

robotic
intervention
engineering

STS Explorer 02 ROV System

Technical Specification



Equipment

STS EXPLORER 02 ROV	
Manufacturer	Amatek / STS
Length	2.65 Metres
Width	1.60 Metres
Height	1.80 Metres
Weight	2,200 Kgs
CRANE	
Manufacturer	Tico
Length (Stowed)	2.45 Metres
Width (Base)	2.45 Metres
Height (Stowed)	3.26 Metres
Weight	5,000 Kgs
CRANE HYDRAULIC POWER PACK	
Manufacturer	OSEL
Length (Stowed)	1.2 Metres
Width (Base)	1.0 Metres
Height (Stowed)	1.6 Metres
Weight	1,000 Kgs
UMBILICAL WINCH	
Manufacturer	NIM
Length	2.60 Metres
Width	2.15 Metres
Height	2.60 Metres
Weight	7,000 Kgs
CONTROL VAN	
Manufacturer	
Length	5.25 Metres
Width	2.45 Metres
Height	2.60 Metres
Weight	8,000 Kgs
WORKSHOP VAN	
Manufacturer	
Length	6.10 Metres
Width	2.45 Metres
Height	2.60 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	250Kgs
Payload	150Kgs
Variable Lift Point	Six Position

TECHNICAL DESCRIPTION	
HPU Motor	75HP Electric Motor 3000Vac – 60Hz 3 ph. 4 Pole
HPU Pump	Rexroth – A10VO71DR31R (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 ▪ 35 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 ▪ 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 8 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"> ▪ One innerspace 4200-16 Thruster Horizontal, Vectored Thrusters <ul style="list-style-type: none"> ▪ Two innerspace 4200-16 Lateral Thruster ▪ Two innerspace 4200-16 Axial Thruster
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 outputs ▪ Interfaces can be modified accordingly
Vehicle Functions / Integral Sensors	<ul style="list-style-type: none"> ▪ Fluxgate compass and Integral rate Humphries DG11 ▪ Hydraulic Pressure sensor ▪ Depth sensor ▪ Auto Heading Function ▪ Auto Depth function ▪ Pitch and Roll sensors ▪ 64 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 - 2.0 knots (1.02 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 (DVD) ▪ 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 - 20 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	2.45 Metres
	Width (Crane Base)	2.45 Metres
	Height	2.90 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	OSEL	
Technical Details	Power Rating	45Kw
	Start Method	Star / Delta Starter
	Power Supply	440 Vac, 50/60 Hz
	Pump Output	220 Bar
UMBILICAL WINCH		
Manufacturer	NIM	
Safe Working Load (SWL)	2,000 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	1.25 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	30Kw
	Start Method	DOL Started
	Power Supply	440 Vac, 50/60 Hz
	Reservoir Capacity	250 Ltrs
	Pump Output	70 lpm / 212 Bar



