

Practical engineering solutions

by

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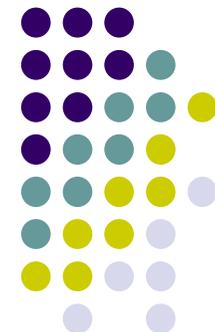
Director, SeaTech Solutions International (S) Pte Ltd

The LRET Research Collegium
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FLOATERS FOR SEABED EXPLOITATION - PRACTICAL ENGINEERING SOLUTIONS



Day 1	❖ Introduction
(19 th July 2012)	❖ Design Methodology and Design Process
	❖ System based design
	❖ Experience based data for design
Day 2	❖ Design example of a Floater for Seabed mining production and storage
(20 th July 2012)	



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Role for Offshore Vessels & Floaters

The offshore industry requires floaters as part of infrastructure offshore set up for exploiting :

- ❑ Offshore Oil & Gas
- ❑ Alternative sources of energy, e.g. offshore wind farms
- ❑ Other commercial exploitations, e.g. Underwater mining



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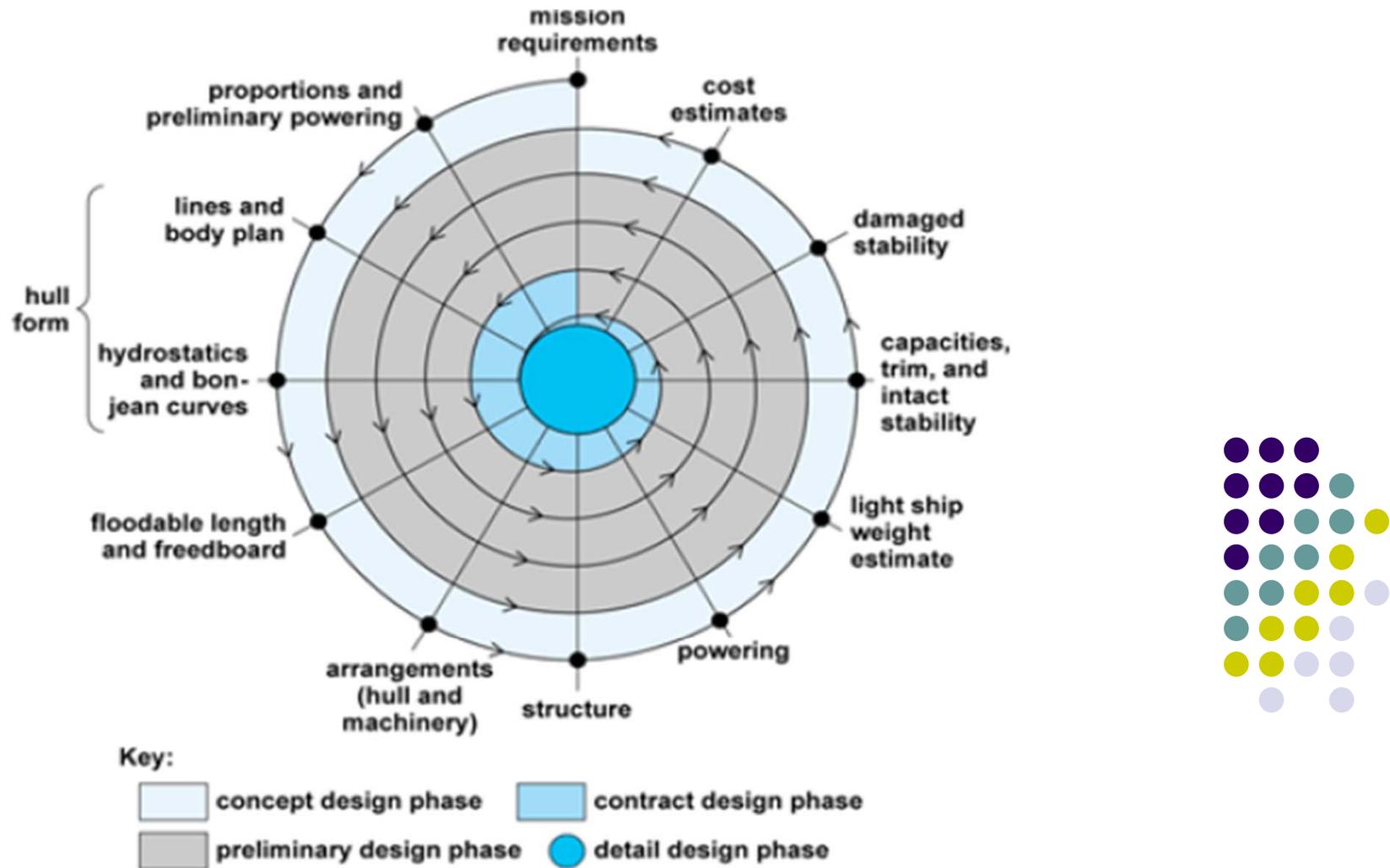


Figure 3: Example of a Typical Ship Design Spiral (Lamb 2003)

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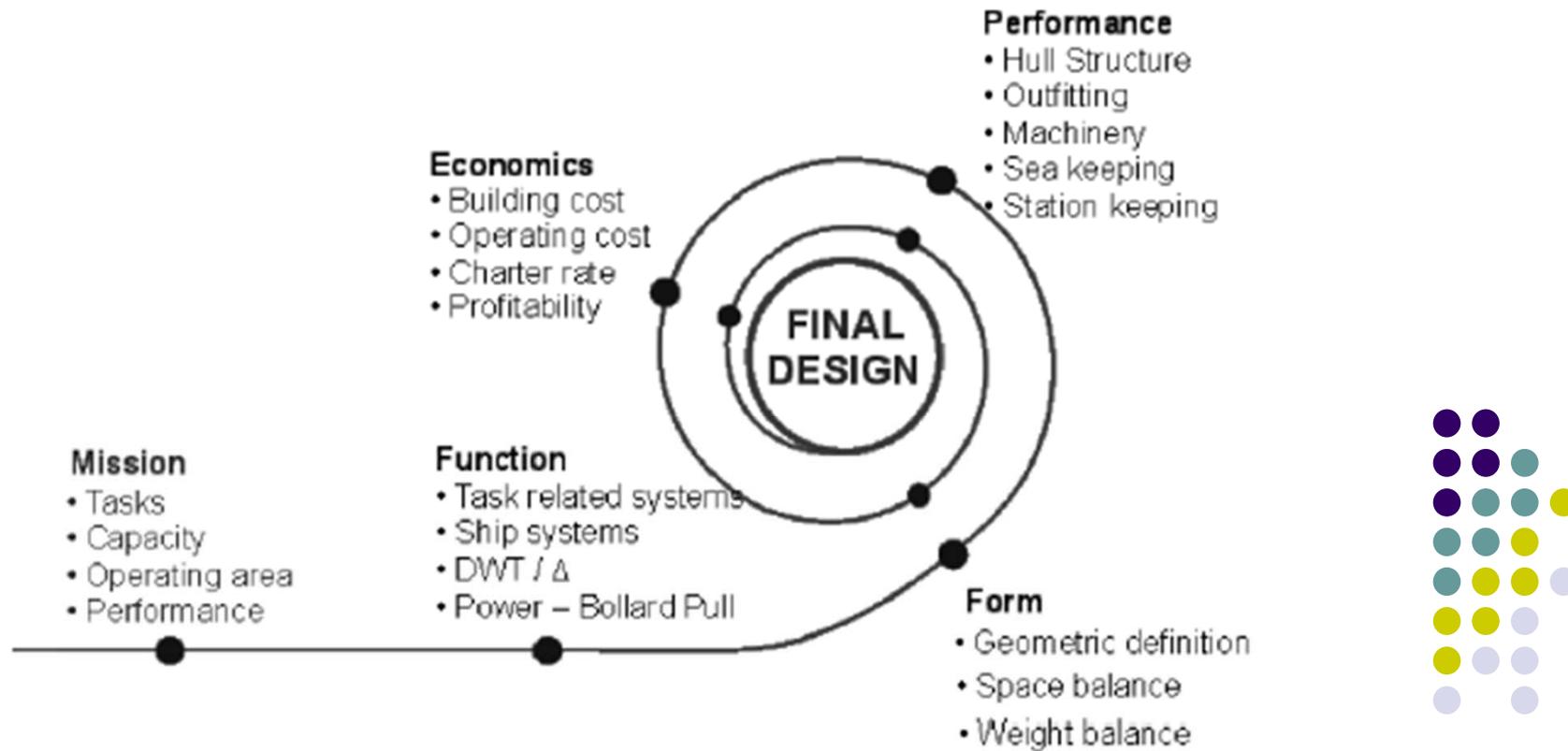
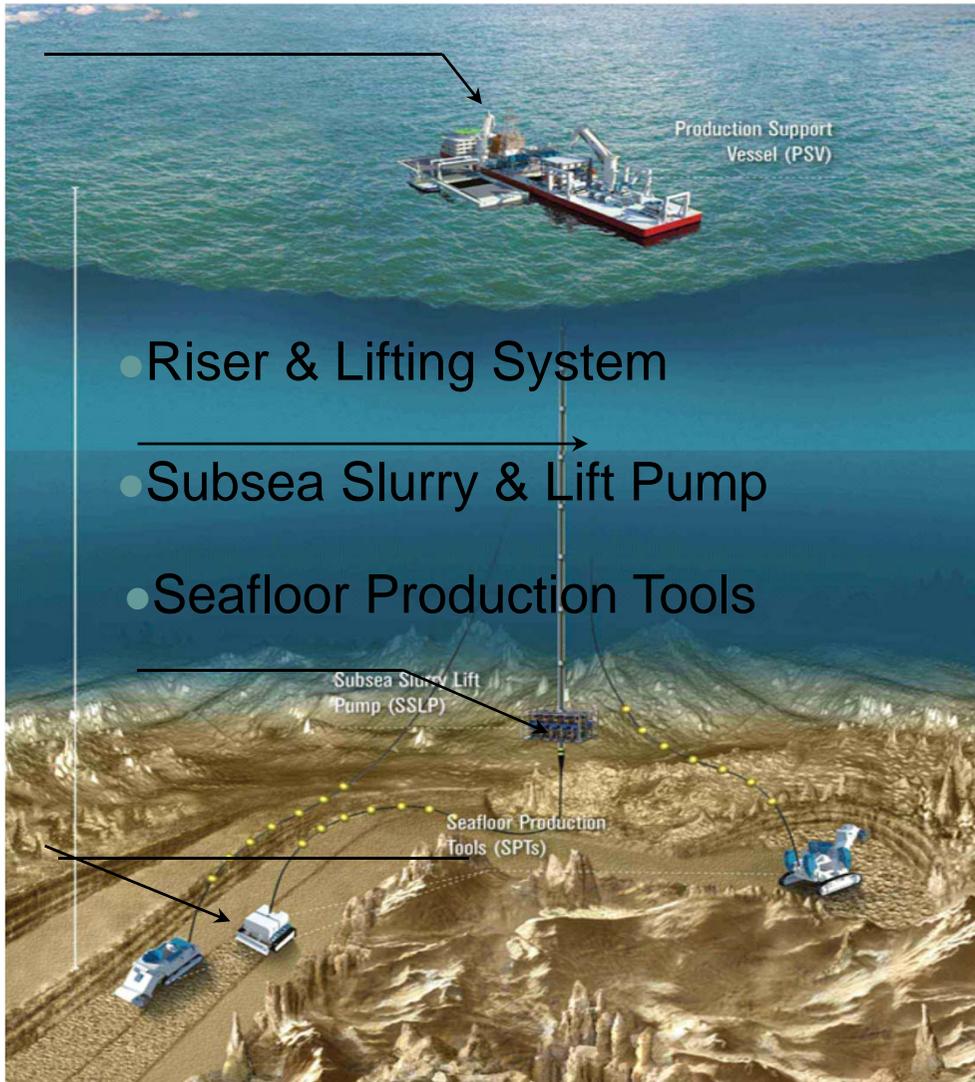


Figure 3: System Based Ship Design Spiral (Adapted From Erikstad and Levander, 2012)

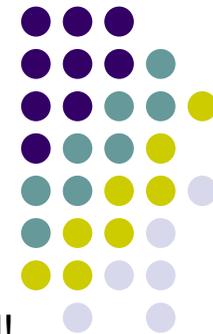
FLOATERS FOR SEABED EXPLOITATION - PRACTICAL ENGINEERING SOLUTIONS



- Riser & Lifting System
- Subsea Slurry & Lift Pump
- Seafloor Production Tools

Seafloor Production System

- ❑ Unmanned Mining on Seafloor
- ❑ Water depth > 1.5 kM
- ❑ Continuous DP operation
- ❑ Launch , Recovery , Control & Maintenance
- ❑ Operating near Papua New Guinea
- ❑ Mining Copper and Gold!



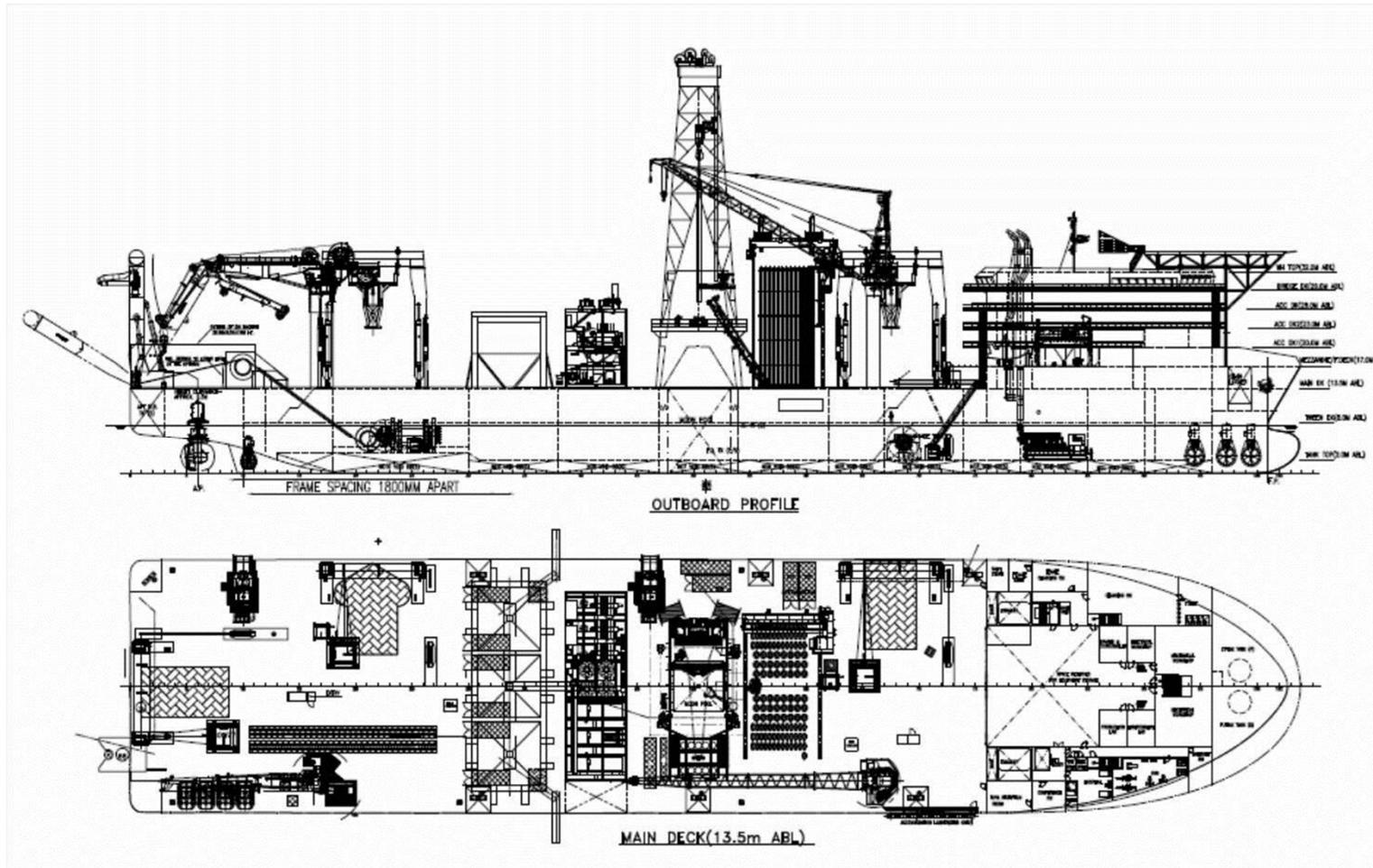
Vessel's Brief Specifications

- ❑ 187 x 40 x 13.5 x Tmax = 8.0 M
- ❑ 4800 M2 Deck Area
- ❑ 10000T of SP Equipment
- ❑ Huge LARS equipment, 750 T Derrick Tower, 2 Big Cranes
- ❑ 9000 T of Fuel
- ❑ 150 Men, SPS Code
- ❑ 7 x 4 =28 MW Electric Power @ 6.6 kV
- ❑ 2 x 3 MW Azimuth Thrusters,
- ❑ 4 Tunnel Thrusters : 3 x 2 MW Bow + 1 MW @ Stern



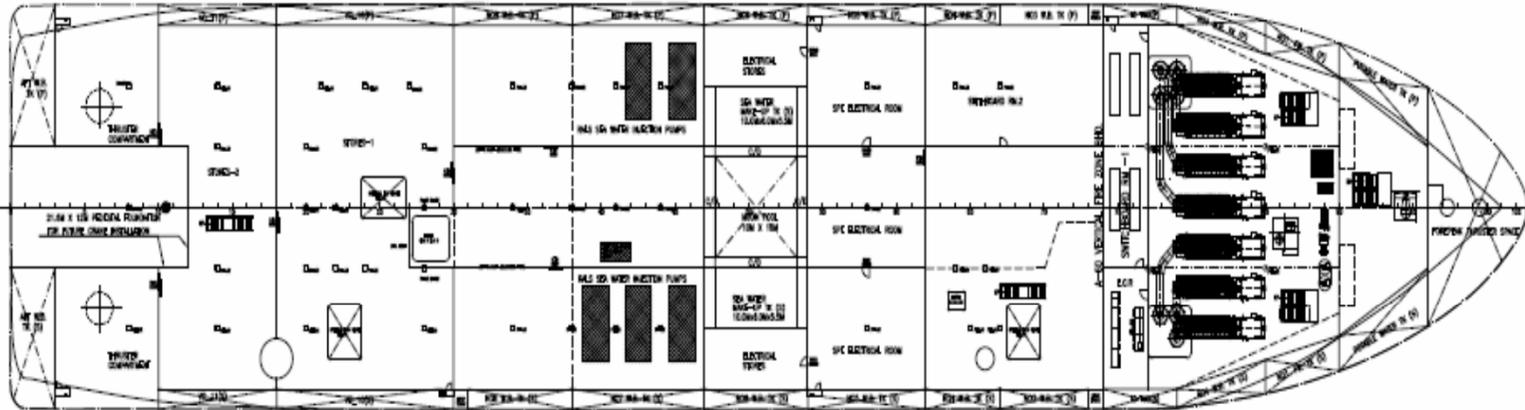
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Profile & Main Deck

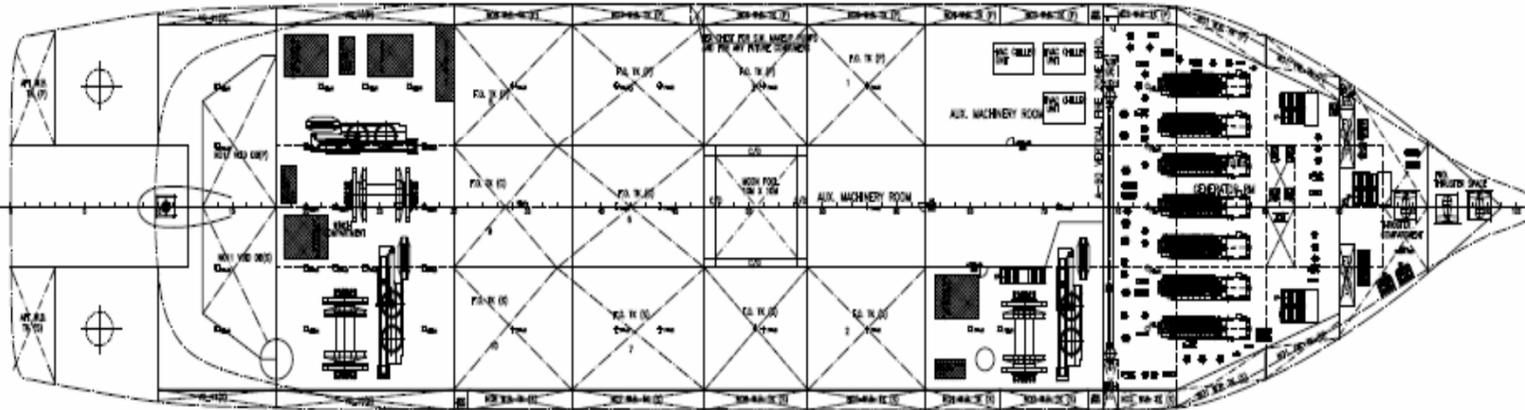


FLOATERS FOR SEABED EXPLOITATION - PRACTICAL ENGINEERING SOLUTIONS

Tween Deck & Inner Bottom



TWEEN DECK(8.0m ABL)



BELOW TWEEN DK PLAN



ROV Production tools operating on seafloor
Weight > 500 T , Power > 1800 kW each.

