Subsea Services Alliance

PRODUCT SHEET

SURFACE // SUBSEA // SUBSURFACE

//Q4000

DP3 semisubmersible, purpose-built for subsea well intervention and construction in water depths to 10,000 ft

Length:
312 ft

Accommodation:
135 people

Q4000 *semisubmersible well intervention unit.*

What it is used for

The *Q4000* is a multiservice vessel that provides a stable platform for a wide range of tasks, including subsea well intervention, field and well decommissioning, subsea equipment installation and recovery, well testing, and emergency well containment. Built as the first dedicated intervention semisubmersible with its own high-pressure riser-based well access system, it has one of the most extensive well intervention track records of any vessel in the world.

Salient features that enhance operations

The vessel features

- 600-metric-ton multipurpose tower, capable of fulfilling all traditional derrick roles
- deepwater crane with lifting capacity to 360 metric tons
- work crane rated to 160 metric tons
- 38-ft × 20-ft moonpool
- 7⅜-in, 10,000-psi intervention riser system
- 10,000-ft heavy-weather ROV system
- overall deck capacity of 4,000 metric tons.

The open deck plan simplifies loading and offloading of project supplies and equipment.

***Q4000* Technical Specifications**	
Main characteristics	
Vessel name	*Q4000*
Owner	Helix Energy Solutions Group
Builder	Keppel AmFELS, Brownsville, Texas
Designer	Quantum
Year built	2002
DNV class notation	Class A+1 column-stabilized unit, classed by ABS as a MODU AMS, ACCU, DPS(3) well intervention
Flag	USA
Helideck	Rated for AW 139

***Q4000* Technical Specifications (cont.)**	
Dimensions	
Length (overall)	312 ft
Beam, lower hull	210 ft
Depth of pontoon	26.5 ft
Operating draft	49.5 ft
Column height	80 ft
Operational deck area	15,000 ft³
Multipurpose tower (MPT)	
Derrick	Huisman MPT 600-metric-ton capacity, 44-m free lift height, active and passive heave compensation
Height with TDS and 12-ft bails	125 ft to first alarm 132 ft to COM
Traveling block	Huisman six-sheave splittable
Pipe handling	Hydralift horizontal pipe racking system, c/w 13.6-metric-ton knuckle boom crane

***Q4000* Technical Specifications (cont.)**	
Multipurpose tower (cont.)	
Active heave compensation	
Dual AC drawworks rated to 600-metric-ton dynamic load	
Passive heave compensation, piston controlled	
Stroke per cylinder	20 ft
4-fall compensation	20 ft
8-fall compensation	12 ft
12-fall compensation	6 ft
4-fall lift capacity	200 metric tons, 130 ft/min
8-fall lift capacity	400 metric tons, 65 ft/min
12-fall lift capacity	600 metric tons, 43 ft/min
Propulsion and power	
Quantity	6 thrusters
Fixed pitch and azimuthing	2 at 2,240 kW each
	4 at 2,900 kW each
Tunnel (maneuvering)	2 at 800 kW each
Main power	6 × 12 RK280 3,520-kW generators
Power distribution	11-kV switchboards
Emergency power	Generators 1 and 6 assigned as vital in blackout
DP3 rated	ALSTOM DPS 902 + 901 backup
Dual drawworks	
Electric AC-driven dual drum	
Length	5,250 ft
Diameter	2 in
Minimum breaking load	223.5 metric tons
Nominal line pull	55 metric tons
Wire storage	1,600 m, 8 lays
Caliper brakes per drum	4
Electric motors	4
Nominal speed	1,600 rpm
High speed	3,400 rpm
Rated power	400 kW
Capacities	
Fuel oil	13,663 bbl
Drillwater	2,760 bbl
Potable water	2,760 bbl
Liquid mud	1,000 bbl + 190-bbl surface, 1,800-bbl column tanks (brine)
Bulk cement	2 × 1,500 ft³
Bulk barite or gel	1 × 1,500 ft³
Base water	5,000 bbl
Lube oil	Tote tanks
Variable deck load	4,000 metric tons

***Q4000* Technical Specifications (cont.)**	
Mud pumps	
Make and model	2 x NOV Hex 240
Maximum input power	2,540 hp
Maximum pressure	7,500 psi
Maximum speed	212 strokes per minute
Number of pistons	6
Dimensions of pistons	4½
Number of motors	2
Sand line service crane	
Wire rope length	15,000 ft
Sand line OPS load rating at 5.5 m	6 metric tons
Sand line OPS load rating at 7 m	3.5 metric tons
Hoisting speed with full load	419 ft/min
Hoisting speed with 50% load	702 ft/min
Trolley scope	18 ft
Moonpool	
Maximum load	600 metric tons at rotary
Maximum dynamic load	300 metric tons
Rotary table size	49.5 in
Dimensions	38-ft × 20-ft moonpool door
	28-ft-diameter tensioner array below moonpool door
Operating parameters	
Water depth	10,000 ft
Crane operating limit	36 mi/h wind speed
Survival conditions	65.91-ft wave height
	100-knot wind speed
ROVs	
Triton XLS 125-hp deck-launched ROV with 1,246-ft tether	
Triton XLS 125-hp deck-launched ROV with 2,132-ft tether	
Rated to 10,000 ft	
Top drive system	
Type	HPS 650 E 2-speed AC drive
Maximum pressure	5,000 psi [345 bar]
Maximum lift	590 metric tons
Drill speed	0–320 rpm
Maximum continuous torque	37,200 lbf.ft at 1,100 A
Drilling motor	1,150 hp
Cranage	
Huisman 360 metric tons, with 10,000-ft-capacity storage winch	
Huisman 160 metric tons, single part to 1,640 ft, 20 metric tons	

***Q4000* Technical Specifications (cont.)**	
Intervention riser system (IRS)	
Product bore	7⅜-in ID
Annulus	2-in ID
Working pressure	10,000 psi
Depth rating	10,000 fsw
Well barrier type	1 × 7⅜-in fail-close hydraulic cutting gate valve (LCV)
	2 × 7⅜-in fail-safe-closed gate valves (UCV and RTV)
	3 × annular 2¹⁄₁₆-in fail-safe-closed gate valves
	Flowhead with swivel
IRS control system	
Subsea MUX control system	
IRS MUX HPU	5,000-psi mp and 10,000-psi hp
IRS MUX control van, two remote touchscreen stations for operating IRS and flowhead control system	
2 IRS hose reels	10,000 fsw maximum, supply and test
IRS MUX cable reel	10,000 fsw
Secondary disconnect e-line reeler	10,000 ft
Riser clamps	As required for 6⅝-in riser pipe or 5½-in riser pipe, 2⅜-in annulus, and associated umbilical control lines
Iron roughneck	
Type	NOV AR3200
Makeup torque	0–101,000 lbf. ft
Breakout torque	0–122,000 lbf.ft
Pipe range	3½–9½ in
Service capabilities	
Riser-based or riserless through-tubing well intervention	
Surface tophole drilling and casing installation	
Subsea and surface equipment installation and recovery	
Well testing and production flowback services	
Slickline, electric line, and coiled tubing service deployment	
Cementing, pumping, and well stimulation	
Riser-based or riserless well and field decommissioning	
Casing cutting and wellhead recovery	
Tree recovery and replacement	
Emergency well control support	

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