

robotic
intervention
engineering

STS Explorer 09
ROV System

Technical Specification



Equipment

| STS EXPLORER 09 ROV | |
|----------------------------|--------------------------|
| Manufacturer | |
| Length | 3.60 Metres |
| Width | 1.90 Metres |
| Height | 2.10 Metres |
| Weight | 3,500 Kgs |
| CRANE | |
| Manufacturer | Effer |
| Length (Stowed) | 2.75 Metres |
| Width (Base) | 2.36 Metres |
| Height (Stowed) | 3.15 Metres |
| Weight | 8,000 Kgs |
| CRANE HYDRAULIC POWER PACK | |
| Manufacturer | |
| Length (Stowed) | 0.8 Metres |
| Width (Base) | 1.1 Metres |
| Height (Stowed) | 1.5 Metres |
| Weight | 800 Kgs |
| UMBILICAL WINCH | |
| Manufacturer | OSEL |
| Length | 2.70 Metres |
| Width | 2.25 Metres |
| Height | 2.20 Metres |
| Weight | 10,000 Kgs |
| CONTROL VAN | |
| Manufacturer | Ferguson Seacabs |
| Length | 6.05 Metres |
| Width | 2.45 Metres |
| Height | 2.90 Metres |
| Weight | 12,000 Kgs |
| WORKSHOP VAN | |
| Manufacturer | Ferguson Seacabs |
| Length | 6.05 Metres |
| Width | 2.45 Metres |
| Height | 2.90 Metres |
| Weight | 12,000 Kgs |
| SYSTEM POWER REQUIREMENTS | |
| Supply Rating | 440 Vac @ 60Hz – 3 Phase |
| Minimum Generator Size | 350 Kva |



Technical Specification

| VEHICLE DESCRIPTION | |
|--------------------------|--------------|
| Depth Rating | 2,000 Metres |
| HPU Size | 100 HP |
| Through Frame Capability | 3,000 Kgs |
| Payload | 200 Kgs |
| Variable Lift Point | Six Position |

| TECHNICAL DESCRIPTION | |
|-------------------------------|--|
| HPU Motor | Curvtech 100HP Electric Motor 3000Vac – 60Hz 3 ph. 4 Pole Double ended (for optional aux power pack) |
| HPU Pump | Rexroth – A10VSO140DR (Constant pressure, variable displacement pump) |
| Main Hydraulic Supply | 210 l/min at 185 bar |
| Thruster Control Unit (TCU) | Eight Servo Valve Manifold <ul style="list-style-type: none"> ▪ Seven 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 <ul style="list-style-type: none"> ▪ Two HCU's fitted as standard ▪ Each HCU contains 10 solenoid valves ▪ 4 way, 3 position valves rated at 3000psi w/p, 15 l/min ▪ Each valve has a pilot-check valve and a cross relief valve (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 <ul style="list-style-type: none"> ▪ Three HT380 Curvtech Thrusters Horizontal, Vectored Thrusters <ul style="list-style-type: none"> ▪ Four HT380 Curvtech Thrusters |
| Vehicle Power Requirements | <ul style="list-style-type: none"> ▪ HPU – 3000Vac ▪ Instruments – 1100Vac ▪ TMS – 2400Vac |
| Video Channels | Five switchable, Subsea camera outputs <ul style="list-style-type: none"> ▪ 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 |



| TECHNICAL DESCRIPTION – CONT'D | |
|---|---|
| Standard Interfaces | <ul style="list-style-type: none"> ▪ Obstacles Avoidance Sonar – Sonavision 4000 ▪ Manipulator, 7F – Hydrus Master / Slave ▪ Manipulator, 5F – TA16 rate arm |
| Additional Interfaces | <ul style="list-style-type: none"> ▪ Three, 24Vdc @ 2.5A, switchable outputs ▪ Four, 110Vac @2A, switchable outputs ▪ 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 | > 360 kgf @ maximum thrust (each thruster) |
| Capability | <ul style="list-style-type: none"> ▪ Ahead - 3.5 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 | <ul style="list-style-type: none"> ▪ 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, 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 three bay 19" Rack ▪ PC Based ROV surface controls ▪ Video distribution system ▪ Video recording system ▪ Four channel Fibre Optic Video Mux ▪ 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 ▪ 350Kva (Minimum generator size) ▪ Main Power cable – 185mm², 4 core cable - 20 mtrs length ▪ Domestic supply cable – 25mm², 4 core cable - 20 mtrs length ▪ Crane HPU Cable – 25mm², 4 core cable - 20 mtrs length ▪ Winch HPU cable - 25mm², 4 core cable - 20 mtrs length |



Launch and recovery system

| CRANE | | |
|---|-------------------------------------|--------------------------------------|
| Manufacturer | Effer | |
| Safe Working Load (SWL) | 5,700 Kgs @ 6.1 Metres | |
| Transportation Details (Stowed) | Length | 2.80 Metres |
| | Width (Crane Base) | 2.40 Metres |
| | Height | 3.20 Metres |
| Operational Details | Minimum Inboard Reach | 2.67 Metres |
| | Maximum Reach | 10.0 Metres |
| | Maximum Height | 9.90 Metres |
| Crane Winch | Wire Rope Capacity | 60 Metres (Max) |
| | Winch Speed (2 nd Layer) | 0.46 m/sec |
| | Wire Rope Diameter | 19mm |
| | 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 | 200 Bar |
| UMBILICAL WINCH | | |
| Manufacturer | OSEL | |
| 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 | 1.77 Metres |
| | Drum Width | 1.07 Metres |
| Design Factors Note: Umbilical values may differ from actual umbilical used | Maximum Umbilical Length | 1,000 Metres |
| | Umbilical Diameter | 45mm – Max |
| | Winch Weight | 6,000 Kgs (Without Umbilical Fitted) |
| Power Pack | Power Rating | 37Kw |
| | Start Method | Star / Delta Starter |
| | Power Supply | 440 Vac, 50/60 Hz |
| | Reservoir Capacity | 200 Ltrs |
| | Pump Output | 90 lpm / 212 Bar |



