



K&H
MARITIME
LIMITED

Automating subsea oil and gas activities

K&H Maritime Limited - Profile

- Established in 2013 to serve the Israeli O&G sector
- Personnel with long presence in the Israeli market & combined experience of more than 100 years
- Privately owned

3 Locations in Israel:

- HQ Tel Aviv area
- Operational Branch – Haifa
- Operational Branch – Ashdod



Local Services

- Vessel Ownership & Operation
- Full Agency and Husbandry Services
- Vessel Importation
- Importation Tax Exemption for goods designated to the O&G industry
- Interfacing Officials/Authorities/Ports/Terminals
- Establishing Israeli branch office for foreign entities
- Book keeping/Financial Management
- Local Mariners: Recruiting, Training and Crewing
- Operation Teams both in Haifa and Ashdod ports
- Procurement
- Vessel Chartering & Brokerage services
- Forwarding & Logistics (VIA TCL – Group's Forwarding arm)
- Customs clearance



OSV “Nor Naomi”



Nor Naomi

Offshore supply vessel

- 2017 Built
- 86m long by 20m wide
- 60 PAX
- DSS HD150 ROV on board
- 100 MT SWL AHC Crane (single fall)
- Other sub sea equipment as per project requirement (AUV Etc.)
- Tamar Field IMR performer
- Helideck



Common OSV operations

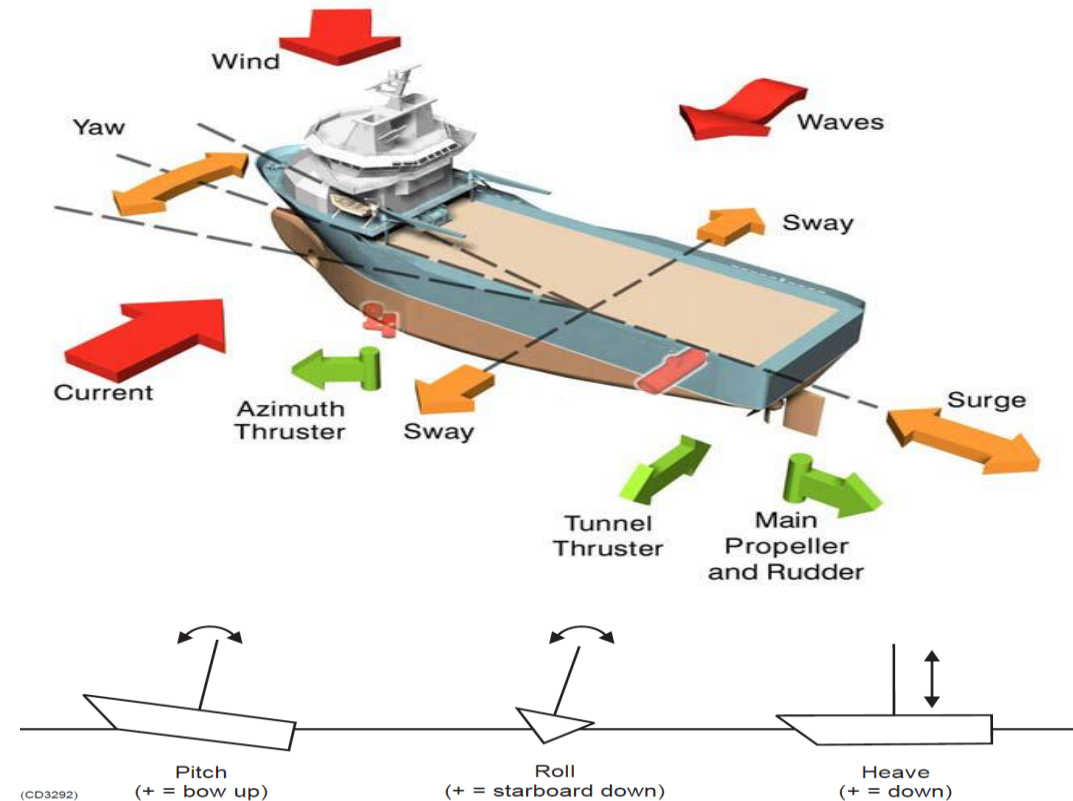
- Supply rigs and other vessel
- Subsea surveys
- Subsea operation
- Flotel
- Maintenance of rigs
- Crew change
- Installing and recovering of equipment on seabed level



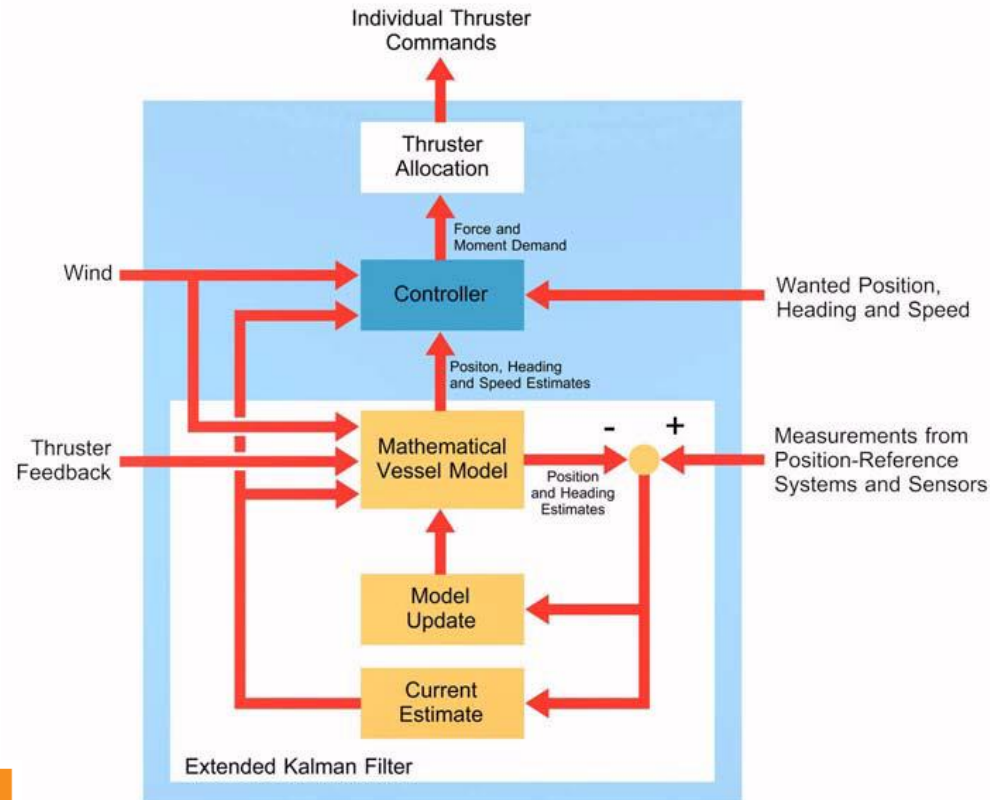
Vessel movement degree of freedom

6 degrees of movements

1. Yaw – rolling of the bow left and right
2. Sway – movement of the vessel left and right
3. Surge – movement of the vessel foreword and backward
4. Heave – movement of the vessel up and down
5. Roll - rolling of the vessel left and right
6. Pitch - rolling of the vessel up and down



DP system



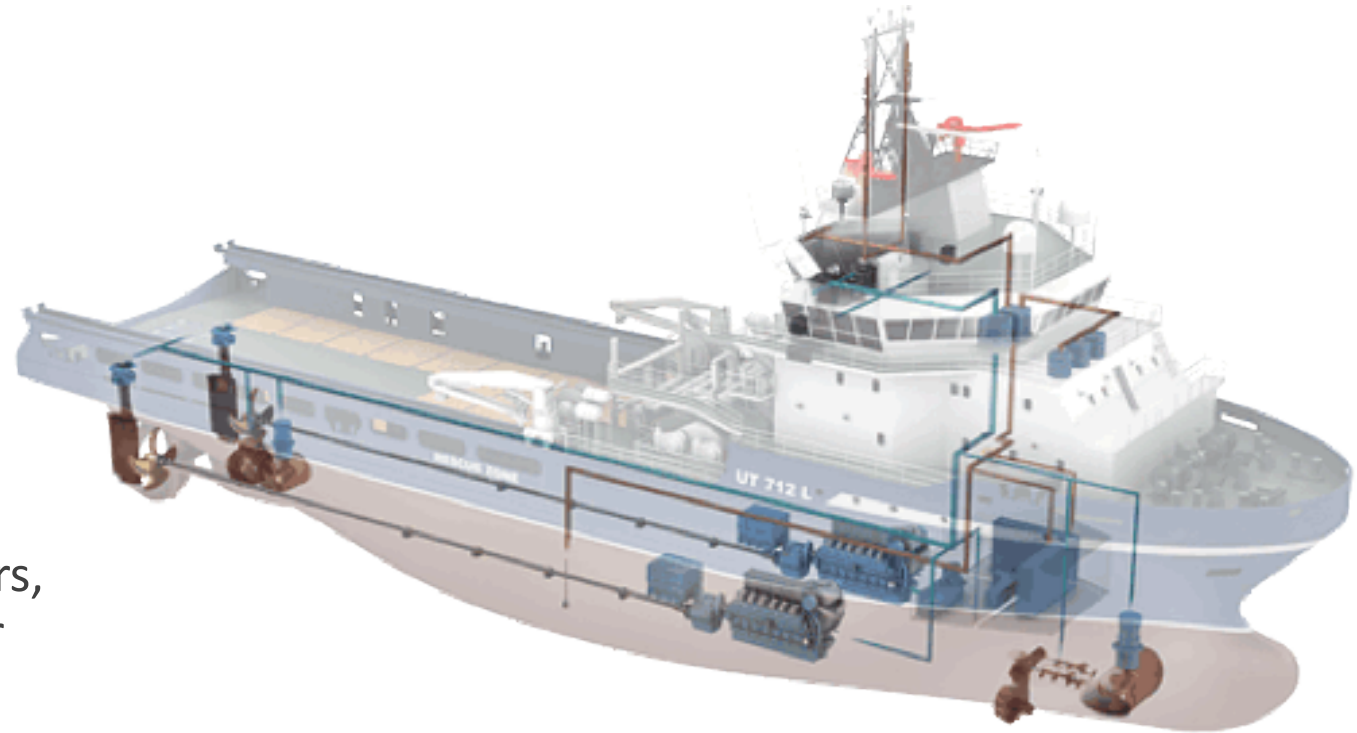
- The DP computer received input about the environment
- A mathematical model of the vessel is build
- When the user issue a movement the computer allocate the thruster for smooth and accurate movement



DP mode:

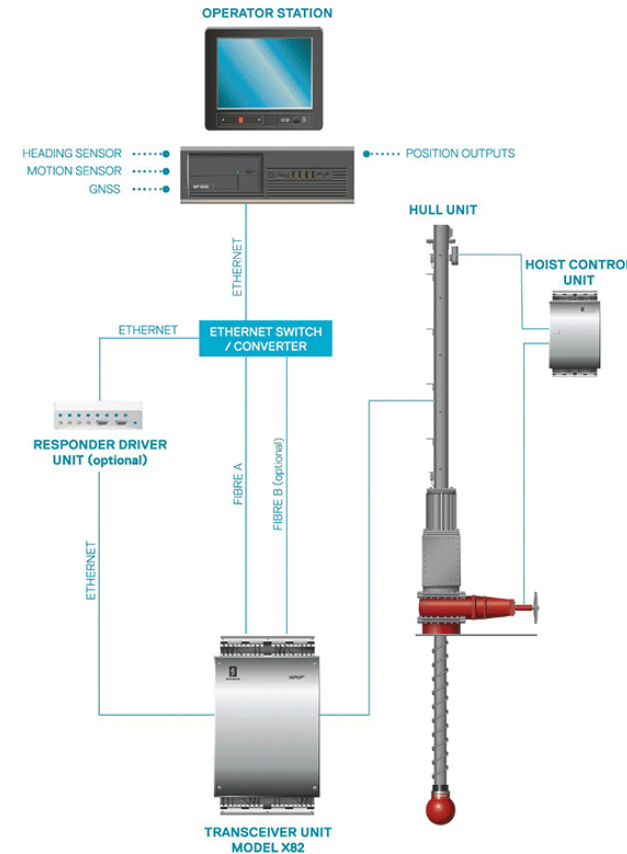
- Full DP mode
- Semi DP mode
- Joystick mode
- Follow target mode
- Manual mode

The minimum system must include:
PRS (position reference system) and sensors,
bow thrusters, 2 azimuth thrusters, power
source & DP console with OB computer



HiPAP – High Precision Acoustic Positioning System

- designed to provide accurate positions of subsea objects
- Using Acoustic signal for position reference
- Can track several targets simultaneously
- Can be use as PRS and communication with AUV
- Most of the subsea assets in the Tamar Gas field has beacons installed.



Working undersea

- Harsh working environment
- challenging tasks
- safety concerns

Utilizing subsea tools

- ROV – Remotely operated vehicle
- AHC crane – Active heave compensation
- Other subsea vehicles like the - HUGIN



AHC Crane



- Lifting Capacity:
 - 100 tons @ 15 m
 - 25 tons @ 32 m
 - 15 tons @ 33 m
- Can lift equipment from 3000m depth
- Dynamic load calculator with planning tool integrated into the crane's control system
- AHC



DSS - HD 150 ROV

- The HD-150 designed for performance, reliability, and no hassle maintenance.
- Can dive to a maximum depth of 3km carrying 250 kg of equipment
- Has 150HP electric motor, 4 cameras and 2 work arms



HUGIN Autonomous Underwater Vehicle by Kongsberg

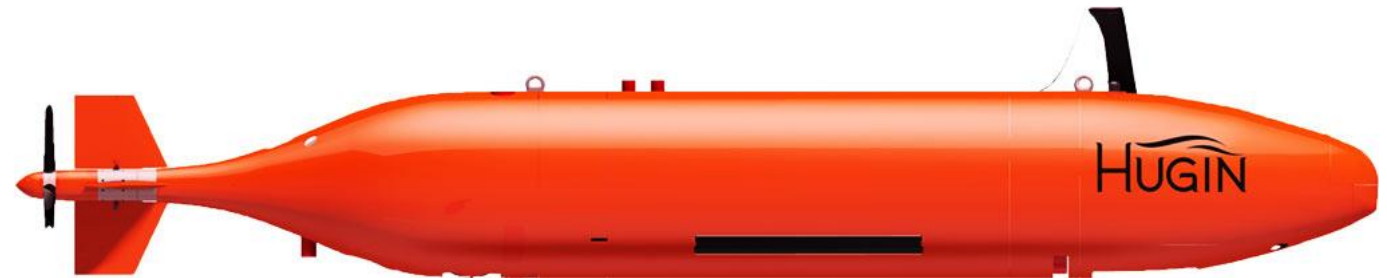
**HUGIN Autonomous
Underwater Vehicles - AUV
offer the ultimate in
autonomous remote subsea
survey capability**

**HUGIN AUVs can be equipped
with a multitude of different
payloads**

Operating depths of 3 to 6 km

The vehicle can be operated in different mode depend on the requirements

- An autonomous mission
- A semi-autonomous mission
- A supervised mission



What can be automated

- During surveys, the ROV send Video and acoustic signal back to the operator
- The operators and survey team watch the video and record the results
- In case of environmental survey the operator must identify and record the organism/object found during the survey
- In case of structural survey the operator must identify and record the structural condition (cracks, damage, corrosions Etc.) found during the survey
- This is time consuming and man power inefficient task that computer can do more accurate and efficient, using automated photo analysis
- Survey can be planned better using AI



Contact Us



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We have Much more to Tell you about K&H

<https://www.khmaritime.com/>



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