DeepSTIM II stimulation vessel

Delivers high-volume, high-rate, and high-pressure fracturing, acid, and sand control operations

How it is used
- Large-volume multipurpose oil and gas well treatments in remote, deepwater locations
- Hydraulic fracturing, acidizing, and sand control treatments
- High-rate, high-pressure pumping operations

How it improves operations
- Increases operational flexibility with storage and blending capacities that accommodate applications from small matrix treatments to large hydraulic fracturing operations
- Automates the preparation and pumping of a wide variety of additives and blends for sand control and stimulation operations

How it works
DeepSTIM II stimulation vessel is a result of years of Schlumberger experience in the marine stimulation vessel business. The fully enclosed stimulation plant facilitates automated real-time mixing for operations from simple acid stimulation treatments to complex fracturing operations. The vessel treated wells in the US Gulf of Mexico and Asia before moving to its current base serving West Africa.

DeepSTIM* stimulation vessels have achieved many oil and gas industry firsts, including the first frac-pack on a drillship, and world records for high-rate and high-volume acid operations.

DeepSTIM II has dynamic positioning that delivers superior handling in extreme sea conditions and high capacities for storage, pumping, and mixing, making it ideally flexible to meet global operational requirements.

DeepSTIM II stimulation vessel delivers high-volume, high-rate, and high-pressure fracturing, acid, and sand control operations for operators in West Africa.

Significant equipment and storage capacity
DeepSTIM II can perform large proppant operations with 757,500 kg [1.67 million lbm] proppant storage, 16,000-hhp fracturing pumps, and a PCM* precision continuous mixer for continuous mixing of either freshwater or seawater with minimal material waste and environmental impact. Two POD* programmable optimal density blenders provide full redundancy for operations at <5.5 m³/min [<35 bbl/min] or can mix in parallel for rates up to 11 m³/min [70 bbl/min]. Both blenders are enabled for operations using the HiWAY* flow-channel fracturing technique, which reduces proppant requirements and minimizes the risk of screenouts.

A wide range of liquid additive pumps provide process-controlled and accurate delivery of additives for real-time, mix-on-the-fly sand control or acid stimulation operations.

The vessel can carry 31.8 m³ [8,400 galUS] of raw hydrochloric acid (HCl) and has additional tanks for batch-mixed stimulation fluids to increase treatment flexibility.

Quality control, automation, and data management systems
The state-of-the-art process control system enables executing complex operations from a central control room with the highest degree of quality control and assurance. The high-pressure pumps, mixers, liquid additive pumps, and other auxiliary equipment are all centrally controlled from the control room, which is equipped with multiple displays, closed-circuit cameras, and observation windows. An adjacent laboratory enables real-time quality control of fluids.

An independent Schlumberger VSAT enables use of the InterACT* global connectivity, collaboration, and information service anywhere in the world.

What else I should know
- Noncorrosive fluid storage capacity: 1,049 m³ [6,600 bbl]
- Downhole delivery rate: 7.9 m³/min [50 bbl/min]
- Continuous gel mixing rate: 9.5 m³/min [60 bbl/min]
- Large-capacity waste reclamation unit

DeepStim II

Marine Data

Dimensions

Length, m [ft]	82.3 [270]
Breadth moulded, m [ft]	17.1 [56]
Depth moulded, m [ft]	5.8 [19]

Performance

Trial speed, knots	11.4

Capacities

Deadweight, T [tonUS]	2,002 [2,207]
Ballast tanks, m³ [bbl]	2,146 [13,500]
Gel fluid, m³ [bbl]	1,049 [6,600]
Completion fluid, m³ [bbl]	108.1 [680]
Environmental waste, m³ [bbl]	108.1 [680]

Thrusters

Tunnel bow thruster, kW [hp]	1,100 [1,475]
Drop down bow thruster, kW [hp]	1,210 [1,623]
Z-drive stern thrusters (2), kW [hp]	1,710 [2,293]

Auxiliary engines

Diesel generators (3), kW [hp]	300 [402]
Stimulation generators (3), kW [hp]	300 [402]
Emergency generator, kW [hp]	99 [133]
Supply system	480 V, 60 Hz, 3-phase

Accommodations

One-person cabins	1
Two-person cabins	14
Four-person cabins	16
Total berths	31

Dynamic Positioning

Type	Marine Technology, Bridge Mate DP2

Stimulation Data

Treatment pumps

Total pump power, kW [hhp]	11,936 [16,000]
Max. pressure, MPa [psi]	103.4 [15,000]
Max. rate, m³/min [bbl/min]	8 [50]

Proppant capacity

Above deck capacity, m³ [ft³]	56.6 [2,000]
Below deck capacity, m³ [ft³]	416 [14,700]
Total capacity, m³ [ft³]	472 [16,700]
Proppant delivery rate, kg/min [lbm/min]	5,443 [12,000]

POD blenders

POD blenders (2)	
Max. fluid rate per blender, m³/min [bbl/min]	5.56 [35]
Max. proppant rate per blender, kg/min [lbm/min]	4,082 [9,000]
Header tank, m³ [bbl]	15.9 [40]

Raw acid

Raw acid capacity, m³ [bbl]	31.8 [200]

Liquid Additives

Additive capacity, m³ [bbl]	36.9 [232.1]
Small pump rates, L/min [galUS/min]	0–45.4 [0–12]
Medium pump rates, L/min [galUS/min]	45.4–136.1 [12–36]
Large pump rates, L/min [galUS/min]	136–189 [36–50]

VSAT

VSAT	1,000k-baud satellite data transmission capability

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