

## 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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- ULSTEIN S194
- ULSTEIN shallow draft CSV design comparison
- Questions

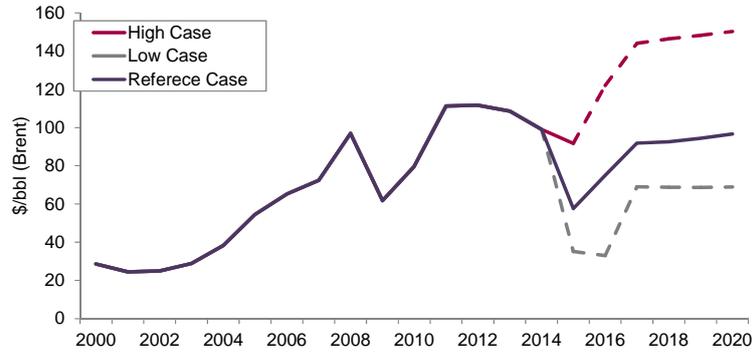


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# MARKET DEVELOPMENTS

## OIL PRICE UNSTABLE



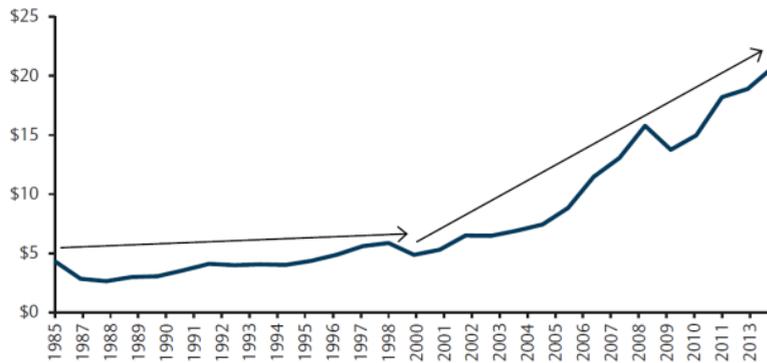
Brent Price Outlook

The Oil Story | Floors and Rebounds

Douglas - Westwood

# MARKET DEVELOPMENTS

## INDUSTRY COST RISING



Source: IEA, Barclays Research

Rising Industry Costs | Unsustainable

Douglas - Westwood

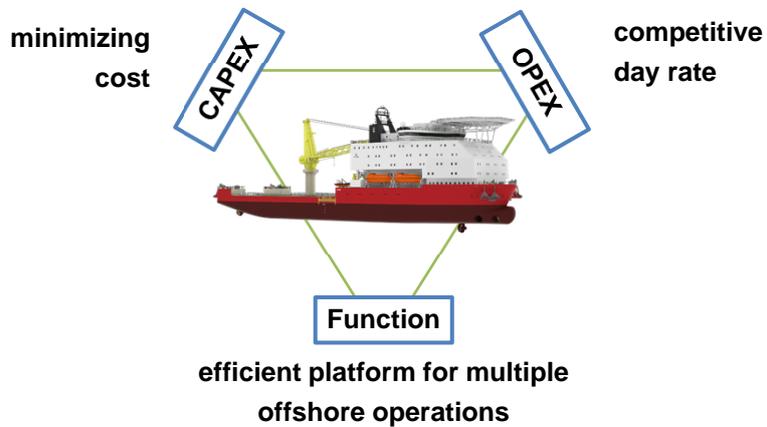
# ULSTEIN BUSINESS CASE

## 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

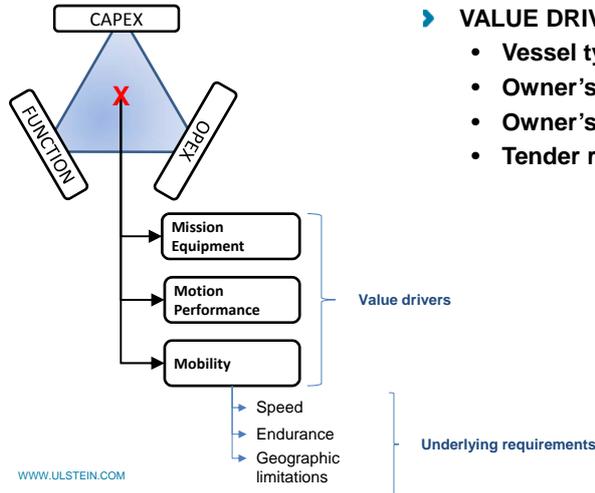
# ULSTEIN DESIGN TARGETS

## 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 <sup>2</sup> |
| ▶ $B_{moulded}$     | : 36.4 m          | ▶ Deck strength | : 15 t/m <sup>2</sup>  |
| ▶ $D_{moulded}$     | : 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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# ULSTEIN S194

## CONSTRUCTION SUPPORT VESSEL

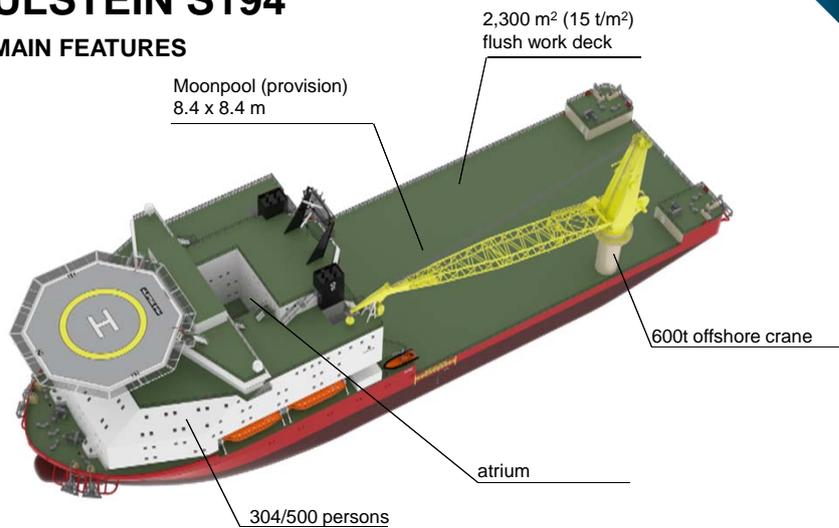
- Large flush work deck for multiple functions
- Large accommodation (304/500 POB)
- Atrium to increase daylight cabins
- Excellent station keeping (DP & anchors)
- DP3 capability developed for 36 knots wind
- Shallow water DP capability (draft of ca 3.9 m)
- Largest version in ULSTEIN shallow draft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



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# ULSTEIN S194

## MAIN FEATURES



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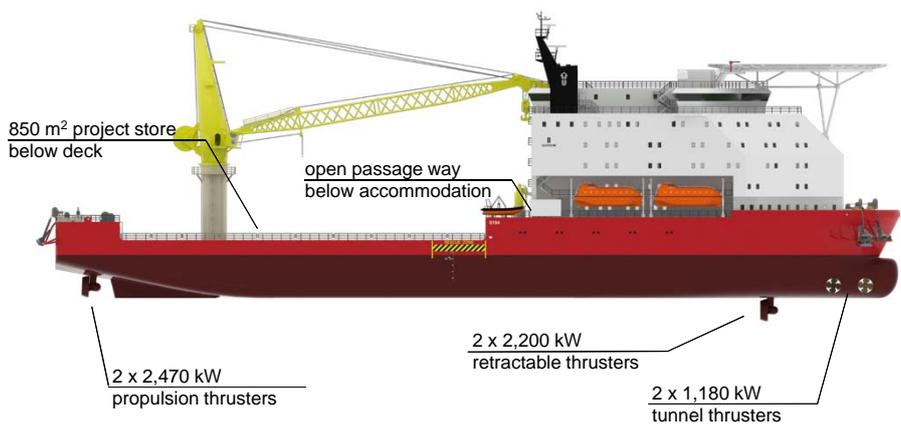
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# ULSTEIN S194

## MAIN FEATURES

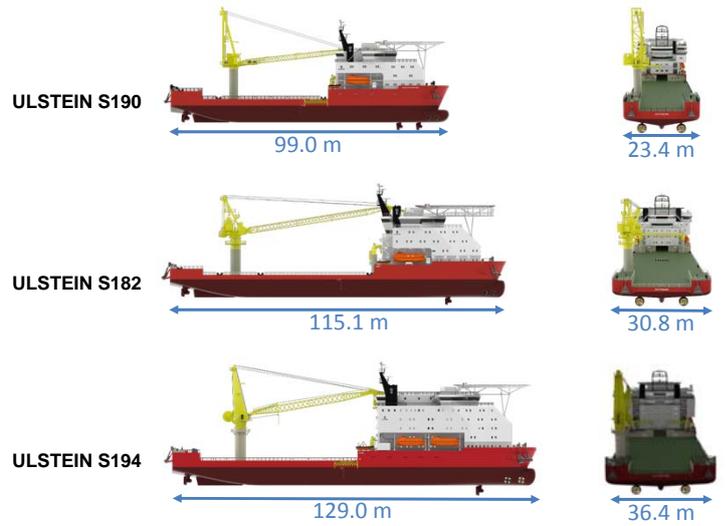


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# SHALLOW DRAFT CSV RANGE



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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 <sup>2</sup>
Deck strength	10	15	15	t/m <sup>2</sup>
Project store	500	850	850	m <sup>2</sup>
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
<b>Total thruster output</b>	<b>5,820</b>	<b>6,500</b>	<b>11,700</b>	<b>kW</b>
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



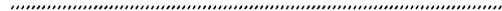
ULSTEIN HX104  
2000t /500 POB heavy lift vessel design

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# QUESTIONS?

ULSTEIN S194 CONSTRUCTION SUPPORT VESSEL





# ULSTEIN

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