



SAAB

SEAEYE TIGER & LYNX



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The Seaeeye Tiger and Lynx 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 1000m and 1500m respectively, both the Tiger and Lynx are very stable platforms and 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 interchangeable tool skids.



With a depth rating of 1000m and a payload of 32 kg, the Seaeeye Tiger also benefits from the following options:

- TMS type 2 or type 8, or free-swimming operation
- Two live video channels and ethernet capability
- Sonar systems, altimeter
- Scientific measurement systems (bathy, CTD, etc)
- CP probe (contact or proximity)
- Tracking systems
- Ultrasonic thickness gauge
- Tooling skids: 4-function manipulator, cutting tool, cleaning brush.

The Lynx is slightly larger and benefits from a fibre optic link to the surface, a depth rating of 1500m and a second vertical thruster.

The following options are available:

- TMS type 8 or free-swimming operation
- Up to four live video channels and ethernet capability
- HD video capability
- Sonar systems, altimeter
- Scientific measurement systems (bathy, CTD, etc)
- CP probe (contact or proximity)
- Tracking systems
- Ultrasonic thickness gauge
- Tooling skids: water jet, 4-function manipulator, cutting tool, cleaning brush
- Flooded Member Detector (FMD) tool orientation skid.

THE VEHICLE

CHASSIS

The extremely rugged polypropylene chassis with stainless steel lift frames are totally maintenance free, non corroding and self-supporting in seawater. Additional equipment can be bolted directly onto the chassis for customisation.

BUOYANCY

The Seaeeye Lynx syntactic foam buoyancy block is split into two sections for easier handling and access to vehicle components.



The smaller Seaeeye Tiger has a one piece buoyancy block.

Apertures are provided for sonar and tracking transponder/emergency strobe.

PROPULSION

The Seaeeye Tiger has one vertical and four horizontal vectored brushless SM4 250 Volt DC thrusters. The Seaeeye Lynx has an extra vertical thruster for increased lift capability.

These thrusters provide superior control and response and give the Seaeeye Tiger and Lynx excellent stable handling characteristics.

COMPASS, RATE GYRO & DEPTH SENSOR

A magneto-resistive compass and a solid-state rate sensor give superior azimuth stability.

| | |
|------------------|---------------|
| Compass accuracy | $\pm 1^\circ$ |
| Resolution | 0.1° |
| Update rate | 98 ms |

The system uses an electronic depth sensor accurate to $\pm 0.1\%$ FSD accuracy.

EQUIPMENT INTERFACES

A wide range of standard interfaces are available. Custom interfaces and configurations can also be provided to suit your requirements.

AUTOPILOT FUNCTIONS

- Auto heading
- Auto depth
- Auto altitude (optional)

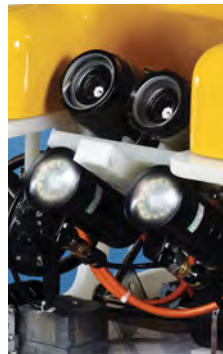
VIDEO SYSTEM

Up to three video channels are available on the Tiger (two live + one switchable), and up to four simultaneous video channels are available on the Lynx with optional HD.

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

The Tiger has a single light channel while Lynx benefits from two channels which are individually controlled.

Long-life LED lamps are provided giving excellent illumination with very low power consumption, they are exceptionally robust and practically maintenance free.

The Tiger is fitted with two lamps as standard and the Lynx is fitted with four.

VEHICLE ELECTRONICS POD

The electronics are enclosed in a watertight and anodised electronics pod machined from 6082 marine grade aluminium and fitted with a leak alarm (and vacuum alarm for the Lynx).

CONNECTORS

The Seaeeye Tiger and Lynx use Seaeeye's proven range of metal shell connectors.

TETHER TERMINATION

The Seaeeye Tiger has a potted termination, whereas the Seaeeye Lynx is electrically terminated in an oil-filled and pressure compensated vehicle junction box.

SURFACE CONTROL AND POWER SUPPLY

SURFACE CONTROL UNIT



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 (via hand control unit)
- TMS control system (via SCU, foot-switches or hand controller).

MONITORS AND VIDEO OVERLAY

The Seaeeye Tiger comes with one video monitor and the Lynx has two.

Both vehicles use 17" colour rack-mounted monitors for displaying the video signal from the cameras and the following overlay data:

- Heading
- Analogue compass rose
- Depth
- Tilt position
- Date and time
- Free text from keyboard
- TMS bail cable count (if applicable)
- CP probe readings (if fitted)
- Vehicle turns count
- Leak and vacuum alarms
- One string of live data, e.g. altitude or latitude/longitude (optional).



HAND CONTROL UNIT

The hand control unit provides remote control of the ROV (propulsion, tilt platform, lights, autopilot functions, etc).



KEYBOARD

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

TELEMETRY MONITOR UNIT

A telemetry monitor unit allows the ROV data (heading, depth, etc) to be displayed on a PC and/or exported to a survey computer, and is also a useful fault diagnostics tool.

SYSTEM POWER SUPPLY

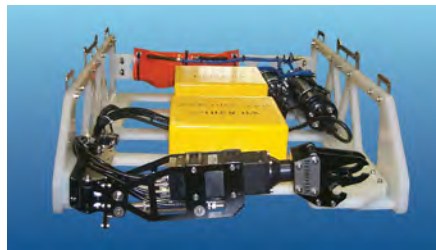
The power supply unit incorporates protection devices, interlocks and cooling fans. Safety features include both AC and DC line insulation monitors (LIMs) which constantly monitor electrical leakage in the system (with trips and alarm indicators) and test the isolation of the system.



OPTIONS, TOOLS AND ACCESSORIES



TIGER MANIPULATOR SKID



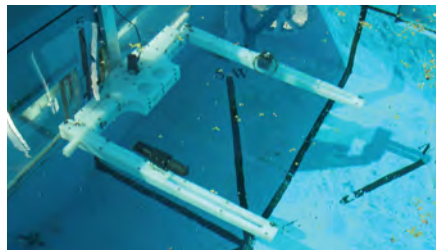
LYNX MANIPULATOR SKID



CABLE CUTTER SKID



CLEANING BRUSH SKID



LYNX FMD ORIENTATION TOOL SKID



LYNX WATER JET SKID



MULTIBEAM SONAR



TRANSPONDER



SONAR



CP PROBE



EMERGENCY STROBE



LYNX UT GAUGE



LOCK LATCH FOR FREE-SWIMMING OPTION

SEAEYE TIGER & LYNX SPECIFICATIONS

| SPECIFICATIONS | TIGER | LYNX |
|-----------------|----------|----------|
| Depth rating | 1000 msw | 1500 msw |
| Length | 1030 mm | 1230 mm |
| Height | 590 mm | 605 mm |
| Width | 700 mm | 815 mm |
| Launch weight | 150 kg | 200 kg |
| Forward speed | 3 knots | 3 knots |
| Thrust forward | 62 kgf | 66 kgf |
| Thrust lateral | 43 kgf | 47 kgf |
| Thrust vertical | 22 kgf | 43 kgf |
| Payload | 32 kg | 34 kg |

| SYSTEM POWER REQUIREMENTS | TIGER | LYNX |
|---------------------------|------------------------|-----------------------------------|
| Input | 3-phase 380-480 VAC | 3-phase 380-480 VAC |
| ROV | 8 kVA | 11 kVA |
| TMS | 1.5 kVA | 1.5 kVA |
| Tooling (optional AC) | 450 VA (3.3 kVA) | 450 VA (3.3 kVA) or (9 kVA) |
| LARS (typical) | 25 kVA | 25 kVA |
| Cabin (typical) | 12 kVA | 12 kVA |

TIGER & LYNX DEPLOYMENT AND OPERATION

TETHER MANAGEMENT SYSTEM (TMS)

The Seaeeye Tiger and Lynx can both be operated in a free-swimming configuration, with up to 450m of umbilical cable, usually fitted to an electric winch. For work at greater depths and in higher currents, and for faster travel to and from the working zone, as well as greater protection of the vehicle through the splash zone, it is usual to deploy this type of ROV with a TMS.



The Seaeeye Tiger can be deployed from the compact and lightweight galvanised steel Seaeeye TMS type 2, which can accommodate up to 140m of tether. It can alternatively be deployed from the larger stainless steel Seaeeye TMS type 8, which can accommodate up to 200m of tether. The Seaeeye Lynx is deployed from the Seaeeye TMS type 8.

Both these TMSs use a bail arm mechanism to spool the tether on and off a drum controlled by the ROV pilot. The TMS's height can be adjusted to accommodate tool skids.

The TMS type 8 can be used in conjunction with an optional snubber-rotator mechanism, which allows the TMS to be locked into position, rotated and securely moved through the A-frame.



CABIN



Surface control equipment can either be installed directly in the customer's facility or integrated into a custom ISO control cabin. A range of control cabins, workshops and storage containers are available and can be adapted to suit customer-specific requirements.



Safe Area or Zone 2 ratings are available.

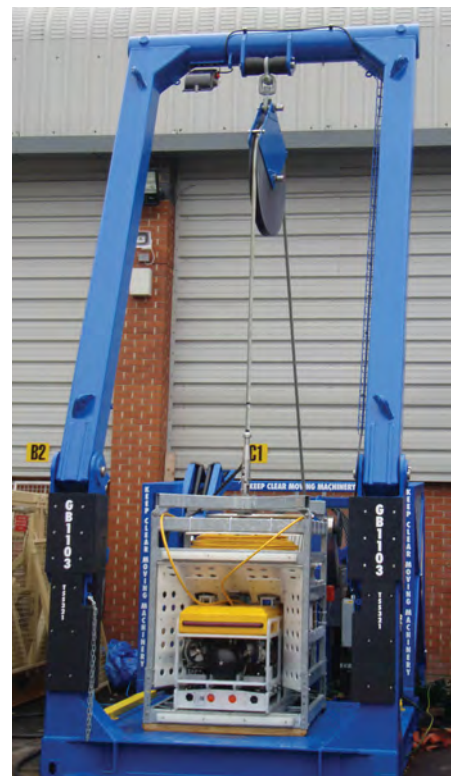
LAUNCH AND RECOVERY SYSTEM (LARS)

A range of different configurations and winch sizes are available to accommodate different cable lengths and applications.

A single skid A-frame, hydraulic power unit (HPU) and winch with an armoured umbilical cable is the most commonly used launch and recovery system.

When deck space is at a premium, crane-based systems can alternatively be used.

Safe Area or Zone 2 ratings are available.



SAAB SEA EYE LTD

THE WORLD'S LEADING MANUFACTURER OF ELECTRIC ROVS

With over 25 years experience and 700 vehicle systems sold, the company is at the forefront of design, technology, manufacturing process and support for ROVs across the world.

Providing a range of systems from inshore observation level to full deep-sea work class, Saab Seaeye has pioneered the use of ROVs for many applications, providing customised solutions, developing tools and integrating advanced technologies to achieve results for its customers.

Saab Seaeye is a wholly owned subsidiary of Saab Group, a major supplier of services and solutions to the global defence sector and celebrating its 75th birthday.

Based in the UK with a worldwide network of experienced representatives, Saab Seaeye's 24,000 sq ft headquarters in Fareham, includes in house design using the latest computer aided technology, prototyping, workshops, test tanks, pressure testing, motor rooms, machine shop, electronics and PCB sections, vehicle assembly area, stores, training rooms, offices and meeting facilities.

Accredited with DNV ISO 9001, Saab Seaeye is committed to a safe, clean and efficient working environment, coupled with experienced project management, high quality customer service/offshore support, including 24h emergency contact number and comprehensive stock holding.



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