

NEW TECHNOLOGIES FOR IMPROVED VESSEL EFFICIENCY

- What are emerging design solutions that affect vessel owners?
- Shallow water construction vessels suitable for gulf waters
- Evaluating lower CAPEX investments that can improve OPEX savings
- Design Conversions

Offshore Vessel Connect Middle East, 26-27 September, Dubai

By Gunnar Haug, Managing Director - Ulstein Asia Pte Ltd

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TURNING VISIONS INTO REALITY

ULSTEIN GROUP – HQ & SHIPYARD



DESIGN & SYSTEM PACKAGES



SHIPBUILDING



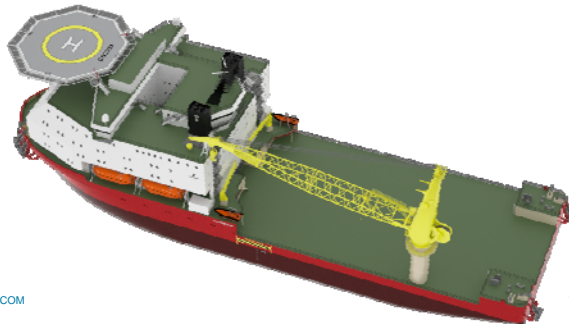
EQUIPMENT PRODUCTION



CO-INVESTMENTS

CHALLENGES

- Subsea vessel market dominated by high-cost, deep water vessels
- Market demands for shallow draft, cost efficient vessels supporting Cable laying, Offshore construction, Shallow water installation, Dive support, Rock installation, Salvage etc.
- How to improve operational flexibility to adapt to supply/demand changes
- CAPEX/OPEX considerations

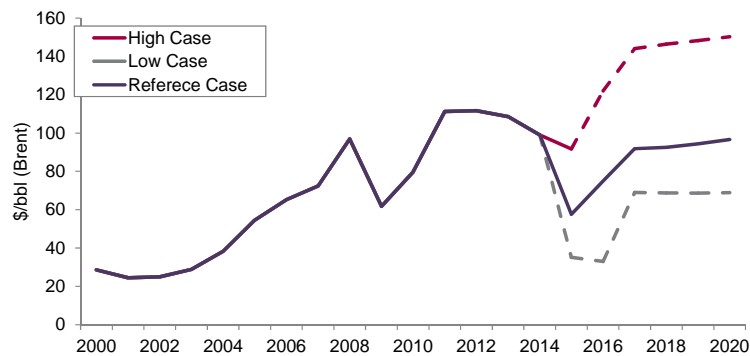


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MARKET DEVELOPMENTS

OIL PRICE UNSTABLE



Brent Price Outlook

The Oil Story | Floors and Rebounds

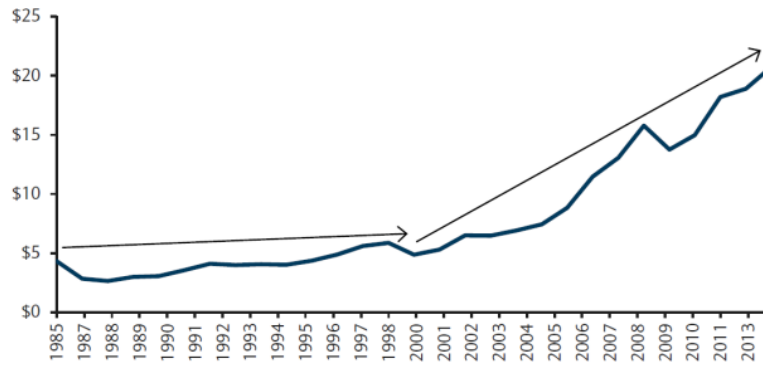
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MARKET DEVELOPMENTS

INDUSTRY COST RISING



Source: IEA, Barclays Research

Rising Industry Costs | Unsustainable

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COLD STACKING

- Around 1,000 OSVs in layup in toughest market for 30 years
- 140-150 high value OSVs laid up only in the North Sea
- 50% utilization or less



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HIGH VALUE VESSELS FOR DEEP WATERS

- Subsea 7 currently has 34 vessels in the fleet, with 27 of them active and a total of seven stacked
- Additional four vessels under construction



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BUSINESS CASES CONSTRUCTION VESSELS



Functions	ULSTEIN S182	ULSTEIN HX102
Mission equipment	400 ton crane	900 ton crane
Station keeping	Good	Excellent
Motion performance	Limited (benign areas)	Excellent (North Sea)
Mobility	9 knots	13 knots
Payload	2000 m ² 9000 ton	3000 m ² 17000 ton
People on board	240 (4P cabins)	240 (2P cabins)
Cost estimate (excl. ME*)	45 \$M	125 \$M

* ME = Mission Equipment

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BUSINESS CASE - LOW CAPEX CSV

- Modern alternative to accommodation/work barges, at competitive CAPEX and OPEX
- Self-propelled, providing quick and economic mobilization
- Excellent DP capability (can be customized to client specific requirements)
- Supporting wide range of oil and gas lifecycle phases including offshore oil field production, construction, structure maintenance and general operations assistance

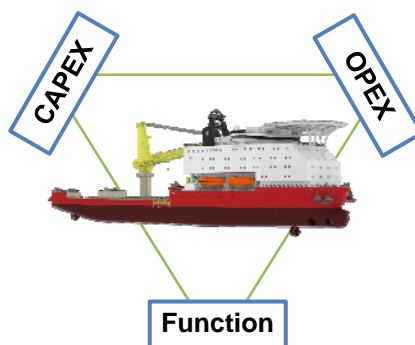


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DESIGN TARGETS CONSTRUCTION SUPPORT VESSEL

minimizing
cost



competitive
day rate

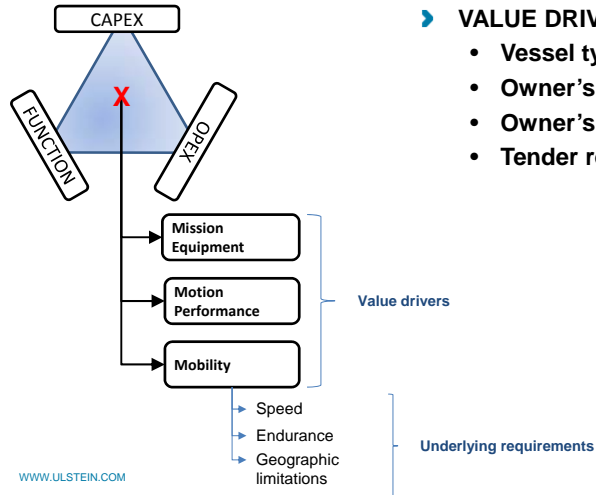
efficient platform for multiple
offshore operations

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ULSTEIN DESIGN PROCESS

VALUE DRIVERS



VALUE DRIVERS depend on:

- Vessel type
- Owner's operational experience
- Owner's preferences
- Tender requirements

MUST-HAVES VERSUS NICE-TO-HAVES

- Crew comfort
- Speed
- Class notations



OPERATIONAL FUNCTIONS

CONSTRUCTION SUPPORT VESSEL

- Main markets and functions
 - Accommodation/Maintenance
 - Decommissioning
 - Hook-up
 - Shallow water construction
- Alternative markets
 - Salvage operations



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ULSTEIN S194

MAIN PARTICULARS

- | | | | | | |
|---------------------|---|-----------------|-----------------|---|----------------------|
| ➤ L_{oa} | : | 129.0 m | ➤ Complement | : | 500 persons |
| ➤ L_{pp} | : | 121.4 m | ➤ Deck area | : | 2,300 m ² |
| ➤ $B_{moulded}$ | : | 36.4 m | ➤ Deck strength | : | 15 t/m ² |
| ➤ $D_{moulded}$ | : | 8.9 m | ➤ Main crane | : | 600 mt @ 25 m |
| ➤ T_{max} | : | 6.5 m | ➤ ERN* | : | 99.99.97.95 |
| ➤ T_{design} | : | 5.0 m | | | |
| ➤ T_{min} (in DP) | : | 3.9 m | | | |
| ➤ $V_{service}$ | : | ca 12 knots | | | |
| ➤ Main generators | : | 2 x 4,320 kW | | | |
| | : | 2 x 2,880 kW | | | |
| ➤ Positioning | : | DP3 | | | |
| | : | 8-point mooring | | | |



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CONSTRUCTION SUPPORT VESSEL

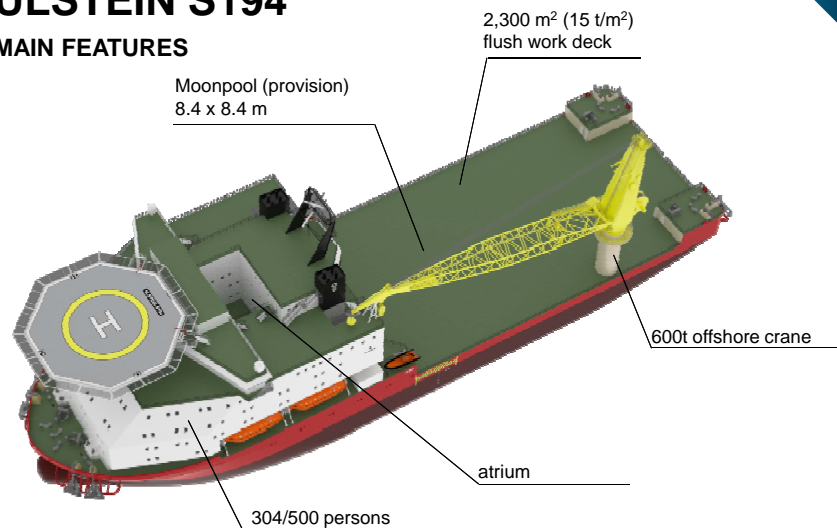
- Large flush work deck for multiple functions
- Large accommodation (304/500 POB)
- Atrium to increase daylight cabins
- Excellent station keeping (DP & anchors)
- DP3 capability developed for 36 knots wind
- Shallow water DP capability (draft of ca 3.9 m)
- Largest version in ULSTEIN shallow draft CSV series (ULSTEIN S182/S190/S194 designs)



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ULSTEIN S194

MAIN FEATURES

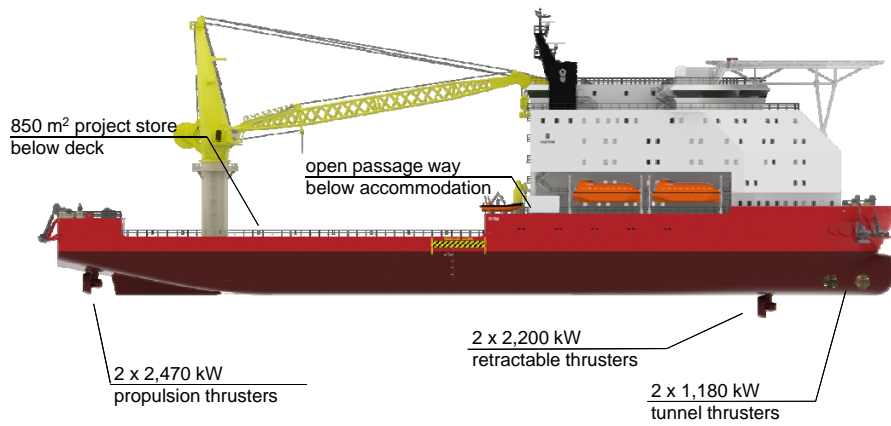


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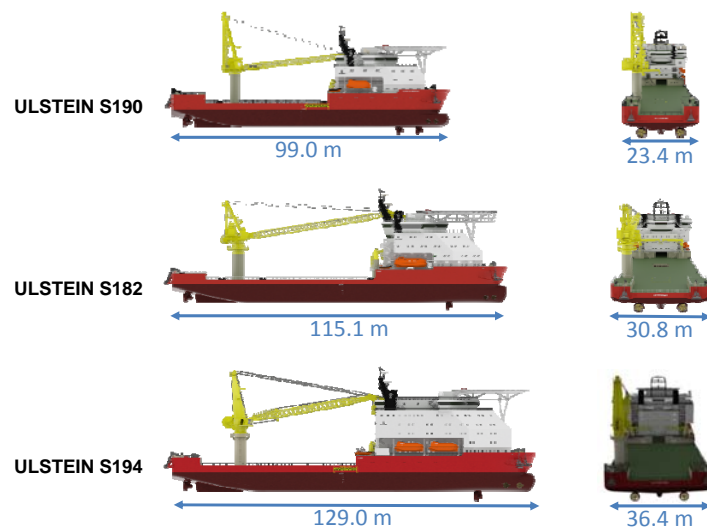
MAIN FEATURES



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SHALLOW DRAFT CSV RANGE



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ULSTEIN CSV

COMPARISON GENERAL DATA



	S190	S182	S194	
Draught (max)	6.0	6.4	6.5	m
Draught (min in DP)	3.5	4.5	3.9	m
Speed (service)	11	9	12.0	kn
Complement	90-120	140-240	304-500	persons
Positioning	DP2	DP2/DP3	DP3	
	4-point mooring	4-point mooring	8-point mooring	
Deck area	1,200	2,000	2,300	m ²
Deck strength	10	15	15	t/m ²
Project store	500	850	850	m ²
Main crane (max optional)	300t @ 16m	400t @ 17m	600t @ 25m	

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ULSTEIN CSV

COMPARISON THRUSTERS AND POWER



	S190	S182	S194	
Propulsion thrusters	2 x 1,280	2 x 1,500	2 x 2,470	kW
Forward azim. thruster	2 x 880	2 x 1,000	2 x 2,200	kW
Fwd tunnel thrusters	2 x 750	2 x 750	2 x 1,180	kW
Total thruster output	5,820	6,500	11,700	kW
Installed power	7,300	10,200	14,400	kW

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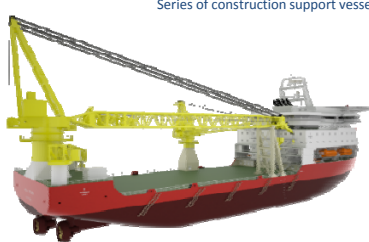
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RESULTS

NEW SERIES CAPEX & OPEX FRIENDLY SUPPORT UNITS DOING THE JOB

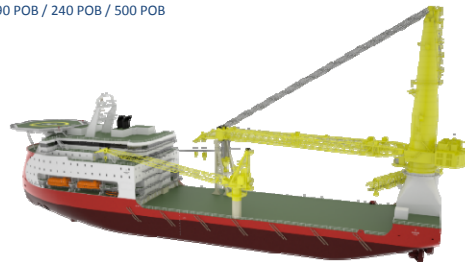


Series of construction support vessels 90 POB / 240 POB / 500 POB



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ULSTEIN HX103
1000 t / 350 POB heavy lift vessel design

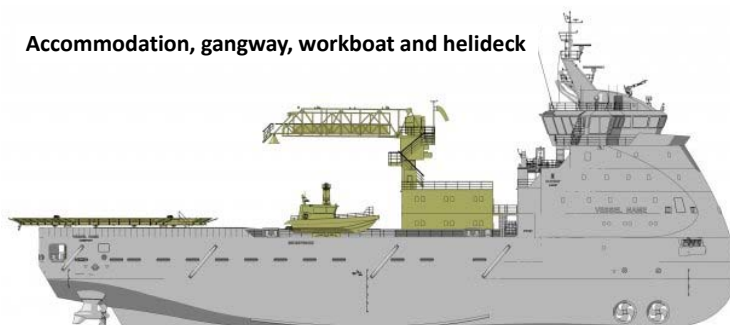


ULSTEIN HX104
2000t / 500 POB heavy lift vessel design

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DESIGN CONVERSIONS

Accommodation, gangway, workboat and helideck

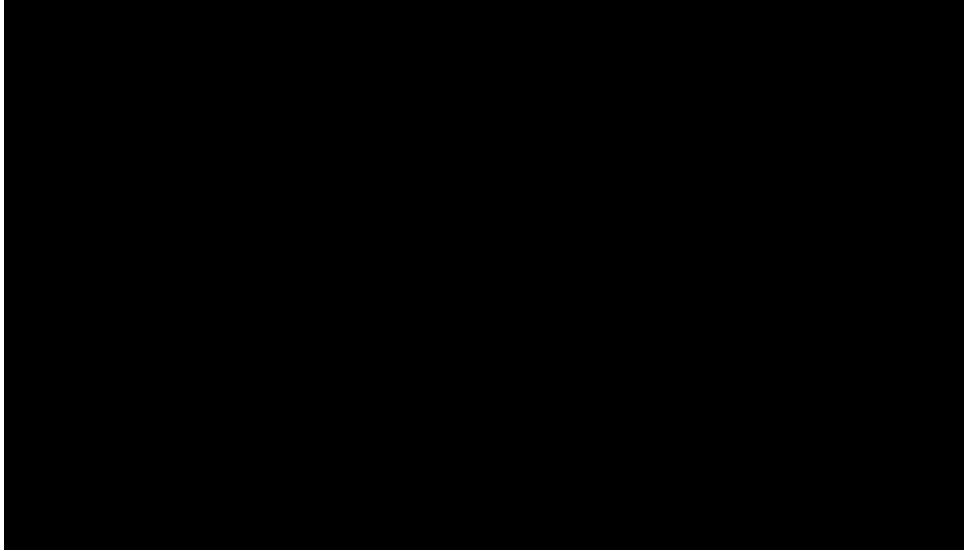


We offer off-the-shelf and customised conversions of our existing ship designs.
We can cover the whole process from initial idea to turn key solution.

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DESIGN CONVERSIONS



NEW! ULSTEIN LX109 CABLE LAYER



ULSTEIN

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