

**TOP NOTCH  
DEEP-SEA  
EQUIPMENT**



## **CLM200 SHIP HULL CLEANING ROV**

Technical Specifications

# Technical Specifications

## 1. Technical Parameters

### 1.1 Robot System



Fig.1:CLM200 Side View / Front View

| Robot System        |                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------|
| Basic parameter     |                                                                                                                            |
| Total Power         | 65kW                                                                                                                       |
| Dimensions (L×W×H)  | 2250mm x 1380mm x 610mm                                                                                                    |
| Weight              | 850kg                                                                                                                      |
| Payload             | 80kg                                                                                                                       |
| Depth rating        | 100m                                                                                                                       |
| Working speed       | 0-25m/min                                                                                                                  |
| Cleaning efficiency | 1800-2000m <sup>2</sup> /h                                                                                                 |
| Walking driven      | Track, Adsorption: Permanent Magnets + Vertical Thrusters                                                                  |
| Cleaning System     |                                                                                                                            |
| Cleaning mechanism  | Equipped with six sets of hydraulic brush discs at the front and rear. Each brush disc has a maximum diameter of 480 mm, a |

|                                                  |                                                                                                                                                                                           |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  | rotational speed of 500 r/min, and a rated torque of 60 N·m.                                                                                                                              |
| <b>Permanent Magnetic Adsorption System</b>      |                                                                                                                                                                                           |
| Permanent magnetic adsorption mechanism          | 12 sets of permanent magnetic adsorption mechanisms, with a single-set adsorption force of 30 kg.                                                                                         |
| Emergency release mechanism                      | The permanent magnetic adsorption mechanism is equipped with an emergency release system.                                                                                                 |
| <b>Pumping System (Robot Side)</b>               |                                                                                                                                                                                           |
| Pumping Mechanism                                | Two sets of pumping systems are integrated in the front and rear cleaning discs of the robot, assisting the water surface recovery system in transferring the cleaned debris to the deck. |
| Shredding Mechanism                              | A shredding mechanism is integrated at the front end of the pumping system to pre-shred the cleaned debris, effectively preventing clogging of the main recovery pipeline.                |
| <b>Power Performance</b>                         |                                                                                                                                                                                           |
| Thrusters                                        | 4 × THR.D210 (horizontal), 4 × THR.D210 (vertical)                                                                                                                                        |
| Bollard Pull Forward/aft                         | 156kg                                                                                                                                                                                     |
| Bollard Pull Lateral                             | 110kg                                                                                                                                                                                     |
| Bollard Pull Vertical                            | 185kg                                                                                                                                                                                     |
| Current Resistance Capacity                      | 3.0 knots (forward)<br>2.0 knots (transverse)<br>2.0 knots (vertical)                                                                                                                     |
| <b>Sensor Capacity and Electrical Interfaces</b> |                                                                                                                                                                                           |
| Sensor Interfaces                                | Customizable interfaces (including INS, DVL, sonar, baseline, depth gauge, altimeter, etc.)                                                                                               |
| Camera                                           | 6 × 2- megapixel color wide-angle lenses                                                                                                                                                  |
| Lighting                                         | 2 × 100 W adjustable LED Lights, 4 × 50 W LED Lights                                                                                                                                      |
| Manipulator                                      | 1 interface for 3-axis manipulator, power 200 W (expandable)                                                                                                                              |

| Other Configurations             |                       |
|----------------------------------|-----------------------|
| PTZ                              | Optional (expandable) |
| DVL                              | Optional (expandable) |
| Forward-looking multi-beam sonar | Optional (expandable) |
| Ultra-short baseline (USBL)      | Optional (expandable) |

## 1.2 Cable Winch & Lifting Platform System



### Cable Winch & Lifting Platform System

#### Winch Platform

|                                      |                                                 |
|--------------------------------------|-------------------------------------------------|
| Winch Platform Dimensions<br>(L×W×H) | 4000mmx2300mmx1700mm                            |
| Total Weight of Winch<br>Platform    | 3600kg (including robot and cable winch system) |
| Winch Power Supply                   | Voltage 380V/Power 2.2kW                        |
| Winch Cable Capacity                 | 150m                                            |
| Cable length                         | 150m                                            |
| ROV umbilical Cable                  | ROV cable                                       |

| Crane Platform System (Optional)     |                                                           |
|--------------------------------------|-----------------------------------------------------------|
| Crane Platform Dimensions<br>(L×W×H) | 4000mmx1700mmx2200mm                                      |
| Weight of Crane Platform             | 3000kg                                                    |
| Crane Power Supply                   | 380V voltage, 7.5kW power                                 |
| Boom Length                          | 4000mm horizontal extension, 2400mm horizontal retraction |
| Vertical Swing Angle of Boom         | Horizontal 90°–120°                                       |
| Horizontal Slewing Angle of<br>Boom  | 0-180°                                                    |

### 1.3 Control System



| Control System               |                                                                                                                                                                                                                                                                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions<br>(L×W×H)        | 1100mm x 650mm x750mm                                                                                                                                                                                                                                          |
| Weight                       | 125kg                                                                                                                                                                                                                                                          |
| Display                      | 3 × 19-inch monitors<br>Resolution: 1920 × 1080p                                                                                                                                                                                                               |
| System                       | Embedded host with Intel i7 processor, 16 GB RAM, 1 TB HDD, supporting one-click video recording and photo capture.                                                                                                                                            |
| Steering Wheel Control       | Dimensions: 270 mm × 280 mm × 250 mm<br>Signal transmission: Wired<br>Function: Controlled by steering wheel with linear pedals                                                                                                                                |
| Handheld Wireless Controller | Dimensions: 380 mm × 200 mm × 150 mm<br>Power supply: 12 V lithium battery, 9000 mAh<br>Signal transmission: Wireless<br>Function: 2 three-axis joysticks with self-reset buttons, 4 two-axis joysticks, 4 single-axis joysticks, and multiple control buttons |
| Keyboard & Mouse             | Full metal ruggedized mechanical keyboard and mouse buttons for easy operation                                                                                                                                                                                 |
| Power Supply                 | AC220v                                                                                                                                                                                                                                                         |

## 1.4 Collection System



| Collection System     |                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------|
| Dimensions (L×W×H)    | Transport dimensions: 2929 mm × 1960 mm × 2539 mm<br>Operating dimensions: 3343 mm × 206 mm × 2539 mm |
| Weight                | 3165kg                                                                                                |
| Suction flow rate     | 80m <sup>3</sup> /h                                                                                   |
| Suction port diameter | DN80                                                                                                  |
| Suction hose length   | 100m                                                                                                  |
| Conveying distance    | 450m                                                                                                  |

|                              |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| Screening capacity           | 120m <sup>3</sup> /h                                                                           |
| Vibration intensity          | ≤7.5G(adjustable)                                                                              |
| Separation particle size     | 25μm                                                                                           |
| Screen area                  | 1.4 m <sup>2</sup>                                                                             |
| Hydrocyclones                | 8 x4"                                                                                          |
| Transfer tank capacity       | 3.4m <sup>3</sup>                                                                              |
| Recovery power supply system | Voltage: 380 V<br>Total power: 36.08 kW<br>Suction system: 11 kW<br>Screening system: 25.08 kW |



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