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Xeebo Product Description

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# Similar and Prior Technologies

## VideoRay® Pro 4 Rugged BASE ROV System

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| Website | <http://www.videoray.com/homepage/professional-rovs/videoray-pro-4/pro-4-rugged-base.html> |
| Image | http://www.videoray.com/images/igallery/resized/801-900/Pro4_Cerakote_StandardThruster_web-811-800-600-80.jpg |
| Similarities | * "VideoRay operators worldwide have reported locating, identifying, and removing drugs, and other contraband from vessel hulls, port and harbor structures and bottoms." |
| Advantages | * Smaller Form Factor * Transportable, Deployable, Operable by single user. |
| Disadvantages | * Not delivered with a teather, user must purchase separately * Control System is not ergonomic |
| Cost | Approx. $25,000 |

## Seabotix® vLBV950

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| Website | <http://www.seabotix.com/products/vlbv950.htm> |
| Image | http://www.seabotix.com/products/images/vlbv/vlbv300_front_lrg.jpg |
| Similarities | * Vectored Thrusters * Manipulator Arm * Intuitive Control System |
| Advantages | * SeaBotix MiniROV controls have been regarded as the most intuitive of all small ROVs. The vLBV950 is no different with the user friendly operator control unit and integrated control console. * 4x Data RS232/845 Data Channels * Safety: Isolated input power, circuit breaker, line insulation monitor, leak detector. Meets and exceeds "Code of Practice for the Safe Use of Electricity in Water" |
| Disadvantages | * Cost |
| Cost | Quote Required |

## DOER® H2000

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| Website | <http://www.doermarine.com/?page_id=574> |
| Image | http://www.doermarine.com/wp-content/uploads/2011/03/h2000_New.jpg |
| Similarities | * DOER’s H2000 is a ultra compact work class ROV. * Designed for multi-mission use from a variety of platforms, the H2000 can be used for underwater tasks including survey, sampling, search/recovery, NDT and inspection. * Manipulator Arm |
| Advantages | * Auto Heading * Go to heading, Depth * On-sceen Overlay * Rated to 2000m * Upgradability to adapt to changing technology |
| Disadvantages | * Cost |
| Cost | Quote Required |

## Oceaneering® Magnum PlusROV

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| Website | http://www.oceaneering.com/rovs/rov-systems/magnum-plus-rov/ |
| Image | rov-magnum-sm |
| Similarities | * Manipulator Arm * Form Factor * Mission |
| Advantages | * Fiber optics are used as the primary transmission link for all video and data signals between the vehicle and the surface control console. * This allows extremely high quality video transmission * Plug and play installation of sensors and equipment * Rated to depth of 10,000 fsw |
| Disadvantages | * Cost * None |
| Cost | Quote Required |

# Xeebo Specifications

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| Xeebo |  |
| Depth Rating | 30.5 Meters Seawater (MSW) - 100 Feet Seawater (FSW) |
| Max Length | 750 mm – 29.5 in |
| Max Width | 750 mm – 29.5 in |
| Height | 660 mm - 26 in |
| Diagonal | 1143 mm - 45 in |
| Weight in Air | 9.1 kg - 20 lbs |
| Protection | Polyvinyl Chloride (PVC) frame |
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| Thrusters |  |
| Thruster Configuration | Six (6) Brushed DC thrusters - Four (4) vectored, two (2) vertical. Each thruster is identical and isolated |
| Bollard Thrust (forward) | 7.3-15.2 kg f - 16.2-33.5 pd f (variable) |
| Bollard Thrust (vertical) | 4 -7kg f - 9.8-15 pd f |
| Bollard Thrust (lateral) | 7.3-15.2 kg f - 16.2-33.5 pd f (variable) |
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| Cameras & Lighting |  |
| Diagonal Angle of View | 65 degrees in water |
| Camera – 2x | Resolution: 728(H)x488(V) - Light sensitivity: 0.2 Lux @ f2.0 |
| Focus | Manual focus control via screw lens on camera. |
| Video Format | NTSC or PAL |
| Lighting | 2 x 2,800 Lumen LED arrays. |
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| Control System |  |
| Configuration | Hand controller, topside controller, and monitor |
| Data Channels | RS-485 (115kb) |
| Monitor | 38 cm - 15 in color LCD |
| Sensors | Heading, onboard electrical enclosure temperature, pitch, roll, yaw |
| Auto Functions | Heading, trim, roll/pitch compensation |
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| Hand Controller |  |
| Length | 210 mm - 8.3 in |
| Width | 160 mm - 6.3 in |
| Height | 75 mm - 3 in |
| Weight | 650 grams - 1.4 lbs |
| Joystick | Single - forward, reverse, rotate left, rotate right, roll left, roll right |
| Joystick Steps | 32 |
| Vertical Thruster | Proportional control knob |
| Additional Controls | 2x-4 button keypad - thruster gain control, trim, auto heading, light On/Off, accessories |
| Water Proofing | I.P. 64 - Splash proof |
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| Surface Power Supply |  |
| Input Voltage | 48 VDC |
| Power Requirement | 1,920 Watts maximum |
| Safety | Circuit breaker (40 Amp). |
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| Integrated Control Console |  |
| Length | 127 mm - 5 in |
| Width | 76.2 mm - 3 in |
| Height | 54 mm – 2.13 in |
| Weight | 0.3 kg - 0.7 lbs |
| Input Voltage | 48 VDC |
| Power Requirement | 1,920 Watts maximum |
| Safety | Circuit breaker (40 Amp) |
| Proofing Water | I.P. 64 - Splash proof |
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| Tether |  |
| Diameter | 22.1 mm - 0.88 in nominal |
| Length | 30.5 meters - 100 feet |
| Working Strength | 65.3 kg f - 144 pd f |
| Breaking Strength | 386.6 kg f - 850 pd f |
| Strength Member | Polypropylene |
| Buoyancy | Neutral in fresh water - slightly positive in Seawater |
| Conductors | 2x-10 AWG Stranded (power), 3x-twisted pair (video), twisted pair (RS-485) |
| Reel construction | Heavy duty marine grade materials (stainless steel, Starboard PE) |
| Reel Capacity | 250 meters - 820 feet |
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| On-Screen Information Display |  |
| Information Displayed | Thruster gain settings, light level, Trim On/Off, heading, depth, turns counter, camera angle, electrical enclosure temperature, time, date |
| Menus | Quick menu, setup, calibrate, diagnostics, options |

# Test and Verification

## Agility, Speed, Maneuverability

## Manipulator Arm Dexterity, Strength, Capability

## Bollard Thrust

## Payload Carrying Ability

## Camera Quality

## Communication / Data-link Transfer Rate

## Max Current Draw

## Depth/Pressuare Sensor

## 48V power supply

## Maximum/Minimum Allowable Temperature