

robotic
intervention
engineering

STS Explorer 01 ROV System

Technical Specification



Equipment

| STS EXPLORER 01 ROV | |
|-------------------------------|--------------------------|
| Manufacturer | STS |
| Length | 2.30 Metres |
| Width | 1.40 Metres |
| Height | 1.70 Metres |
| Weight | 2,000 Kgs |
| CRANE / INTEGRATED POWER PACK | |
| Manufacturer | Tico |
| Length (Stowed) | 2.50 Metres |
| Width (Base) | 2.50 Metres |
| Height (Stowed) | 3.1 Metres |
| Weight | 7,000 Kgs |
| CRANE HYDRAULIC POWER PACK | |
| Manufacturer | |
| Length (Stowed) | N/A |
| Width (Base) | N/A |
| Height (Stowed) | N/A |
| Weight | N/A |
| UMBILICAL WINCH | |
| Manufacturer | Seamac |
| Length | 2.75 Metres |
| Width | 1.95 Metres |
| Height | 2.04 Metres |
| Weight | 7,600 Kgs |
| CONTROL VAN | |
| Manufacturer | |
| Length | 4.32 Metres |
| Width | 2.46 Metres |
| Height | 2.54 Metres |
| Weight | 8,000 Kgs |
| WORKSHOP VAN | |
| Manufacturer | |
| Length | 4.30 Metres |
| Width | 2.44 Metres |
| Height | 2.55 Metres |
| Weight | 8,000 Kgs |
| SYSTEM POWER REQUIREMENTS | |
| Supply Rating | 440 Vac @ 60Hz – 3 Phase |
| Minimum Generator Size | 280 Kva |



Technical Specification

| VEHICLE DESCRIPTION | |
|--------------------------|--------------|
| Depth Rating | 1,000 Metres |
| HPU Size | 75HP |
| Through Frame Capability | 500Kgs |
| Payload | 250Kgs |
| Variable Lift Point | Six Position |

| TECHNICAL DESCRIPTION | |
|-------------------------------|--|
| HPU Motor | 75HP Electric Motor 3000Vac – 60Hz 3 ph. 4 Pole |
| HPU Pump | Rexroth – A10VSO70DR (Constant pressure, variable displacement pump) |
| Main Hydraulic Supply | 180 l/min at 185 bar |
| Thruster Control Unit (TCU) | Eight Ultra Servo Valve Manifold <ul style="list-style-type: none"> ▪ Five valves for Thruster operations ▪ Spare Valve for Tooling operations ▪ 55 l/min servo valves ▪ Hydraulic Soft start ▪ 3300 psi relief Valve |
| Hydraulic Control Units (HCU) | Solenoid valve pack <ul style="list-style-type: none"> ▪ Two HCU's ▪ 4 way, 3 position valves rated at 3000psi w/p, 15 l/min ▪ External pressure adjustment (between 7 and 210 bar for each valve) ▪ Port side 12 way HCU set at user choice ▪ Starboard intelligent 10 way HCU set at user choice |
| Thruster Configuration | Vertical Thrusters <ul style="list-style-type: none"> ▪ Two HT300 Curvetech Thrusters Horizontal, Vectored Thrusters <ul style="list-style-type: none"> ▪ Four HT380 Curvetech Thrusters |
| Vehicle Power Requirements | <ul style="list-style-type: none"> ▪ HPU – 3000Vac ▪ Instruments – 1100Vac |
| Video Channels | Four switchable, Subsea camera outputs <ul style="list-style-type: none"> ▪ Four outputs have focus control ▪ Four Co-axial signals |
| Underwater Lighting | Four, 110Vac - 250w variable intensity light outputs |
| Standard Interfaces | <ul style="list-style-type: none"> ▪ Obstacle Avoidance Sonar – Sonavision 2000 ▪ Manipulator, 7F – Orion short reach rate arm ▪ Manipulator, 5F – TA16 rate arm |



| TECHNICAL DESCRIPTION – CONT'D | |
|---|---|
| Additional Interfaces | <ul style="list-style-type: none"> ▪ Three, 24Vdc @ 2.5A, switchable outputs ▪ Four, 110Vac @2A, switchable output ▪ Interfaces can be modified accordingly |
| Vehicle Functions / Integral Sensors | <ul style="list-style-type: none"> ▪ Fluxgate compass and Integral rate Gyro – KSG105 ▪ 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 | > 210 kgf @ maximum thrust (each thruster) |
| Capability | <ul style="list-style-type: none"> ▪ Ahead - 2.5 knots (1.25 m/s) ▪ Lateral - 2.0 knots (1.02 m/s) ▪ Astern - 2.0 knots (1.02 m/s) |
| SURFACE CONTROLS | |
| Power Distribution | <ul style="list-style-type: none"> ▪ Input voltage - 380 to 440Vac @ 60Hz (variable txfr tapplings) ▪ Ground fault monitors ▪ Voltage, current, frequency, HPU run hours and phase rotation indications ▪ HV Step-up transformers for ROV motor, ROV instruments, TMS Motor and domestic supplies ▪ Distribution panel for LARS and Workshop |
| ROV Controls | <ul style="list-style-type: none"> ▪ Pilots and Observers control panels in a 19" Rack ▪ PC Based ROV surface controls ▪ Video distribution system ▪ Video recording system ▪ 14" and 9" monitors for viewing ROV camera pictures ▪ Audio Comms to allow comms between ROV Pilot & Launch area |
| SYSTEM POWER REQUIREMENTS | |
| Supply Rating | <ul style="list-style-type: none"> ▪ 440 Vac @ 60Hz – 3 phase ▪ 280Kva (Minimum generator size) ▪ Main Power cable – 70mm², 4 core cable - 30 mtrs length ▪ Domestic supply cable – N/A ▪ Crane HPU Cable – 25mm², 4 core cable - 30 mtrs length ▪ Winch HPU cable - 25mm², 4 core cable - 30 mtrs length |



Launch and recovery system

| CRANE | | |
|---|-------------------------------------|--------------------------------------|
| Manufacturer | Tico | |
| Safe Working Load (SWL) | 3,150 Kgs @ 7.9 Metres | |
| Transportation Details (Stowed) | Length | 2.50 Metres |
| | Width (Crane Base) | 2.50 Metres |
| | Height | 3.10 Metres |
| Operational Details | Minimum Inboard Reach | 2.90 Metres |
| | Maximum Reach | 7.90 Metres |
| | Maximum Height | 7.90 Metres |
| Crane Winch | Wire Rope Capacity | 60 Metres (Max) |
| | Winch Speed (2 nd Layer) | 0.46 m/sec |
| | Wire Rope Diameter | 16mm |
| | Wire Rope Type | Non-rotating |
| CRANE HYDRAULIC POWER PACK | | |
| Manufacturer | Scantech | |
| Technical Details | Power Rating | 37Kw |
| | Start Method | Star / Delta Starter |
| | Power Supply | 440 Vac, 50/60 Hz |
| | Pump Output | 220 Bar |
| UMBILICAL WINCH | | |
| Manufacturer | Seamac | |
| Safe Working Load (SWL) | 750 Kgs – At top layer | |
| Operational Details | Max Line Speed | 40m/min Top Layer (28m/min Inner) |
| | Drum Diameter | 1.0 Metres |
| | Drum Flanges Diameter | 1.8 Metres |
| | Drum Width | 1.28 Metres |
| Design Factors Note: Umbilical values may differ from actual umbilical used | Maximum Umbilical Length | 1,100 Metres |
| | Umbilical Diameter | 43mm – Max |
| | Winch Weight | 6,000 Kgs (Without Umbilical Fitted) |
| WINCH HYDRAULIC POWER PACK | | |
| Manufacturer | Seamac | |
| Technical Details | Power Rating | 20Kw |
| | Start Method | Star / Delta Starter |
| | Power Supply | 440 Vac, 50/60 Hz |
| | Pump Output | 200 Bar |



