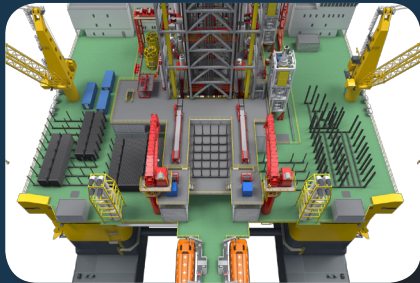


### Frigstad Engineering

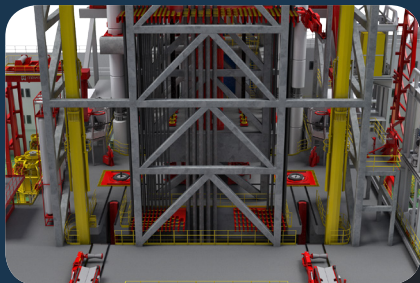
The Frigstad Engineering Group has provided rig designs and engineering services to the offshore drilling and production industry since 1981. With offices in Cyprus, Singapore, Norway and Brazil we have established strong ties with major offshore shipyards and suppliers of drilling equipment and we are able to serve our clients world-wide. Frigstad Engineering operates with a deeply embedded philosophy of designing and modifying rigs according to the operational needs of the professionals who work on them and with the expectations of oil companies and investors in mind. Particular emphasis is placed upon equipment selection and arrangement which offers superior safety and operational performance while maintaining the highest levels of environmental protection and cost-efficiency.

### Frigstad D90 – Operational excellence

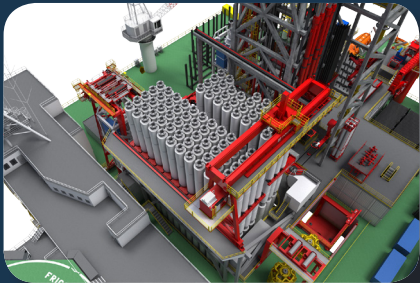
The Frigstad D90 is a proprietary semi-submersible drilling unit design which has been purposely developed for ultra deepwater exploration & development. The general arrangement of the unit has been carefully designed utilizing the extensive practical experience of the personnel at Frigstad Engineering and Frigstad Offshore. All aspects of equipment functionality and placement have been carefully considered to ensure that each process is safe and efficient.



Large deck space



Port & starboard well centers



Vertical riser storage



Dual activity Ram Rig

### Frigstad D90 DP3 DCR PSM – Key features

- 12,000 ft water depth capacity
- Prepared for 20K BOP system (2 x 7-ram 20K BOP's)
- 60,000 ft drilling depth (setback capacity).
- Vertical racking capacity for 10,170 ft drilling riser in 110 ft stands and 2,000 ft on deck. 60,000 ft drill pipe in quad. stands.
- Dual Quad. Cylinder Rig with 2 x 1,400 st hoisting capacity / 2 x 1,250 st load in elevator
- Payload capacity 17,000 t, VDL 10,000 t
- 2 x 150 t main cranes with full coverage of large deck space
- Dedicated handling and storage area for several SS X-mas trees
- Large moonpool opening of 44 x 9 m
- Powerful DP3 system with 8 thrusters that enables the rig to evacuate location and transit with a speed up to 9 knots
- Anchor winches for hook-up to pre-set mooring system
- Fully integrated cuttings storage and handling system (600 m³ / 21,190 ft³) designed to offer significant operational flexibility and cost efficiency
- MPD-Dual gradient drilling ready.

Frigstad D90™ Outline specification D90-DP3-SDR-PSM with MHWirth Dual Ram Rig			
REGULATIONS			
SOLAS 2008, MARPOL 1973/78, IMO MODU CODE 2009, all with latest amendments			
CLASSIFICATION			
DNV +1A1 COLUMN STABILIZED DRILLING UNIT, DYNPOS AUTRO and ER (DP3), POSMOR-ATA, CRANE, HELIDECK-SH, ECO, F-AM, DRILL & BWM-T			
ENVIROMENTAL OPERATING LIMITS			
Maximum wind velocity	70 knots / 100 knots	Air gap (Operating/Survival)	10.5 /16.5 m (34.4/54.1 ft)
Wave height Hs/Max	15.8/24.9 m (51.8/96.5 ft)		
PRINCIPAL PARTICULARS			
Length of pontoons	117 m (383.8 ft)	Displacement (operational)	69,802 t (76,943 st)
Width & length, pipe rack deck	89 x 81 m (292 x 265.7 ft)	Displacement (survival)	61,525 t (67,819 st)
Height to pipe rack deck (ABL)	43.3 m (142 ft)	Displacement (transit)	51,448 t (56,711 st)
Draft (operational)	24 m (78.7 ft)	Water depth (max)	12,000 ft (3,658 m)
Draft (survival)	18 m (59 ft)	Drilling depth (max)	60,000 ft (18,288 m)
STORAGE CAPACITIES			
Bulk mud	440 m³ (15,538 ft³)	Drill water, pontoon	4,811 m³ (30,260 bbls)
Bulk cement	440 m³ (15,538 ft³)	Potable water, pontoon	1,256 m³ (7,900 bbls)
Sack material, upper hull	9,000 sacks	Open pipe rack deck area	4,000 m² (43,055 ft²)
Base oil for mud, pontoon	653 m³ (4,106 bbls)	Variable deck load (max oper.)	10,000 t (11,023 st)
Liquid mud / brine, upper hull	1,603 m³ (10,100 bbls)	Variable deck load (max transit)	6,700 t (7,385 st)
Liquid mud / brine, pontoon	2,144 m³ (13,485 bbls)	Payload (max operational)	16,700 t (18,408 st)
Diesel fuel oil (MDD), pontoon	4,694 m³ (29,524 bbls)	Cutting storage, column	600 m³ (21,189 ft³)
ACCOMODATION / OFFICE			
Total capacity of 200 persons with all single person bedrooms with windows. Ample office space and service facilities.			
MATERIAL HANDLING			
Deck cranes	Two (2) 150 t revolving deck cranes with 57 m boom. Capable of handling under water thruster change out. Two (2) 14 t knuckle boom cranes for tubular handling.		
Cargo handling and logistics	Two (2) 6 t cargo elevators & several forklifts to service storage and machinery areas on pipe rack deck and inside the deck box and pipe rack deck including: engine rooms, mud pump room, cement unit room, workshops, sack storage, warehouse, galley stores etc.		
MARINE SYSTEMS			
Main power / emergency power	Eight (6) diesel engines, each with 5,760 kW capacity. Total installed power is approx. 46, 000 kW (62,500 BHP).		
Power distribution	11 kW AC main switchboards and DP with MP + AW drives and WM system.		
Thruster	DP Class 3. Eight (8) 4.5 MW azimuth thrusters (DNV DYNPOS AUTRO ER).		
Dynamic positioning	DYNPOS AUTRO (DP3) (optional)		
Mooring system	Four (4) double drum winches with 600 meters of 83 mm wire and eight (8) fairleads for connection to pre-set mooring system (DNV POSMOR ATA).		
DRILLING SYSTEMS			
Drilling rig	MHWirth Dual Ram Rig. Both port and starboard have 1,400 st hoisting capacity with 1,250 st load in elevator and dual handling capabilities. Setback for 60,000 ft quadruple drill string / casing in triple stands. Two (2) diverters / flow lines.		
Rotary table	Two (2) MHWirth 75.5" rotary with independent drive.		
Top drives	Two (2) MHWirth top drives, each with 1,250 st capacity.		
Riser tensioners	Six (6) MHWirth Direct Acting Tensionier (DAT) systems. 5,000 kips. 1 cylinder less in system gives 3,700 kips in midstroke. Max load capacity 2,500 st.		
BOP and riser	Two (2) 18 ¾" 15k, 7 cavity BOP 21" riser, 55 ft joints with K&C, booster and hydraulic lines. Vertical "Clip type" marine riser rack for 10,110 ft, 110 ft stands (2 x 55 ft lengths). Storage onboard for 12,000 ft of riser. Designed for up to 8-ram BOP, and 20K ready.		
Drill string	Drill strings with subs, drill collars, heavy weight drill pipes, casing.		
DRILLING FLUID SYSTEMS			
Mud pumps and treatment system	Four (4) main mud mumps, triplex 2,200 HP, 7,500 psi wp. Four (4) triple deck multi-sizer shakers. Two (2) desilters, two (2) centrifuges, one (1) gumbo conveyer, two (2) degasser units and two (2) 60 bbls trip tanks. Storage of 600 m³ cuttings in columns with direct off-loading through hose loading stations. Space for additional mud pumps and shale shakers.		
OTHER			
Helicopter deck capacity	Designed for Sikorsky S61/S92, M18 and EH 101 helicopters. Max 15,6 tons.		
Life-saving equipment	Four (4) lifeboats with total capacity of 400 persons (98 kg, 21" seats). Sixteen (16) inflatable life rafts with capacity of 25 persons each. Two (2) fast rescue boats.		

Note: The details included in this specification are subject to change without prior notification

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FRIGSTAD ENGINEERING LTD  
Airanti Court, 2nd floor, Offive 202  
50 Ayias Zonis Street  
Limassol CY-3090  
Cyprus  
+357 2534 4245  
fe@frigstad.com

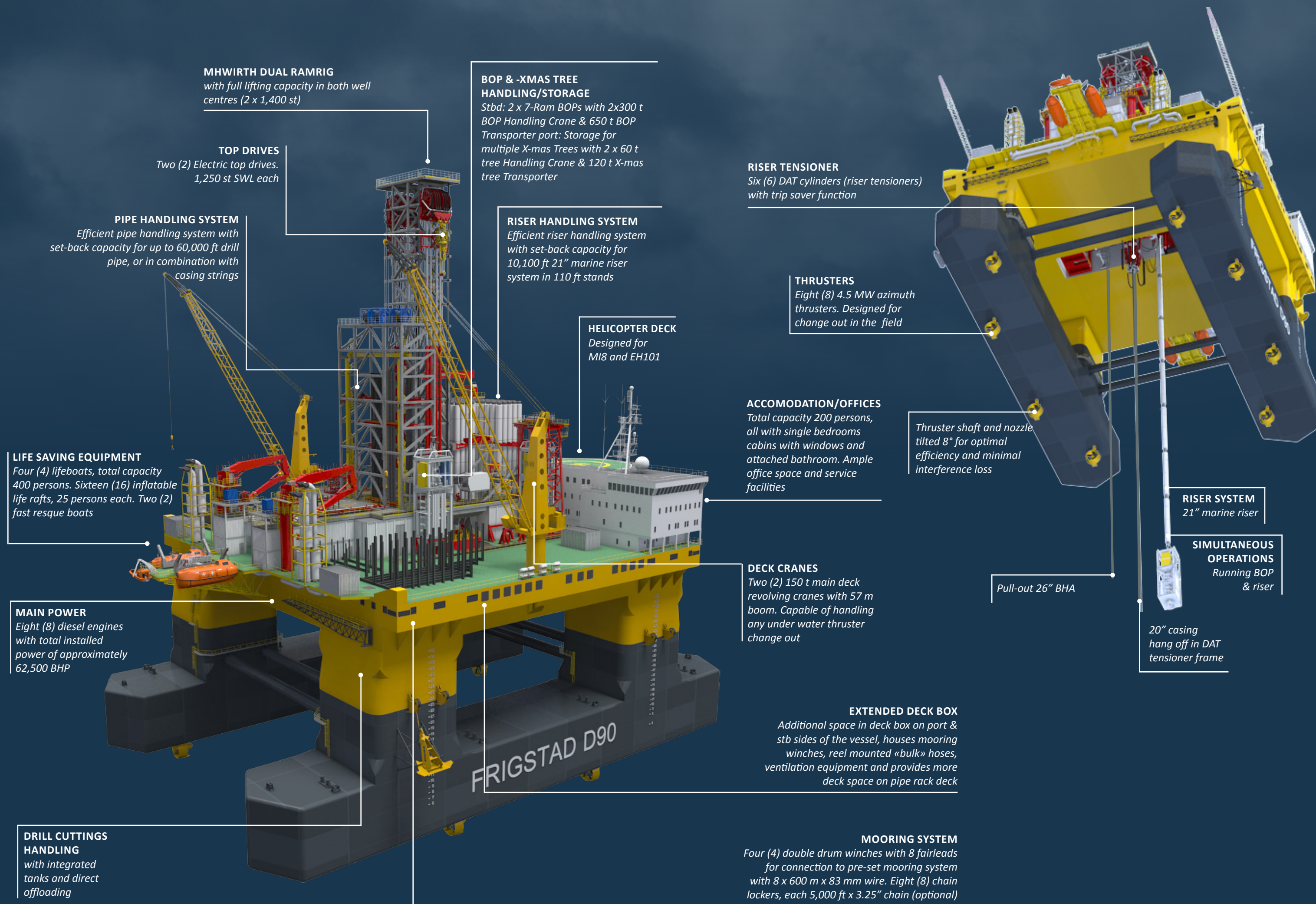
FRIGSTAD ENGINEERING  
(SINGAPORE) PTE LTD  
9 Temasek Boulevard #44-02  
Suntec Tower 2  
038989 Singapore  
+65 6349 0082  
fe@frigstad.com

FRIGSTAD ENGINEERING  
(NORWAY) AS  
Holbergsgate 11  
4614 Kristiansand  
Norway  
+47 3870 8340  
fe@frigstad.com

FRIGSTAD ENGINEERING,  
BRAZIL OFFICE  
Praia de Botafogo 501, Sala 202A  
Rio de Janeiro 22250-040  
Brasil  
+55 21 25 46 99 79  
fe@frigstad.com



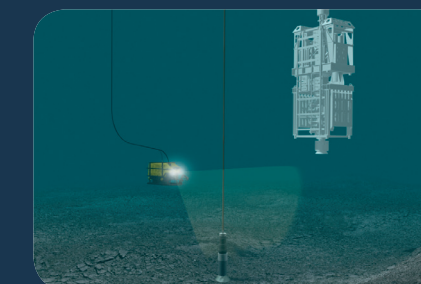




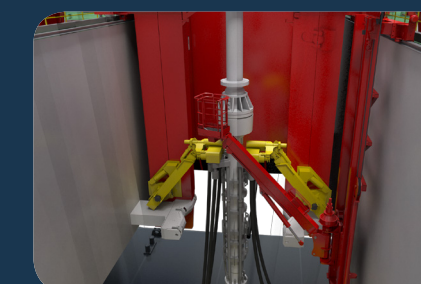
## DUAL ACTIVITY



Drilling in Ram Rig-port & running casing in Ram Rig-Starboard



Drilling in Ram Rig-port & preparing BOP in Ram Rig-starboard



Patented "handsfree" gooseneck handling.

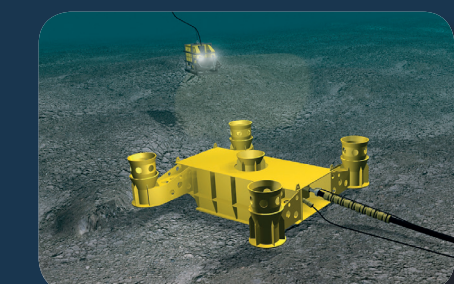
## TEMPLATE INSTALLATION



Barge with template positioned under rig with AHV's



Heavy loads lifted off barge and lowered into water



Landing template on seabed