

# REMOTELY OPERATED VEHICLE HOLLAND I

TECHNICAL SPECIFICATIONS

# REMOTELY OPERATED VEHICLE HOLLAND I

The Holland I Remotely Operated Vehicle (ROV) system is a scientific deep-water ROV system. The ROV is designed for deployment from the Marine Institute vessels RV Celtic Explorer and RV Tom Crean, as well as other vessels of opportunity.

The system consists of a SMD Quasar work class Hydraulic ROV, Tether Management System (optional), A- frame launch and recovery system and a deep-water (3000m) winch. It is designed to be used in Tether Management System or live boating mode to ensure optimal system configuration in deep or medium depth locations and is controlled from a fully equipped 20' workshop container.

## The system is equipped with the following:

- A survey skid to accommodate scientific equipment for various biological and sediment sampling. A multibeam echosounder can be fitted to the survey skid for seabed mapping.
- Seven and five function manipulators to enable intervention and sampling procedures.
- Conventional video and stills camera and a high definition camera system.
- Powerful lighting to ensure high quality observation and documentation of seafloor images.

## VESSEL REQUIREMENTS

- Dynamic positioning
- Deck capacity for 2 x 20' containers, 9m x 4.5m A-frame and winch
- 380-480vac power supply 200kva for control Van (with high startup load), 70kva for umbilical winch and A Frame
- USBL system
- Total system weight; 75Tonnes

### Rating/Dimensions

Depth rating	3000msw
Length	3018mm
Width	1810mm
Height	1790mm
Weight in Air	3240kgs
Payload (with manipulators)	312kgs with tool skid removed. With tool skid & basic survey equipment fitted approximately 100kg payload free
Through Frame Lift	2000kgs
Depth Rating	3000msw

### Survey Skid

Length	3020mm
Height	450mm
Width	1761mm

### Propulsion

Hydraulic Power	100hp
Thrusters	Horizontal: 4x Curveteck HTE 380BA Vertical: 3x Curveteck HTE 300BA
Forward bollard pull	>800kgf
Vertical bollard pull	>800kgf
Lateral bollard pull	550kgf
Auto Features	Depth, Altitude, Heading, Position, Step

### Cameras

8 Pal composite video channels
1 x HD TV channel
1 x near sit
1 x b/w
1 x INSITE Pegasus
1 x oe 14-208 Digital stills
2 x oe 14-502a HDTV inspection camera
1 x Pegasus + colour camera
2 x aurora colour camera tooling
1 mini tooling camera with integrated ring light

## Lighting/measurement

4 x variable intensity 250 watt halogens  
2 x Bowtech LED series V 20,000 lumen output  
4 x 25,000 Lumen APHOS LED lights (Cathx Ocean)  
2 x 24 volt red lasers

## Positioning

**USBL 1** Sonardyne Ranger  
**USBL 2** Ixsea Gaps  
**Beacons** 5 x MT8 2 x MT 9 beacons  
3 x WTM 8190 beacons

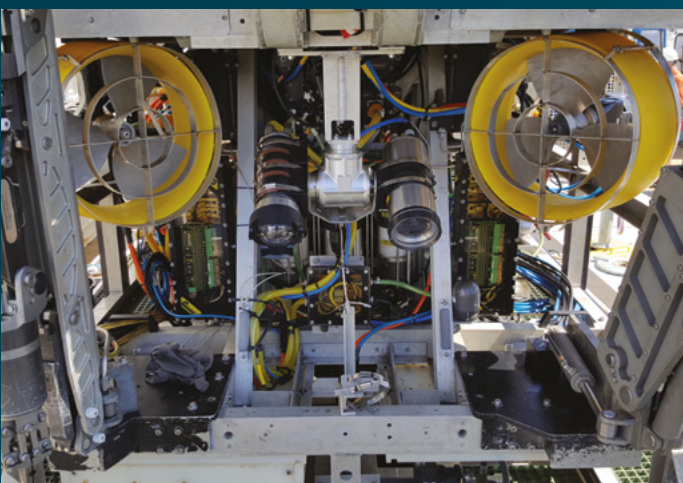
## Instruments/Tooling

### Spare Hydraulic Channels

17 spare channels

1 way high flow circuit with two seven function manipulators fitted. 24 channels available, 12 by-directional solenoid & 12 by-directional proportional @210 bar 15 litres per minute. Two of these are used for the Bio box drawers. High flow channel @ 40 litres per minute and pressure of 210 bar non-reversible.

**Gyro** FOG, Gyro Compass  
**DVL** 1 x Ixblue FOG ROVins with DVL ready integrated Notek 500khz DVL  
**Altitude** Tritech PA500  
**Depth** Digiquartz 8000  
**Sonar** Super SeaKing



## Optional Items

**Multi-beam** Configured to accommodate SeaBat 7125 with Octans subsea Gyro  
**Spare Electrical/Electronic Ports** 8 x RS485/232 Ports  
10 x Analogue I/O Ports  
12, 24 & 48 VDC, 110VAC PSU's available  
**Manipulators** Normally fitted  
**7F** 1 Schilling Orion long reach & 1 Schilling T4 (normally fitted)  
**5F** 1x Rigmaster 2, 5F Grabber  
**Bio Boxes** 2 x retractable Bio Boxes 535mm (w) x 400m (l) x 260mm (H)  
Additional sampling boxes can be fitted  
**Hydraulic cable cutters**  
**Sediment corers** 12 x 75mm dia x 280mm

## Control System

**Hardware** SMD DVECS ROV Control  
Dual touch-screens, 16 x 19" TFT Video Wall  
4 x composite video channel DVR + single overlay (3 PAL overlays)  
1 Drobo raid storage array  
1 Apple MAC book complete with Final Cut Pro  
2 PC's available for science use.  
**Control Cabin** 20ft, A60 ISO  
**Workshop Cabin** 20ft, A60 ISO  
**Power** 380-480VAC 50/60hz

## TMS

**Type** SMD Tophat TMS  
**Tether Length** 400metres max  
**Features** 3 x cameras (1 downwards facing)

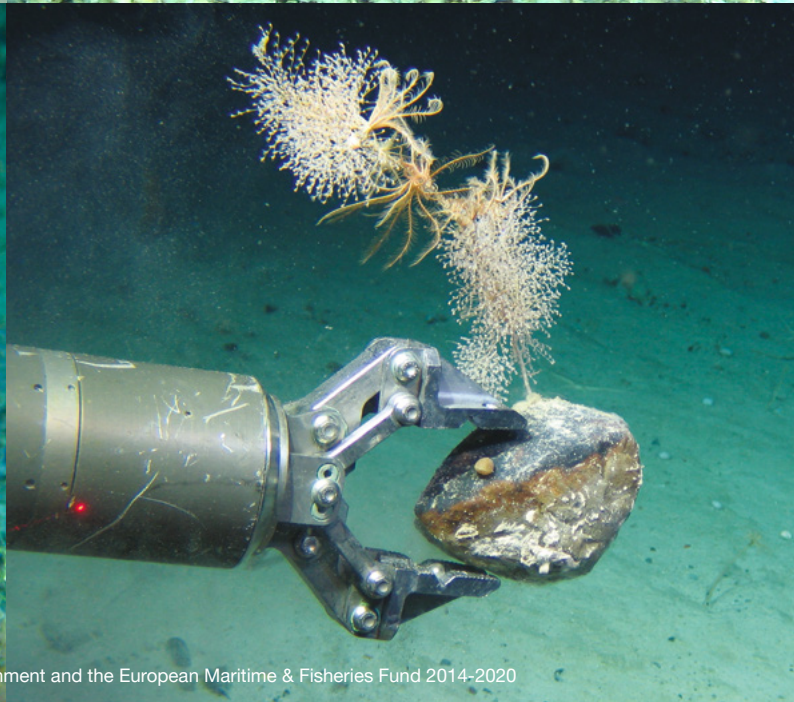
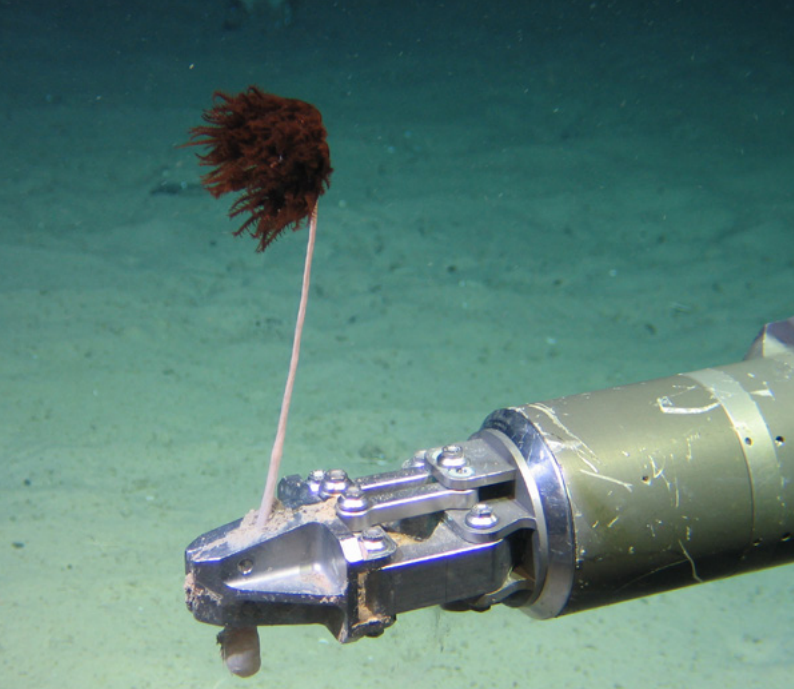
## Handling System

**Umbilical winch** SMD winch with 3300m max 27mm SWA  
**Weight** 23.4 Tonnes  
**A-Frame** Docking head with snubber and rotator  
**Weight** 18.07 Tonnes

## Deployment

### 3 Deployment Modes:

- Using TMS / LARS
- Live boating from LARS without TMS
- For shallow rapid deployment operations, vessel's A-Frame/Crane can be used with soft tether and subsea locklatch. For this mode a self contained 450 KVA generator is available.



All images provided by The SeaRover project which is co-funded by the Irish Government and the European Maritime & Fisheries Fund 2014-2020