



**ALLIANCE ENERGY  
SOLUTIONS PTE LTD**  
(20172443W)

## **EXPLORER 125HP ROV SPECIFICATION**

The Explorer is the ultimate hydraulic Remotely Operated Vehicle



# EXPLORER 125HP WORK CLASS ROV SYSTEM

## TECHNICAL SPECIFICATION

### ROV

Length	3.50 Metres
Width	1.50 Metres
Height	2.20 Metres
Weight	3,500 Kgs

### CRANE / INTERGRATED POWER PACK

Length	2.45 Metres
Width (Base)	2.45 Metres
Height	3.10 Metres
Weight	7,000 Kgs

### UMBILICAL WINCH / INTEGRAL POWER PACK

Length	2.65 Metres
Width	2.60 Metres
Height	2.20 Metres
Weight	7,500 Kgs

### CONTROL VAN

Length	6.25 Metres
Width	2.45 Metres
Height	2.75 Metres
Weight	10,000 Kgs

### WORKSHOP VAN

Length	6.20 Metres
Width	2.45 Metres
Height	2.65 Metres
Weight	8,000 Kgs

### SYSTEM POWER REQUIREMENTS

Supply Rating	440 Vac @ 60Hz – 3 Phase
Minimum Generator Size	400 Kva

### VEHICLE DESCRIPTION

Depth Rating	2,000 Metres
HPU Size	100HP
Through Frame Capability	800Kgs
Payload	200Kgs
Variable Lift Point	Six Position

### TECHNICAL DESCRIPTION

#### HPU Motor

Curvtech 125HP Electric Motor 3000Vac – 60Hz 3 ph. 4 Pole

#### HPU Pump

Rexroth – A10VSO140DR (Constant pressure, variable displacement pump)

#### Main Hydraulic Supply

210 l/min at 185 bar

#### Thruster Control Unit (TCU)

Eight Ultra Servo Valve Manifold

- Six valves for Thruster operations
- Spare Valves for Tooling operations
- 77 l/min servo valves
- Hydraulic Soft start
- 3300 psi relief Valve

#### Hydraulic Control Units (HCU)

Solenoid valve pack

- Two HCU's fitted as standard
- Each HCU contains 8 solenoid valves
- 4 way, 3 position valves rated at 3000psi w/p, 15 l/min
- Each valve has a pilot-check value and a cross relief value (set at 3000 psi)
- External pressure adjustment (between 7 and 210 bar for each valve)
- Port side HCU set at user choice
- Starboard HCU set at user choice

#### Thruster Configuration

Vertical Thrusters

- Two HT300 Curvetech Thrusters

Horizontal, Vectored Thrusters

- Four HT300 Curvetech Thrusters

#### Vehicle Power Requirements

- HPU – 3000Vac
- Instruments – 1100Vac

#### Video Channels

Five switchable, Subsea camera outputs

- Four outputs have focus control
- Four Co-axial signals
- Four channel F/O Video Mux (1 Multimode Fibre)

### Underwater Lighting

Six, 110VAC - 250W variable intensity light outputs **Standard Interfaces**

- Obstacles Avoidance Sonar
- Manipulator, 7F
- Manipulator, 5F

### Additional Interfaces

- Three, 24VDC @ 2.5A, switchable outputs
- Four, 110VAC @ 2A, switchable outputs
- Interfaces can be modified accordingly

### Vehicle Functions / Integral Sensors

- Fluxgate compass and Integral rate Gyro
- Hydraulic Pressure sensor
- Depth sensor
- Auto Heading Function
- Auto Depth function
- Pitch and Roll sensors
- 96 Channel Analogue Data Multiplexer (Time division Multiplexer)
- Thruster control (Servo valves)
- Valve pack control (Solenoid valves)
- Turns counter

## VEHICLE PERFORMANCE

### Thruster Capability

> 250 kgf @ maximum thrust (each thruster)

### Capability

- Ahead - 3.0 knots (1.54 m/s)
- Lateral - 2.8 knots (1.44 m/s)
- Astern - 2.5 knots (1.28 m/s)

## SURFACE CONTROLS

### Power Distribution

- Input voltage - 380 to 440Vac @ 60Hz (variable txfr tappings)
- Ground fault monitors
- Voltage, current, frequency, HPU run hours and phase rotation indications
- HV Step-up transformers for ROV motor, ROV instruments, and domestic supplies
- Distribution panel for LARS and Workshop

### ROV Controls

- Pilots and Observers control panels in a 4 bay 19" Rack
- PC Based ROV surface controls
- Video distribution system
- Video recording system (DVD)
- Four channel Fibre Optic Video Mux
- 14" and 9" monitors for viewing ROV camera pictures – Optional 19" TFT.
- Audio Comms to allow comms between ROV Pilot & Launch area

## SYSTEM POWER REQUIREMENTS

### Supply Rating

- 440 VAC @ 60Hz – 3 phase
- 400 kVA (Minimum generator size)
- Main Power cable – 95mm<sup>2</sup>, 4 core cable - 18 mtrs length
- Domestic supply cable – 25mm<sup>2</sup>, 4 core cable - 20 mtrs length
- Crane HPU Cable – 25mm<sup>2</sup>, 4 core cable - 20 mtrs length
- Winch HPU cable - 25mm<sup>2</sup>, 4 core cable - 30 mtrs length

### CRANE

Safe Working Load (SWL) 4,200 Kgs @ 8.9 Metres

### Transportation Details (Stowed)

Length 3.00 Metres  
Width (Crane Base) 2.45 Metres  
Height 3.20 Metres

### Operational Details

Minimum Inboard Reach 1.50 Metres  
Maximum Reach 8.90 Metres  
Maximum Height 8.90 Metres

### Crane Winch

Wire Rope Capacity 40 Metres (Max)  
Winch Speed (2nd Layer) 0.46 m/sec  
Wire Rope Diameter 19mm  
Wire Rope Type Non-rotating

## CRANE HYDRAULIC POWER PACK

### Technical Details

Power Rating 45Kw  
Start Method Star / Delta Starter  
Power Supply 440 Vac, 50/60 Hz  
Pump Output 220 Bar

## UMBILICAL WINCH

Safe Working Load (SWL) 3,000 Kgs – At top layer

### Operational Details

Max Line Speed 40m/min Top Layer  
(28m/min Inner)  
Drum Diameter 1.0 Metres  
Drum Flanges Diameter 1.75 Metres  
Drum Width 1.40 Metres

### Design Factors

Note: Umbilical values may differ from actual umbilical used  
Maximum Umbilical Length 1,000 Metres  
Umbilical Diameter 43mm – Max  
Winch Weight 6,000 Kgs (Without Umbilical Fitted)

### Power Pack

Power Rating 42 Kw  
Start Method DOL Starter  
Power Supply 440 Vac, 50/60 Hz  
Reservoir Capacity 300 Ltrs  
Pump Output 140 lpm / 180 Bar