3412 DITA
Rated horsepower:	750 HP @ 2100 RPM



CUTTER MODULE

Model:	DSC CD 3.75
Cutting force	7,944 lb
Operating torque	135,054 lb
Cutting force per linear inch	234 lb
Cutter diameter	34" ID
Shaft diameter	3-3/4"
Cutter rating	60 HP
Cutter speed variable	28 RPM

SWING WINCHES

Line pull	12,000 lb
Line speed (1st layer)	75 ft/min
Wire size	5/8"
Drum capacity	320'

LADDER WINCH

Line pull	8,000 lb
Line speed	116 ft/min
Wire size	9/16"

DREDGE PUMP

Suction	14"
Discharge	12"
Impeller diameter	36"
Material	Hi-chrome

SPUD WINCHES (2)

Line pull	5,000 lb
Line speed	100 ft/min
Wire size	9/16"



SPUDS

Type	Square
Size	16" x 16"
Length	40'
Wall thickness	5/16"

SERVICE WATER PUMP

Type	Peerless
Model	F21020A
Size	2 ½ x 2 – 10
Impeller Size	10 inches

ELECTRICAL SYSTEM

Battery (24 VDC)

CAPACITIES

Fuel: 1,800 gal Hydraulic : 300 gal

ADDITIONAL FEATURES

Electronic proportional controls with PLC

Operator's chair	Digging depth gage
Fire extinguishers (2) 10-pound ABC	Cabin lights & Cab heater
Lighted ring buoy	Bilge pump - electric
Handrails and kick rails	Replaceable point cutter
Guards	Dredge pump priming system
Early warning alarm and engine shutdown system	Dredge wash down system
	Hi-capacity service pump

Paint: hull – sand blast and coat with coal tar epoxy paint

Paint: superstructure and structural – sand blast and coat with primer and topcoat of paint.

OPTIONAL FEATURES

Air conditioner	Kicker spud
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BUILDING STANDARD GUIDELINES

Dredges manufactured by Dredging Supply Company, Inc. are designed and built using the following regulations as our guidelines:

Rules for Building and Classing Steel Vessels for Service on Rivers and Inland Coastal Waterways by the American Bureau of Shipping, 1980.

Manual of Steel Construction, Ninth Edition by the American Institute of Steel Construction.

Joint Industrial Council Hydraulic Standards T2.24.1 - 1990.

Structural Welding Code - Steel ANSI/ANS D1.1-96 by the American Welding Society and the American National Standards Institute.

Mining Safety and Health Act.

Occupational Safety and Health Act.

Surface Preparation Specifications Steel Structures Painting Council No. 91-08.

National Electrical Code Handbook, 1996.

NOTE: ABS or Coast Guard does not class the dredges since it is not required, but their building standards are strictly followed.

HYDRAULICS

The dredge hydraulic system consists of three open loop gear pump circuits that consist of the following:

Reservoir including washable suction strainer with magnets, replaceable return filter with dirt indicator, vented fill cap, level gage with probe thermometer, low fluid level switch, suction valves, and anti-wear hydraulic oil.

Cutterhead circuit consisting of a gear pump, a pressure gage, an electro-proportional directional control valve with integral relief valve, and gear motor.

Ladder and spud circuit consisting of a gear pump, a pressure gage, four electro-proportional directional control valves, with integral relief valve, a ladder winch, two spud winches, two relief valves to control free-fall.

Swing circuit consisting of a gear pump, a pressure gage, two electro-proportional directional control valves, with integral relief valve, two swing winches, and two pressure reducing valves and a pilot build up valve.

DREDGING SUPPLY COMPANY CUSTOM HYDRAULIC MANIFOLD SYSTEMS

Dredging Supply Company's custom hydraulic manifold systems represent the optimal in reliability and performance. These manifolds (part numbers HD-78, HD-478, HD-479, HD-556, HD-557) use a combination of industry proven



components to integrate entire hydraulic systems. Each manifold assembly consists of the aluminum manifold, a system relief valve, one or more electric proportional needle valves, one or more pressure compensated sensing elements, and an electrically controlled directional valve. All of these manifolds include an inlet port “P”, an outlet port “T”, a regulated port to extend the valve “REG”, an inlet pressure gage port “GP”, a regulated pressure gage port “RP”, and at least one forward and reverse work port “A” and “B”. Manifold blocks HD-78, HD-478, and HD-556 are single bank assemblies (one bi-directional function) and HD-479 and HD-557 are four bank assemblies. The four bank assemblies can also include an integral brake release valve that operates at the inlet pressure. Additional ports labeled “BRAKE” and “DRAIN” are used with the brake release valve. Models HD-78 and HD-478 can regulate up to 18 GPM at 3000 psi, models HD-479 and HD-556 can regulate up to 45 GPM at 3000 psi and HD-557 can regulate up to 90 GPM at 3000 psi.

The operation of the manifold is simple. Oil from a hydraulic pump enters into the inlet port and is metered across the needle valves. The pressure compensated sensing elements pulse from open to close to maintain a constant pressure drop across the needle valves. This insures that a constant flow of oil is available to the directional valves and regulated port regardless of the upstream or downstream oil pressure. Excess oil is diverted to the outlet port. The directional valves control which port, A or B, will get the high pressure oil and which port will exhaust to the outlet. The system relief valve protects against high loads or a valve malfunction. It should be noted that the manifold would not function properly unless both a speed and direction has been selected. Simply put, the needle valve operates like an automobile throttle controlling the speed and the directional valve operates like an automobile transmission controlling the direction of travel.

Additional hydraulic components may be sandwiched between the manifold and directional valves to enhance the performance of certain functions.

Since these manifold valves are of modular construction, troubleshooting is fast and easy. Most commonly, malfunctions occur not because of incorrect control input but component failure.

ELECTRICAL SPECIFICATION

The controls in the lever room, and lights in the enclosures, operate on 24VDC service that is supplied from the diesel engines’ electrical circuit. The PLC also operates on the same 24VDC source. The electric circuits have fuses and switches for the different circuits. The Caterpillar Diesel engine has a 24VDC start and control circuit. See the Caterpillar Operating and Maintenance Manual for more details about the engine electrical systems.

