

Multi-purpose shallow-draft construction vessels

- High spec versus versatility -
- in a low oil price environment

Offshore Vessel & Rig Connect Asia - OSV & Subsea Vessels

By Gunnar Haug, Managing Director - Ulstein Asia Pte Ltd

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TURNING VISIONS INTO REALITY

CONTENT

- Business case & design targets
- ULSTEIN S194
- ULSTEIN shallow draft CSV design comparison
- Questions

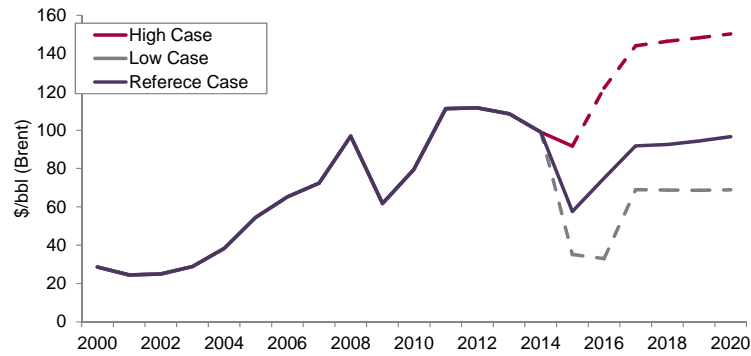


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MARKET DEVELOPMENTS

OIL PRICE UNSTABLE



Brent Price Outlook

The Oil Story | Floors and Rebounds

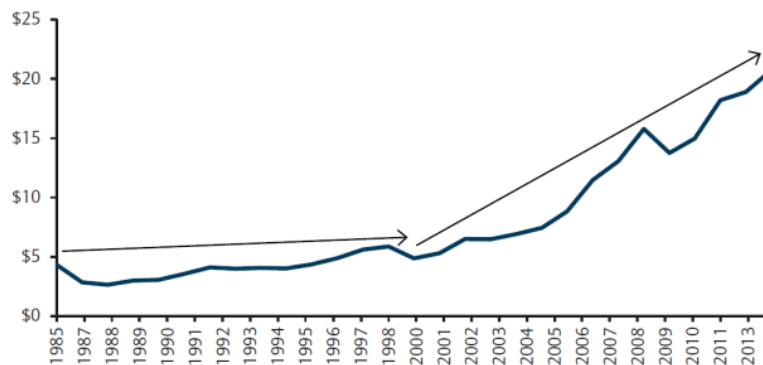
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MARKET DEVELOPMENTS

INDUSTRY COST RISING



Source: IEA, Barclays Research

Rising Industry Costs | Unsustainable

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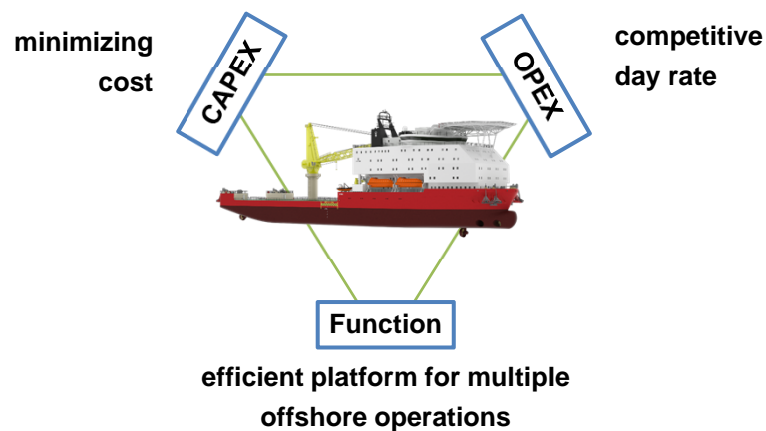
ULSTEIN BUSINESS CASE

CONSTRUCTION SUPPORT VESSEL

- 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

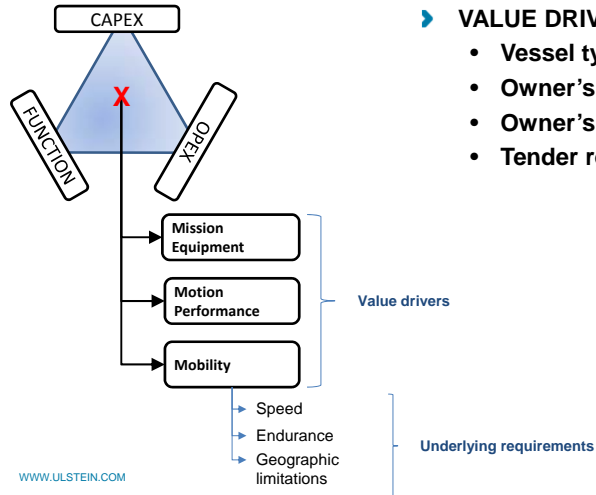
ULSTEIN DESIGN TARGETS

CONSTRUCTION SUPPORT VESSEL



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

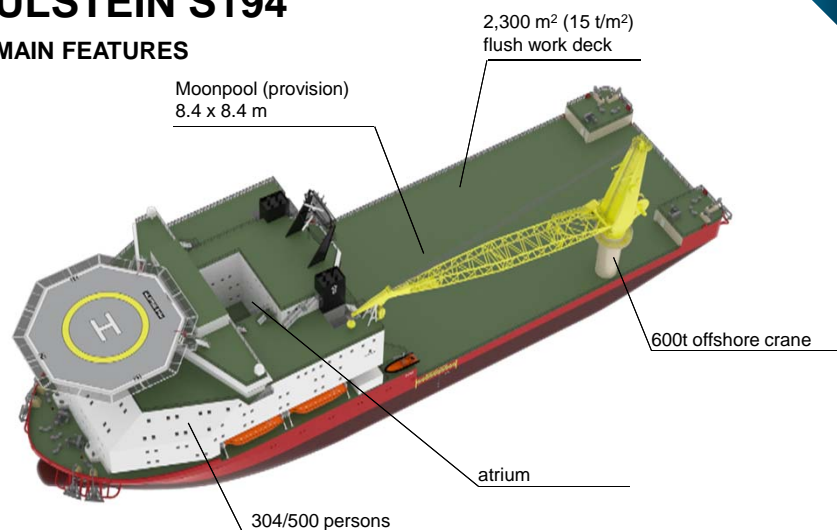
- Large flush work deck for multiple functions
- Large accommodation (304/500 POB)
- Atrium to increase daylight cabins
- Excellent station keeping (DP & anchors)
- DP3 capability developed for 36 knots wind
- Shallow water DP capability (draft of ca 3.9 m)
- Largest version in ULSTEIN shallow draft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



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MAIN FEATURES



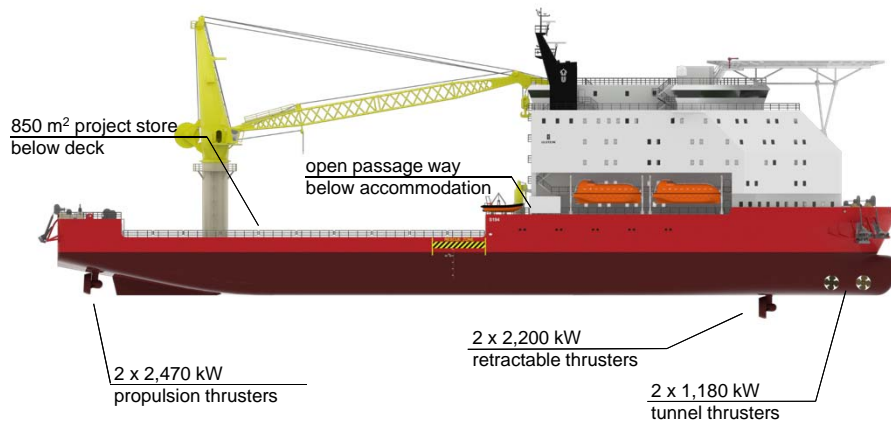
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MAIN FEATURES

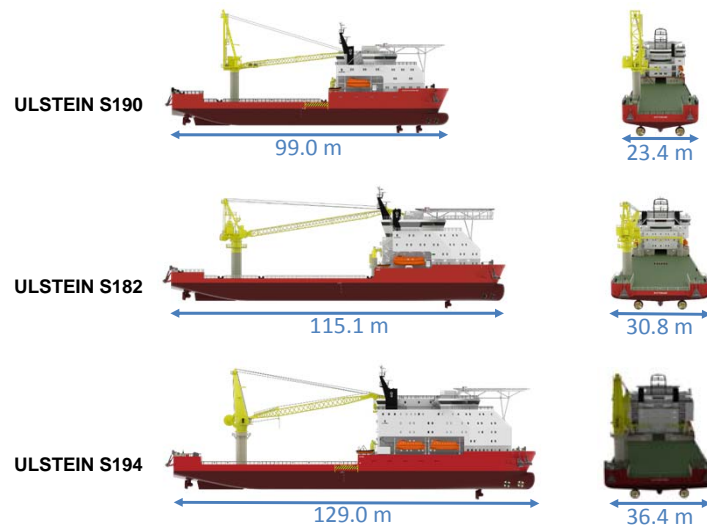


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SHALLOW DRAFT CSV RANGE



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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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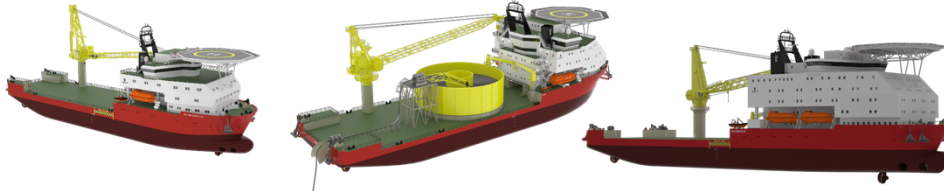
COMPARISON THRUSTERS AND POWER



	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

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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QUESTIONS?

ULSTEIN S194 CONSTRUCTION SUPPORT VESSEL



ULSTEIN

CONTACTS

ULSTEIN DESIGN & SOLUTIONS B.V.
Mr Edwin van Leeuwen
Managing Director
T: +31 10 475 00 11
M: +31 6 53 14 47 77
E: edwin.vanleeuwen@ulstein.com

ULSTEIN DESIGN & SOLUTIONS B.V.
Mr Bram Lambregts
Deputy Director / Marketing & Sales Manager
T: +31 10 475 00 11
M: +31 6 20 54 77 40
E: bram.lambregts@ulstein.com

ULSTEIN DESIGN & SOLUTIONS B.V.
Mr Nick Wessels
Marketing & Sales Manager
T: +31 10 475 00 11
M: +31 6 20 43 04 65
E: nick.wessels@ulstein.com

ULSTEIN ASIA PTE LTD
Gunnar Haug
Managing Director
M: +65 9296 7999
E: gunnar.haug@ulstein.com



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