

# Seaeye Panther XT

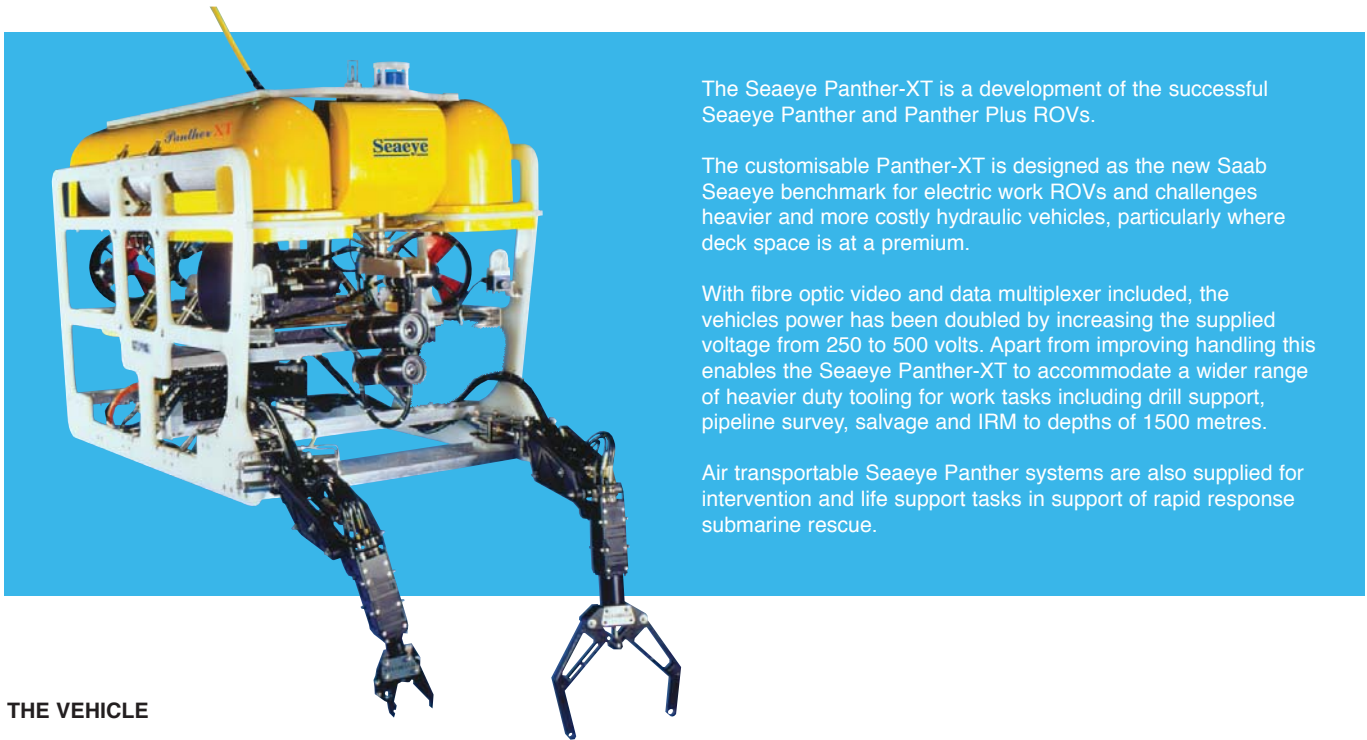
The New Improved Electric Work ROV



**SAAB**

# Seaeeye Panther XT

## The New Improved Electric Work ROV



The Seaeeye Panther-XT is a development of the successful Seaeeye Panther and Panther Plus ROVs.

The customisable Panther-XT is designed as the new Saab Seaeeye benchmark for electric work ROVs and challenges heavier and more costly hydraulic vehicles, particularly where deck space is at a premium.

With fibre optic video and data multiplexer included, the vehicles power has been doubled by increasing the supplied voltage from 250 to 500 volts. Apart from improving handling this enables the Seaeeye Panther-XT to accommodate a wider range of heavier duty tooling for work tasks including drill support, pipeline survey, salvage and IRM to depths of 1500 metres.

Air transportable Seaeeye Panther systems are also supplied for intervention and life support tasks in support of rapid response submarine rescue.

### THE VEHICLE

#### Chassis

The extremely rugged polypropylene chassis with a stainless steel lift frame, is totally maintenance free, non corroding and self-supporting in seawater.

#### Buoyancy

The two electronics pods are fabricated using high grade carbon fibre composite materials. All vehicle electronics are mounted within these two pods that also provide most of the vehicle's buoyancy. Water ingress and vacuum alarms are fitted to these pods. Additional buoyancy is provided by shaped syntactic foam blocks.

#### Equipment Interfaces

A wide range of standard or custom interfaces are provided:

- Manipulator & cutter interfaces
- CP Interface (Proximity or Contact)
- Obstacle avoidance, multi beam, profiling or side scan sonar
- Bathymetric systems
- Fixed focus, zoom and stills cameras
- Emergency strobes and beacons
- Tracking systems
- 3-phase tooling supply
- Auxiliary connections providing telemetry & DC power for other accessories

#### Propulsion

Four vectored horizontal and two vertical SM7 500 volt brushless DC thrusters provide full three-dimensional control.

All Seaeeye ROVs feature brushless DC thrusters which, apart from having the greatest power density, have integrated drive electronics with velocity feedback for precise and rapid thrust control. The thrusters are

interfaced to a fast PID control system and a solid-state rate gyro for enhanced azimuth stability.



#### Compass & Rate Gyro

A solid-state compass and rate sensor are provided to give the Panther-XT superior azimuth stability in forward flight and in auto heading.

Compass accuracy	±1°
Resolution	0.351°
Update rate	125 mS

#### Depth Sensor

The system uses an electronic depth sensor accurate to ±0.1% FSD accuracy.

#### Automatic Pilot

The compass, rate gyro and depth sensors provide an automatic pilot for depth and heading. Auto altitude is an option requiring the addition of an altimeter and software modification.

#### Video System

The standard configuration transmits multiplexed video over multimode fibres in the umbilical/tether. This provides up to 4 simultaneous video channels.

#### Pan & Tilt Unit



A high torque, oil filled, Pan & Tilt platform is supplied. The unit is manufactured from anodised aluminium with the pan and tilt positional information being displayed graphically on the video overlay.

#### Lighting

Two individually controlled lighting channels are provided, both containing two LED lamp units. Each channel has its own brilliance control on the pilot's Hand Control Unit. Each LED lamp produces the equivalent light output of a 300W tungsten halogen bulb.

#### Vehicle Electronics Pod

The Panther vehicle has two watertight electronic pods mounted to the chassis of the vehicle. The pods consist of a hard-anodised aluminium centre spoolpiece with carbon fibre housings fitted to either end and are protected by yellow glass reinforced plastic covers.

#### Tether Termination

The tether, or soft umbilical, is electrically terminated in an oil filled and pressure compensated Vehicle Junction Box (VJB).

## DEPLOYMENT



The Seaeye Panther-XT can be operated free swimming with up to 1000 metres of soft umbilical.

For greater protection of the vehicle as it passes through the splash zone and for faster travel to and from the working depth, it is more usual to deploy this type of ROV in a garage Tether Management System (TMS).

A skid mounted 'A' frame, hydraulic power unit (HPU) and a winch with a steel wire armoured lift umbilical is the most common Launch and Recovery System (LARS) recommended for the Panther-XT together with a TMS.

Though generally more costly, crane-based alternatives are sometimes used where deck space is at a premium.

A LARS can be ordered for use 'in safe areas of operation' or to meet the 'Zone 2 area' explosion proof standard often required in the offshore oil and gas industry.

### Type 8 Tether Management System (TMS)

An evolution of the Type 3A TMS this garage-style system uses a bale arm arrangement to spool tether on and off a fixed drum without the additional cost of incorporating a slip ring. Up to 200 metres of tether can be accommodated which is remotely controlled by the ROV pilot. The Type 8's improved mechanism and stainless steel frame make it virtually maintenance free.



### Type 9 Tether Management System (TMS)

This winch style TMS has an innovative shuttle drum that moves side to side of a fixed power sheave which greatly improves tether life. The 200m capacity drum is fitted with a sealed, oil compensated electro-optic slip ring. The stainless steel main frame of this garage TMS is fully adjustable allowing for easy adjustment to accommodate varying sizes of ROV mounted tool skids.

## SURFACE CONTROL AND POWER SUPPLY

The surface control system provides:

- AC and DC supply switching control
- DC current and voltage indication
- Control of video and video overlay
- A keypad for system configuration
- Plugs and sockets for system connections and interfaces for ancillary equipment
- ROV control system (remote from the Hand Control Unit)
- Output to Telemetry Monitor Unit for RS232

### Monitors

The system comes with two 15" colour video monitors that are multi-standard, dual-input with a 19" rack mounting kit.

### Video Overlay

The monitors display the video information from the cameras and video overlay data as follows:

- Heading data (in degrees)
- Analogue Compass Rose
- Depth in metres (or feet)
- Altitude (option)
- TMS Depth (option)
- Pan and tilt position
- Date and time
- Free text from keyboard

- TMS Bail Count (TMS cable counter when used with TMS)
- CP probe readings (if fitted)
- Vehicle Turns Counter

### Telemetry Monitor Unit

A Telemetry Monitor Unit is included with the system. This interface unit with its associated software allows ROV data, such as heading and depth, to be displayed on a PC and/or exported to a survey computer. In addition to exporting data, it can be used for fault diagnostics.

### Keyboard

A rack mountable keyboard is supplied for entering data and free text onto the video overlay.

### Hand Control Unit

The Hand Control Unit (HCU) provides the interface between the operator and vehicle using a series of switches and controls. Working on a 5 metre 'flying' lead, the HCU controls the following:

- Vehicle movement, direction and speed
- Pan and tilt control
- Lighting
- Safety thruster enable switch
- Auto depth and heading

- Additional camera selection
- Propulsion system offsets and power settings

### System Power Supply

The Power Supply Unit incorporates a series of protection devices, interlocks and cooling fans. Internal AC and DC supplies are only distributed when remotely operated at the Surface Unit. The PSU requires a customer supplied 396-528 VAC power input.

Full safety features include both AC and DC Line Insulation Monitors (LIMs) that constantly monitor electrical leakage in the system.

Multiple tapings are provided for the 3-phase 50/60Hz input supply.

### 3-Phase 9 KVA Tooling Power Supply

Fitted with a LIM this unit provides a 3-phase 660V power supply at the vehicle for optional tooling. The current meters provide useful feedback when tools such as cutters are used.

### Cabin Junction Box

The cabin junction box is a lockable container which provides easy access to all of the umbilical connections.

## EXAMPLES OF TOOLING

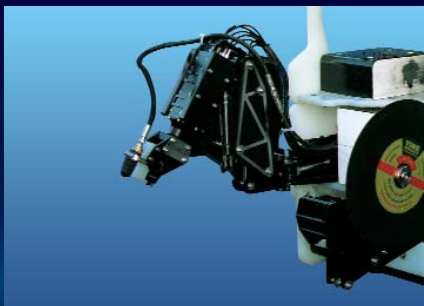
### Manipulator Skid

A typical Panther-XT package will include a heavy duty five and six function manipulator. These manipulators have an integral 12mm rope cutter.



### Wire & Cable Cutter

The forearm of one of the manipulators can be replaced with an anvil or a rotary disc cutter, when specified.



### Water Jet

A high pressure water jet system is available operating on 3-phase 660V power supply with directional control provided by the manipulator arm.

### AX Ring Removal Skid

This skid can be mounted piggy back under a standard manipulator skid.

### Wire Rotary Brush Skid fitted with rotary brush

A rotary brush assembly can either be fitted to the chassis, or to a manipulator arm in place of the forearm for spot cleaning. A Panther thruster motor drives the brush head via a flexible coupling. The brush assembly is fitted on a shock absorbed mounting to prevent stalling the motor.



### Pipeline / Boom Cameras

Camera booms used for pipeline surveys can be fitted to a skid fixed to the Panther ROV and controlled using the manipulator valve pack.



### CP Probes

Contact or Proximity CP probes can be fitted with voltages displayed on the video overlay or exported to a survey computer.

## PANTHER-XT

SPECIFICATIONS	PANTHER-XT
Depth rating	1500 msw
Length	1750 mm
Height	1217 mm
Width	1060 mm
Launch weight	500 kg
Forward speed	> 3 knots
Thrust forward	220 kgf
Thrust lateral	170 kgf
Thrust vertical	120 kgf
Payload	110 kg

### SYSTEM POWER REQUIREMENTS:

Input	3-Phase 396-528 VAC
ROV + Tooling	27 kVA
TMS	2 kVA
LARS (typical)	38 kVA



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