

Seaeye Tiger & Lynx

Observation and Inspection Class ROVs



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SAAB

Seaeye Tiger & Lynx

Observation and Inspection Class ROVs

The Seaeye Tiger and Seaeye Lynx ROVs are widely regarded as the leading observation and inspection vehicles within the oil and gas industry.

Increasingly they are also being taken up as the ROV of choice by military and scientific customers seeking increased capability in deep water.



With depth ratings of 1000 m and 1500 m, both Tiger and Lynx are able to perform well in strong currents and under the harshest conditions, providing excellent handling and manoeuvrability.

Their open frame construction and generous payload offer the possibility of adding a wide range of tools and sensors as well as under-slung, bolt-on tool skids.

THE VEHICLES

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 Seaeye Lynx syntactic foam buoyancy block is split into two sections for easier handling and access to vehicle components. The smaller Seaeye Tiger has a one piece buoyancy block. Apertures are provided for sonar and tracking transponders.

Equipment Interfaces

A wide range of standard or custom interfaces are available.

Propulsion

All Seaeye 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. These thrusters are interfaced to a fast PID control system and a solid-state rate gyro for enhanced azimuth stability. These essential building blocks enable Saab Seaeye to provide superior control and response from their powerful ROVs and set them apart from the competition. The Seaeye Tiger has one vertical and four horizontal vectored SM4 250 volt thrusters. The Seaeye Lynx has an extra vertical thruster.

Compass, Rate Gyro & Depth Sensor

A Flux-gate compass and a solid-state rate sensor are provided and give superior azimuth stability in forward flight and in auto heading.

Compass accuracy	±0.5°
Resolution	0.35°
Update rate	98 mS
Depth accuracy	±0.1% FSD

Automatic Pilot

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

Video System

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

In the Seaeye Tiger video can be transmitted over fibre optics between its TMS and the surface but video is always transmitted over copper conductors in the tether between the ROV and TMS.

Tilt Platform

The ±90 degree camera tilt platform accepts two cameras and lights.

A proportional tilt feedback potentiometer provides an accurate tilt angle which is displayed on the video overlay.

Lighting

300 Watts of lighting is available as standard for Tiger and 600 Watts for Lynx which has two individually controlled channels. All lamps are individually fused with their own brightness control on the pilot's Hand Control Unit.

Tether Termination

The tether is electrically terminated in an oil filled and pressure compensated Vehicle Junction Box (VJB) on the Lynx. The Seaeye Tiger has a potted termination.



DEPLOYMENT

Both ROVs are generally operated from a TMS but can be used free swimming with up to 450 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 winch with an appropriate length of steel wire armoured lift umbilical is the most common Launch and Recovery

System (LARS) used for vehicles like Lynx and Tiger with a TMS.

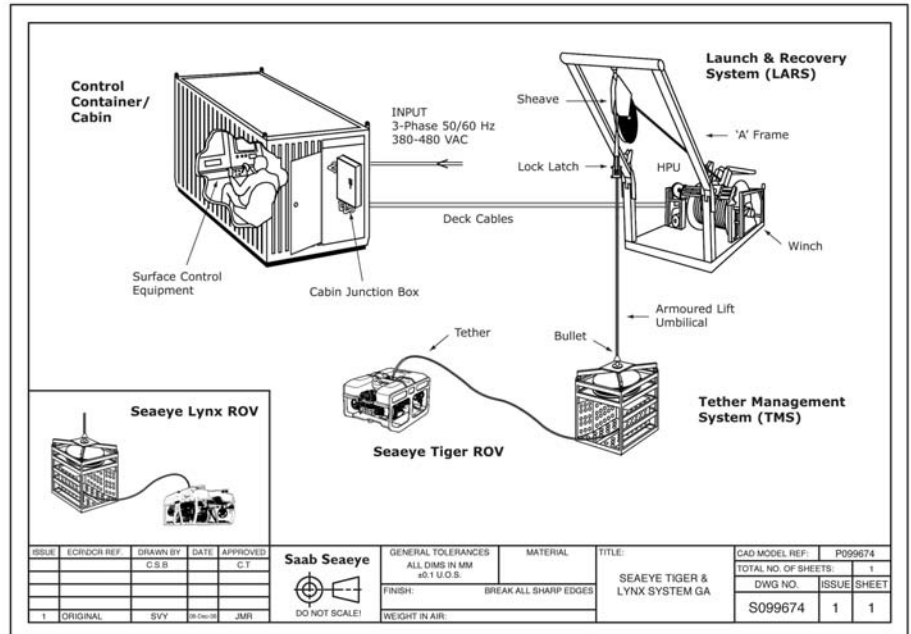
Type 4 TMS

This garage-style TMS uses a bale arm arrangement to spool 200 metres of tether on and off a fixed drum without the

additional cost of a slip ring. A more compact Type 2 TMS is available for the Seaeve Tiger with 140 metres of tether.

The floor of the TMS can be adjusted to accept the additional height of the ROV when fitted with a tool skid.

SEAEVE TIGER & LYNX SYSTEM GA



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 the Telemetry Monitor Unit

Control data is transmitted between the surface Central Processor Unit (CPU), PCB and subsea CPU PCB via dedicated twisted-pair cables from the ROV using a half duplex RS485 communication link.

Monitors

The system comes with a 15" colour video monitor and 19" rack mounting kit.

Video Overlay

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

- Heading data (in degrees)
- Analogue Compass Rose
- Depth in metres (or feet)
- Altitude (optional)

- Tilt position (or Pan & Tilt position if fitted to Lynx)
- 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 in the spares kit. 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. The unit is also 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
- Lighting

- Tilt control (Pan control for P&T Unit, if fitted)
- 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 380-480 VAC power input.

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

A new test facility allows the LIM to test the isolation of the system - without applying power - using a simplified menu driven set-up for umbilical current compensation.

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

SEAEYE TIGER OPTIONS

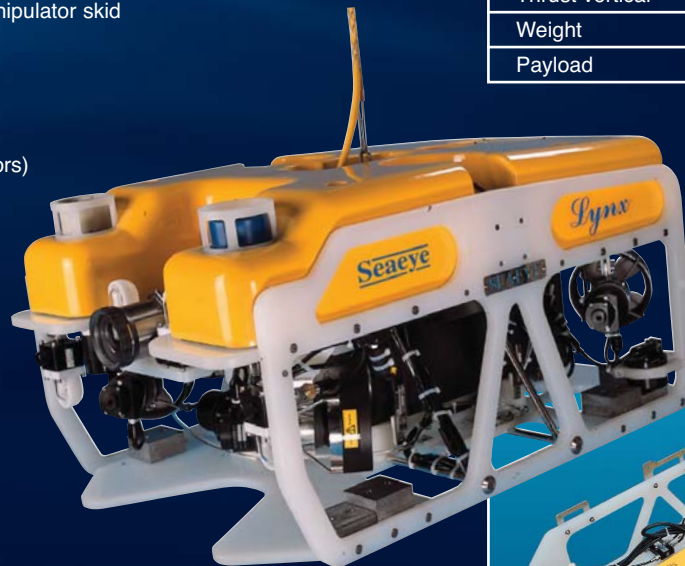
- Launch and Recovery System (LARS) Zone 2 or Safe Area rated
- ROV Control Cabins - Zone 2 or Safe Area
- Type 2 or Type 4 Tether Management System (TMS)
- Industry standard cameras
- Single function electric manipulator
- Tool skid and multi-function hydraulic manipulator
- CP probe (contact or proximity)
- Ultrasonic thickness probe
- Sonar systems
- Tracking systems
- Spares kit
- Technical training courses



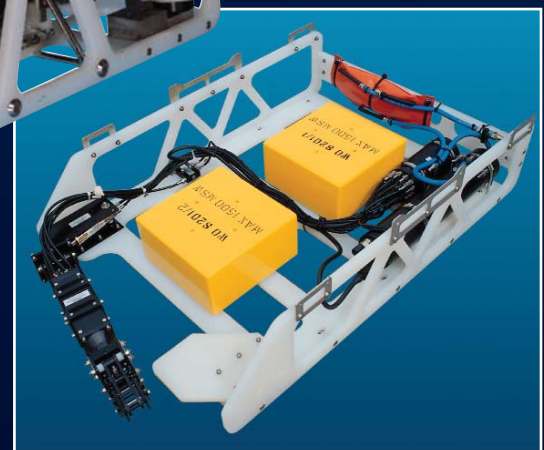
SPECIFICATIONS	SEAEYE TIGER
Maximum working depth	1000 metres
Length	1030 mm
Height	590 mm
Width	700 mm
Thrust forward	62 kgf
Thrust lateral	43 kgf
Thrust vertical	22 kgf
Weight	150 kg
Payload	32 kg

SEAEYE LYNX OPTIONS

- Launch and Recovery System (LARS) Zone 2 or Safe Area rated
- ROV Control Cabins - Zone 2 or Safe Area
- Type 4 Tether Management System (TMS)
- TMS camera and light
- Scanning sonar system
- Dual head profiler system
- Bathymetric system
- CP probe (contact or proximity)
- Ultrasonic thickness probe
- Multi-function manipulator or manipulator skid
- FMD tool orientation skid
- Custom tooling skids
- 2.5 kw 440 VAC 3-Phase outlet
- Industry standard cameras
- Surface Unit Video Suite (Recorders and additional monitors)
- Video matrix switcher
- Spares kit
- Technical training courses
- Specialist configurations



SPECIFICATIONS	SEAEYE LYNX
Maximum working depth	1500 metres
Length	1230 mm
Height	605 mm
Width	815 mm
Thrust forward	66 kgf
Thrust lateral	47 kgf
Thrust vertical	43 kgf
Weight	200 kg
Payload	34 kg



Manipulator Tool Skid

Seaeeye

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