

Qingzhou Yongli Mining And Dredging Machinery Co.;LTD



20 Inch Cutter Suction Dredger Specification



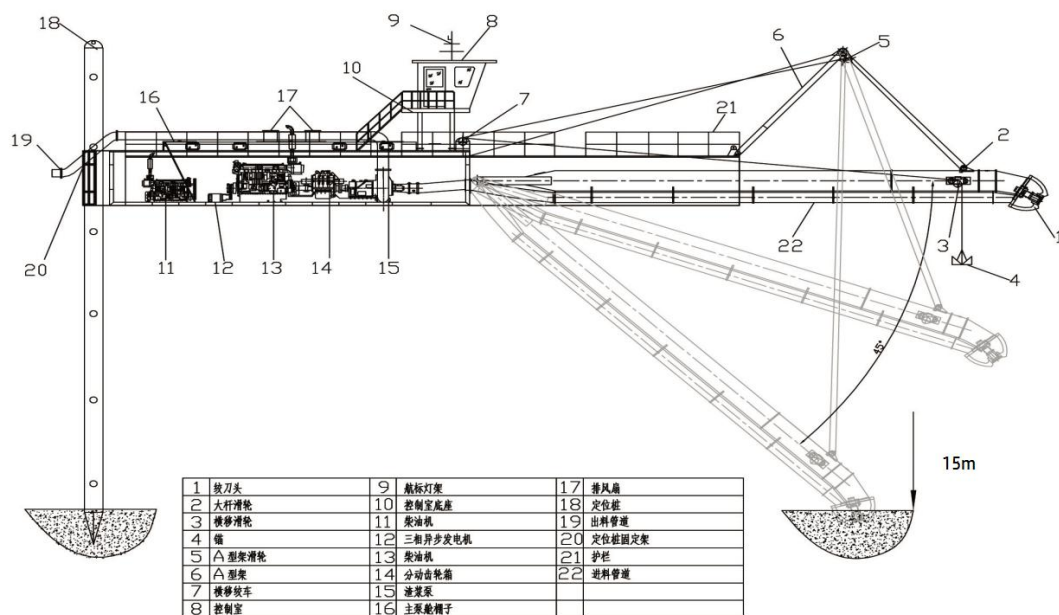
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1	Cutter Head	9	Signal Light Support	17	Ventilator
2	Pulley for Ladder	10	Control Cabin Base	18	Spud
3	Pulley for Swing	11	Auxiliary Diesel Engine	19	Discharge Pipe
4	Anchor	12	3 phase Electric Motor	20	Spud Holder
5	Pulley for A-shape Portal Frame	13	Main Diesel Engine	21	Rail
6	A-shape Portal Frame	14	Gearbox	22	Suction Pipe
7	Swing Winch	15	Slurry Pump		
8	Control Cabin	16	Main Pontoon Cover		

ARTICLE 1.Cutter suction dredger specification

Item Name	Descriptions /Specifications
Sand or solid capacity 产量	525-700 m³/h
Discharge distance 排距	Middle size sand discharge distance is 1500m.Fine sand discharge is 2000m.中沙时排距 1500m · 细沙时排距 2000m
Water flow 流量	3500m³/h
Slurry concentration, %泥浆浓度	15 -20%
Dredging depth at 45 degree 45 度角挖深	15 m
Min. Dredging width with 35° swinging angle each side 35 度角时摆宽	
a. At minimum dredging depth 在最小挖深时	Airline distance 直线距离 : 22.8m
b. At maximum dredging depth 在最大挖深时	Airline distance 直线距离 : 19.4m
Min. dredging depth 最小挖深	1.4 m
Inner Diameter of suction pipe 吸管内径	600 mm/24 inch
Inner Diameter of discharge pipe 排管内径	500 mm/20 inch
Average Draught 平均吃水	1.4 m
Maximum draught 最大吃水	1.6 m
Total weight 总重量	180 Ton
Water displacement at work 工作时排水量	235Ton
Total installed power 总设备功率	1193KW
Fuel tank capacity 油箱容积	65000L

1.Dredger pontoon dimensions 船仓参数

Item Name	Dimension
Length overall (including ladder and cutter head)总长 (包括绞臂和绞头)	37.0m

Breadth 宽	7.5 m
Depth 深	2.2m
Engine room pontoon length x width x depth 发动机仓参数	16.0x 3.5 x 2.2m
Side pontoon Length x width x depth 左右浮体参数	25x 2.0 x 2.2m
Cutter ladder length 绞臂长度	21

2.Main pontoon (engine pontoon)主仓室

Item Name	Dimension
Deck plate thickness 甲板厚度	10 mm
Bottom plate thickness 底板厚度	12 mm
Side plate thickness 侧板厚度	10 mm
Front plate thickness 前板厚度	18mm
Back plate thickness 后板厚度	18mm

3.Side pontoons 左右舱室

Item Name	Dimension
Deck plate thickness 甲板厚度	10mm
Bottom plate thickness 底板厚度	10 mm
Side plate thickness 侧板厚度	10mm
Front plate thickness 前板厚度	14mm
Back thickness 后板厚度	12mm

4.Marine diesel engine 主发动机

Item Name	Descriptions /Specifications
Make 制造商	Cummins engine 康明斯
Model 型号	KTA38-M2
Continuous Power 功率	895 KW (1217HP)
Speed 转速	1800r/min
No. of cylinders 缸数	12

Type 类型	V12-cylinder,4-stroke,Heater exchange
Fuel consumption 油耗	200g/kw.h
Lub. Oil Consumption 润滑油耗	1.0g/kw.h
Starting Method 启动方式	24V electric start
Average fuel consumption 平均油耗	136L/H
Cooling system 冷却方式	Water cooling

5.Auxiliary engine 副发动机

Item Name	Descriptions /Specifications
Make 制造商	Cummins engine 康明斯
Model 型号	NTA855-M
Power 功率	298KW(400HP)
RPM 转速	1800 r/min
No. of cylinders 缸数	6
Type 类型	Inline 6-cylinder, 4-stroke, Heater Exchange
Continuous Power 持续功率	298kw@ 1800rpm
Fuel consumption 油耗	200g/kw.h
Lub. Oil Consumption 润滑油耗	1.0g/kw.h
Starting Method 启动方式	24V electric start
Full power fuel consumption 满功率负荷时油耗	44L/H
Cooling system 冷却方式	Water cooling

6.Alternator:发电机

Item Name	Descriptions /Specifications
Alternator 交流发电机	
Make 制造商	Shandong Sunvim Electrical Machinery Co.,LTD 山东孚日电机有限公司
Model 型号	T2S225S-4
Power 功率	30kW 50Hz

7. Coupler 耦合器

Manufacturers 生产商	CNPC JICHAI POWER EQUIPMENT COMPANY 中国石油集团济柴动力总厂
Model 型号	YOTFJBX650-35Fsh
Input speed 输入速度	1800r/min
Transmission efficiency 传送效率	≥97%
Gear reduction ratio 速比	3.65 : 1
Clutch response sensitivity 离合器反应的灵敏度	8~20s
Working oil temperature 工作油温	≤110℃
Working oil pressure 工作油压	0.15~0.45MPa
Cooling ways 冷却方法	Water cooling 水冷
Control way 控制方法	Electric control(Engine room control or remote control) 电控
Hydraulic transmission oil 液压传送油	6# or 8# same type with used on the torque converter of wheel loader

8. Gear Box 分动齿轮箱

Make 制造商	Hangzhou Weihao, China
Model 型号	3P500
Ratio 比例	1.2:1
Cooling ways 冷却方式	Water cooling

9. Dredging pump 疏浚泵

Item Name	Descriptions /Specifications
Make 制造商	Shijiazhuang Industrial Pump , China
Inlet diameter 进口直径	600 mm/24 inch
Outlet diameter 出口直径	450mm/18 inch
Dredge pump water flow (cubic meter per hour) 泥浆泵	3500 cbm/hr

水流量	
Sand or solid capacity	525-700M3/H
Performance curve 性能曲线	
Head 扬程	54 m
Speed 转速	485RPM
Pump shaft power 泵轴功率	770KW
Blade quantity 叶片数量	5
Material 材质	Cr26
Hardness of pump casing 泵套硬度	≥58 Rockwell
Hardness of Impeller 叶轮硬度	≥58 Rockwell
Max. dia. Granule 最大颗粒直径	125 mm

10. Hydraulic system 液压系统

Item Name	Descriptions /Specifications
Hydraulic valve 液压阀	
Make, Model 制造商型号	Technical Imported from Germany, assembled in China. 德国技术 中国组装
Controlling system 操作系统	Made by Yongli, China
Hydraulic pump 液压泵	
Make, Model 制造商 型号	Xianju Yongling Hydraulic Machinery Co.,Ltd 仙居永灵液压机械有限公司
Model	4535VQ
Quantity 数量	2 sets double pump 台双联泵
Hydraulic pressure 压力	16 MPa

11. Winches 绞车

Item Name	Descriptions /Specifications
a. Ladder lifting winch 提升绞车	

Diameter of drum 绞桶直径	456mm
Hydraulic motor make, model 液压机制造商 型号	Ningbo Xinhong Hydraulic Co.,Ltd . 宁波新宏液压有限公司
Model 型号	XHM16ZC6
Line pull -second layer	100KN
Motor displacement 液压马达流量	12468.5ml/rev
Wire rope speed 钢丝绳缠绕速度	0-18 m/min
Working pressure 压力	16 Mpa
Dia. Of wire rope,钢丝绳直径	Dia 22 mm
Wire rope length 钢丝绳长度	130m
b. Swing winch 横移绞车	
Diameter of drum 绞桶直径	456 mm
Hydraulic motor make, model 液压机制造商	Ningbo Xinhong Hydraulic Co.,Ltd . 宁波新宏液压有限公司
Model 型号	XHM16Z6
Line pull -second layer	100KN
Wire rope speed 钢丝缠绕速度	0-20 m/min
Motor displacement 液压马达流量	12468.50 ml/rev
Working pressure 压力	16 Mpa
Dia. Of wire rope, length 钢丝绳直径	Dia 20mm,
Steel cable length 钢丝绳长度	length 120 m

12. Cutter head 绞刀头

Item Name	Descriptions /Specifications
Make 制造商	Yongli, China.
Diameter 直径	1800 mm
Cutter shaft power 功率	115 KW
RPM 转速	0-33

Motor 马达	
Make 制造商	Ningbo Xinhong Hydraulic Co.,Ltd .
Model 型号	XHS6C6
Quantity 数量	1
Working pressure 压力	16 Mpa
Cutter teeth quantity 刀齿数量	35
Cutter teeth material 刀齿材质	K10.40Cr
Cutter blade quantity 刀片数量	5
Cutter blade material 刀片材质	ZG16SiMn

13.Genset 发电机组

Item Name	Descriptions /Specifications
Engine Make 柴油机制造商	Cummins 康明斯
Model 型号	4BT3.9-G1
Power 功率	36 KW
Cooling system 冷却方式	Water cooling
Average fuel consumption 平均油耗	5.6L
Generator Make 发电机制造商	Stamford 斯坦福
Model 型号	SVH224-30
Power 功率	30 KW

14. Deck crane 甲板吊

Item Name	Descriptions /Specifications
Capacity 数量	50 KN
Lift diameter /outreach 回转半径	4 m

15. Spud 定位桩

Item Name	Descriptions /Specifications
Spud length 长度	19m
Spud diameter 直径	610 mm
Spud wall thickness 壁厚	25mm
Quantity 数量	2PCS
Spud weight 重量	12t

16 · Hydraulic cylinder 液压油缸

Item Name	Parameters
Quantity 数量	2sets
Stroke travel distance 冲程	2.5m
Diameter of cylinder 油缸直径	160mm
Working pressure 工作压力	16mpa

17. Anchor 锚

Item Name	Descriptions /Specifications
Type 类型	Lips type.犁型
Anchor weight 重量	700kg
Anchor quantity 数量	2

18. Electrical installation 电池

Item Name	Descriptions /Specifications
Voltage 电压	24V DC
Battery capacity 电池功率	195 Ah
Battery quantity 电池数量	8

19. Painting and Cathodic Protection 喷漆和阴极保护

Item	Parameters
Characterization	Surface preparation before painting: All steel surfaces will be prepared to near white, blasted to SA 2½ standard. After sand/grit/wet blasting, surfaces will be brushed with clean brushes, blown off with compressed air or cleaned by vacuum to remove all traces of blast products and dust. The first coat of paint will be applied as soon as possible after the surfaces have been prepared. Succeeding coats will be applied before contamination of the under surface occurs. Cleaning and painting will be so scheduled that detrimental amounts of dust or other contaminants do not fall on wet, newly painted surfaces. Painting Schedule 1. BOTTOM & BOOT TOP AREA (COALTAR EPOXY SYSTEM): a) Anti Corrosive System i) Epoxy Primer- 1x100 Microns ii) Coaltar Epoxy-2x75 Microns iii) Modified Coaltar Epoxy (Sealer Coat)- 2x75 Micron b) Antifouling System i) Self Polishing Antifouling Paint (for 24 months protection)- 2x50 Microns 2. TOP SIDES (RECOATABLE EPOXY SYSTEM) a) Epoxy Primer- 1x100 Microns b) Recoatable Epoxy Undercoat- 1x100 Microns c) Recoatable Epoxy Finish- 1x100 Microns 3. DECK (RECOATABLE EPOXY SYSTEM) a) Epoxy Primer-1x50 Microns b) Recoatable Epoxy Undercoat- 1x100 Microns c) Recoatable Polyurethane/ Epoxy Finish- 1x100 Microns 4. BILGES/BALLAST/TANKS (COALTAR EPOXY SYSTEM) a) Epoxy Primer- 1x50 Microns b) Coaltar Epoxy (two different shades)- 2x100 Microns 5. SUPERSTRUCTURE-EXTERIOR, INTERIOR & DECK FITTINGS (RECOATABLE EPOXY SYSTEM) a) Epoxy Primer - 1x50 Microns b) Recoatable Epoxy Undercoat- 1x100 Microns c) Recoatable Epoxy Finish- 1x50 Microns 6. MACHINERY SPACE (EPOXY SYSTEM) a) Below Floor Plates i) Epoxy Primer- 1x50 Microns ii) Recoatable Epoxy Coating- 1x100 Microns b) Above Floor Plates i) Epoxy Primer- 1x50 Microns ii) Recoatable Epoxy Undercoat- 1x100 Microns iii) Recoatable Epoxy Finish- 1x50 Microns
Zinc anode in the hull 船体锌块	30 sets
Zinc anode in the ladder 桥架锌块	8 sets

20. Firefighting appliances and life savings appliances 灭火和救生设备

Item Name	Description
Type and quantity of fire extinguisher 灭火器类型 数量	Portable powder type fire extinguishers, 6-7 kg- 2 nos 便携式干粉灭火器 2 个 Co ₂ fire extinguishers, 6-7 kg- 2 nos 二氧化碳灭 火器 2 个
Description of life savings appliances 救生设施	
Life jacket 救生衣	6 nos
Life buoy, solid 救生圈	6nos
First aid kit 急救设备	1 kit

21. Operating cabin 操作室

Item	Specification
Manufacturers	QINGZHOU YONGLI MINING AND DREDGING MACHINERY CO .LTD
Characterization 描述	One single control cabin is provided on the front side of the main pontoon with glass windows overall which allow the operator to have an overview on all components on the deck and on the ladder. One door on each side of cabin. Two operation tables installed, all necessary instruments for operating the dredger, monitoring the dredge operations warnings are equipped on the operation table. Adjustable leather chair for dredger master 可调节的椅子 A/C sockets equipped , 空调插座 1.5HP Air conditioner 空调一台1.5HP Monitoring system : Underwater camera, main engine room camera and whole dredger camera .水下摄像头 .

22.Control System 控制系统

Item	Specification	Note
Manufacturers	SIEMENS 西门子	

Control System	SIEMENS PLC SYSTEM 西门子 PLC 系统
Characterization	In the control cabin dredge control console is provided to accommodate the following equipment and functions: Power supply 供电 Winch operating joysticks 绞车操作 Dredge pump clutch in / clutch out 挖泥泵耦合器开、关 Elector switch velocity side winches “normal/high” Selector switch (cutter speed drive)选择绞车速度 Alarm units including, lights, buzz, tests lamps, accept buttons 警笛 含灯 · 警笛 Dredge pump diesel engine speed 挖泥泵柴油机速度 Emergency stop dredge pump engines 应急停挖泥泵柴油机 Emergency stop auxiliary engine 应急停辅机 Spud hoisting cylinders 定位桩油钢 Free fall spuds 定位桩自由下落 Emergency stop hydraulic 液压应急停 Switch 'on/off' for head light 顶灯开关 Switches 'on/off' deck lighting 甲板灯开关 Hydraulic oil pressure measuring instruments 液压油压力表 2 control valves for hydraulic 液压控制阀 Pressure indicator dredge pump 挖泥泵压力指示表 Pressure indicator gland water pump 水泵压力指示表
Assembly	Electronic control units, electronic components, electronic switch etc.
Amount	Whole set

23. Bollard 系栏桩

Item	Parameters	
Manufacturers 生产商	Qingzhou yongli mining and dredging machinery Co., Ltd	
Bollard number 数量	6 sets 对	Each side 3 sets
Mooring wire length 绳子长	80m (each)	2 sets

24. Misc. accessories to be supplied for instant dredger operation 安装船需要的工具

a) Spud slings-	2 sets
b) Spud shaft/pin-	2 nos
c) Mooring ropes-	2 sets
d) Gantry wires-	2 sets
e) Anchor (for floating pipe line),	350 kg- 3 nos , 300 kg - 2 nos

f) Anchor buoys -	8 nos
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25. Other Installations and accessories

1. Automatic Vacuum relief valve: A by pass suction valve to be mounted underwater in the suction line to avoid too high vacuum. The valve is automatically driven through a vacuum signal, but can also be manually controlled from main control desk. 排气阀	Have
2. Non return Valve: Near the end of the discharge pipe an automatic non-return valve will be fitted to prevent the water from the discharge pipe to run back into the dredge pump. The valve can be disassembled for internal inspection. 止回阀	Have
3. Dredge pump intake Inspection window: At the entry of the dredge pump suction pipe a dissassembled type window should be provided for the inspection of suction part of dredge pump. 检验石头的口	Have
4. Depth Indicator: Digital depth indicator to be provided. 深度计	Have
5. Lights: In addition to normal lights for operation of the dredger, for night time operation sufficient flood lights are to be provided in suitable locations. 反光灯	Have
6. Ventilation for the Engine room: Air Blowers and Exhaust fans are to be provided of adequate capacity and number for proper ventilation of engine room considering high temperature and humidity in Bangladesh. 换气扇	Have
7. Tanks: Fuel oil tanks, dirty oil tank, water ballast tanks, fresh water tank and dry tanks are to be provided. Necessary pipelines, i.e. filling, suction, sounding and air escape pipes and also access manholes will be provided for these tanks. 油箱等	Have
8. Store: Two store with rack & wooden floor shall be at Portside and staboard side under main deck. 储存室	Have
9. Signal Mast: A steel mast will be erected on the operating cabin top with requisite signal lamps, search lights etc. complete for navigation. The mast should be collapsible. 信号灯	Have
10. Bollard: 6 Nos. double bollard shall be provided on the side pontoon of dredger for towing the dredger. 系栏桩	Have
11. Whistle/Horns: On the operating cabin top a horn will be fitted feed from A/C power system. 鸣笛	Have
12. Sanitary oulfit: A steel frame toilet with a aluminium panel door to be fitted at the aft side of the dredger deck 洗手间	Have 有

26. TOOLS

1. Spud shaft/pin - 4 pcs 定位销 4 件

2. Circuit breaker of required capacity - 4 pcs 断路器 4 个
3. Tools with tool box for main engine maintenance- 1 set 主柴油机工具和工具箱 一套
4. Tools with tool box for auxiliary engine maintenance- 1 set 辅机带工具和工具箱一套
5. Tools with tool box for emergency generator engine maintenance- 1 set 应急机组工具和工具箱一套
6. Open end spanner, from 8mm to 40mm - 1 set (min 16 pcs)开口板手 从 8MM 到 30MM (至少 16 件)
7. Box spanner from, 8mm to 40mm - 1 set (min 16 pcs)套筒板手从 8MM 到 30MM 至少 16 件
8. Adjustable wrench, 250mm, 300mm, 350mm, 400mm- 4 nos 活板手 250MM,300MM,350MM 共 4 个
9. Pipe wrench, 300mm & 450 mm- 2 nos 管钳 300MM,450MM 2 件
10. Hammer, 10 lb - 1 nos 锤子 : 10 磅 1 件
11. Pliers, sharp nose pliers: each one set 老虎钳、尖嘴钳 各 1 件
12. Flat screw driver, 200mm, 250 mm, 300 mm - 3 nos 平头螺丝刀 200MM,250MM,300MM 共三件
13. Star screw driver, 200mm, 250 mm, 300 mm - 3 nos 十字螺丝刀 200MM,250MM,300MM 共三件
14. Digital voltage detection screw driver- 1no 数显电笔 1 把
15. Water bucket, 15 litres capacity - 2 nos 水桶 15 升 1 个
16. Pump Packing:1set 泵盘根 1 套
17. Electronic multimeter - 1 no 万用表 1 件
18. Torch light - 1 nos 手电筒 1 个
19. Hack Saw frame - 1 nos 手锯 1 个
20. Hack Saw blade- 20 nos 锯条 20 支
21. Measuring steel tape, 3 m and 5m- 2 nos 钢卷尺 3M 和 5M 各一把
22. Hydraulic Jack 10 ton -1 nos 液压千斤顶 10 吨一件
23. Crowbar- 2 nos 撬棍 2 支
24. Grease gun - 2 nos 黄油枪 1 把
25. Grease nipple/cup - 12 nos 黄油嘴 12 个
26. Tinman's scissors, 250 mm,1 no each 剪刀 250MM 平的一把
27. Steel wire ropes clips/clamp of required size- 50 nos 钢丝绳卡 30 个
28. Anchor D shackle of required size- 20 nos 锚 D 型卡 12 个
29. MS Delivery reducing nozzle, dia 500 mm to 350 mm- 1 no 排管缩口 500MM 变 350MM 1 件
30. Wooden hammer- 2 nos 木质锤子 2 个
31. Allen keys - 1 set (min 16 pcs)内六角板手
32. Double end ring spanner, from 8mm to 40mm - 1 set (min 16 pcs)梅花板手从 8MM 到 30MM 一套 (至少 16 件)
33. Empty tool box- 1 no 空的工具箱 一个
34.Sealant one box 密封胶 1 箱
35.Glue gun 1 pc 胶枪 1 把
36.Asbestos pad 2m2 石棉垫 2 m²
37.φ120*3.0 O seal 10 pcs 型圈 10 个
38.φ90*4.0 O seal 10 pcs 型圈 10 个

39.φ85*4.0 O seal 10 pcs 型圈 10 个
40. Oil heads every kind 2 pcs 各种油头 各 2 个
41. Washers every kind 2 pcs 组合垫 各 2 个
42. Engine discharge pipe keep warm material 发动机排管保温
43.Socket 1 pc 插排 1 个
44.Fuse 1 box .保险丝 1 盒