

robotic
intervention
engineering

STS Explorer 04 ROV System

Technical Specification



Equipment

STS EXPLORER 04 ROV	
Manufacturer	STS
Length	3.50 Metres
Width	1.50 Metres
Height	2.20 Metres
Weight	3,500 Kgs
CRANE / INTERGRATED POWER PACK	
Manufacturer	Effer
Length	2.45 Metres
Width (Base)	2.45 Metres
Height	3.10 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 / INTEGRAL POWER PACK	
Manufacturer	Osel
Length	2.65 Metres
Width	2.60 Metres
Height	2.20 Metres
Weight	7,500 Kgs
CONTROL VAN	
Manufacturer	
Length	6.25 Metres
Width	2.45 Metres
Height	2.75 Metres
Weight	10,000 Kgs
WORKSHOP VAN	
Manufacturer	
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	350 Kva



Technical Specification

VEHICLE DESCRIPTION	
Depth Rating	1,000 Metres
HPU Size	100HP
Through Frame Capability	800Kgs
Payload	200Kgs
Variable Lift Point	Six Position

TECHNICAL DESCRIPTION	
HPU Motor	Curvtech 100HP 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)	<p>Eight Ultra Servo Valve Manifold</p> <ul style="list-style-type: none"> ▪ 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)	<p>Solenoid valve pack</p> <ul style="list-style-type: none"> ▪ 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	<p>Vertical Thrusters</p> <ul style="list-style-type: none"> ▪ Two HT300 Curvetech Thrusters <p>Horizontal, Vectored Thrusters</p> <ul style="list-style-type: none"> ▪ Four HT300 Curvetech Thrusters
Vehicle Power Requirements	<ul style="list-style-type: none"> ▪ HPU – 3000Vac ▪ Instruments – 1100Vac
Video Channels	<p>Five switchable, Subsea camera outputs</p> <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 – Tritech Seaking ▪ Manipulator, 7F – Schilling Orion rate arm ▪ Manipulator, 5F – Rigmaster 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	> 250 kgf @ maximum thrust (each thruster)
Capability	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Input voltage - 380 to 440Vac @ 60Hz (variable txfr tapings) ▪ 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	<ul style="list-style-type: none"> ▪ 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 ▪ 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 – 95mm², 4 core cable - 18 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 - 30 mtrs length



Launch and recovery system

CRANE		
Manufacturer	Effer	
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 (2 nd Layer)	0.46 m/sec
	Wire Rope Diameter	19mm
	Wire Rope Type	Non-rotating
CRANE HYDRAULIC POWER PACK		
Manufacturer		
Technical Details	Power Rating	45Kw
	Start Method	Star / Delta Starter
	Power Supply	440 Vac, 50/60 Hz
	Pump Output	220 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



