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DP3 advanced semisubmersible that facilitates riser-based subsea well intervention and decommissioning, including in North Sea environments


Water depth:

85 to 3,000 m [279 to 9,842 ft]


Accommodation:

130 people (UK North Sea)
140 people (rest of the world)

What it is used for

The Q7000 performs through-riser subsea well intervention and decommissioning operations, using the proprietary intervention riser system, which features a high-angle disconnect capability.

With its open deck plan and triaxial configuration, the vessel is capable of a wide range of production enhancement operations in addition to well cleanup and field development support. It is equally optimized for well decommissioning activities, including suspension, tubing removal, tree recovery, and seafloor clearance.

Salient features that enhance operations

The unit has a variable deck load capacity of about 3,000 metric tons in addition to well intervention and service fluids. A sophisticated 600-metric-ton well intervention tower with both active and passive heave compensation is located on the upper deck.

The large flush deck features a skidding system for well intervention support equipment and tubulars storage. An innovative integrated tension frame and the associated skidding system eliminate the need for man riding, reduce over-the-deck crane lifts, and optimize changeouts between services.



Q7000 semisubmersible well intervention unit.

A helideck that complies with the CAP 437 version 7 standard accommodates SIKORSKY® S-92 and S-61N helicopters. Below deck are twin work-class ROV systems, bulk fluids storage, and pumping systems.

Q7000 Technical Specifications

Main characteristics

Vessel name	Q7000
Owner	Helix Energy Solutions Group
Builder	Jurong Shipyard, Singapore
Designer	Helix Energy Solutions Group and Jindal Steel & Power
Year built	2017
DNV class notation	+1A1 column-stabilized well intervention unit 2, HELDK-SH, CRANE, EO, DYNPOS-AUTRO, CLEAN, WELL (1), UKVS, BWM-T, COMF-V(1), COMF-C(3)

Q7000 Technical Specifications (cont.)

Dimensions

Length of pontoons (LOA) ^e	97.50 m
Breadth of pontoons	14.30 m
Cross bracings	Four
Upper deck length	70.20 m
Upper deck breadth	61.10 m
Depth of deck box	7.50 m
Transit draft	9.00 m
Operating draft	18.25 m
Displacement at operating draft	29,735 metric tons
Operational air gap	8.75 m
Survival draft	15.0 m
Survival air gap	12.0 m
Moonpool on lower deck	8.8 m × 6.5 m

Complies with

UK HSE, UK CAA, CAP 437, IMO MODU Code, MARPOL, API 2C, NORMAM-27

Pontoons

Design max. transit speed 10 knots

Q7000 Technical Specifications (cont.)

Dynamic positioning (DP) capabilities

DP3 DNV ERN 99/99/99/99
Unrestricted Worldwide Operation

Payload VDCL

Deck and column	3,000 metric tons, operational
	3,000 metric tons, survival
	1,500 metric tons, transit

Engine and electrical rooms

8 × diesel generators	2,925 kW each
Total installed power	22.4 MW
Engine rooms	Four
High-voltage S.B. rooms	Four
Low-voltage S.B. rooms	Four
4 × thrusters aft	3,200 kW each
4 × thrusters forward	1,500 metric tons

2 × 1,950-kW tunnels

2 × 2,000-kW swing down azimuth thrusters

AC variable frequency drives

Additional features

Aluminium helideck with fire suppressant box construction
Buoyant deck box for reserve stability
Gravity-filled basket system
Ballast overflow elevation—No backflow
Flush deck operating principle for all deck operations
Two enclosed 150-hp-ROV rooms
Heavy-weather launch and recovery cursor guide system

Fluid capacities

Water ballast	10,501 m ³
Fuel oil	1,799 m ³
Drillwater	422 m ³
Brine	321 m ³
Acid and special fluids	305 m ³
Potable water	422 m ³
Base oil	162 m ³
Fluid header tanks	145 m ³
Well return tanks	173 m ³
Dry bulk	81 m ³
Mud tank	162 m ³

Q7000 Technical Specifications (cont.)

Operation and well service equipment

Huisman well intervention tower	600/400/200-metric-ton active and passive heave compensation
Max. clearance between hook and drill floor	42 m
Main deck Moonpool and drill floor	600 metric tons
Lower deck moonpool hang-off trolley	400 metric tons
Guide wire system for shallow-water deployment	400 metric tons
Guide wire system	800 m

Portside deck and subsea active heave-compensated (AHC) cranes

Surface limit	150 metric tons
3,000-m WD	90 metric tons

Starboard crane

Surface (main)	160 metric tons
Surface (fly jib)	20 metric tons

Pipe and material handling

Knuckle boom crane	12 metric tons
Catwalk machine	26 m × 45 metric tons
Deck skidding system, 5 pallet systems	150 metric tons each

Mud pumps

Cameron W2214 × 2 rated pump speed	110 strokes per minute
Changeable liner size	5 in to 7.5 in
Pressure rating	7,500 psi

Control system features

Full redundant MUX
Backup emergency system
Customer system (separate hydraulic power unit)
Chemical injection system
Optional lubricator valve

Control system (intervention riser system and customer)

Working pressure	5,000 psi
Fluid (intervention riser system)	Pelagic 100 H
Fluid (customer)	Various

Q7000 Technical Specifications (cont.)

Intervention riser system

Internal diameter (ID)	7 ³ / ₈ in, nominal
Working pressure	10,000 psi
Service	Sour (H ₂ S) Sweet (CO ₂)
Temperature class	ISO 10423 Class U
Product specification level	PSL 3G
Design temperature	-18 to 121 degC
Annulus ID	2 in, nominal

Emergency disconnect package

Up to 15° disconnect angle
Hydraulic FSC production retainer valve
Riser circulation valves

Riser tensioners

Rated	8 × 126,000 lbf
Stroke	50 ft

Lower riser package

Dual-barrier hydraulic production shear-seal valves

Flushing valves

Safety head	Qualified to Norsok D-002
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Coiled tubing BOP

Iron roughneck

Makeup torque	100,000 lbf.ft
Breakout torque	150,000 lbf.ft
Torque pipe size range	3.5–10 in

Shear valve cutting capability

LRP hydraulic shear-seal valves
2.00-in OD, 0.224-in WT, 148,000-psi yield strength, coiled with 0.288 e-line and INCONEL® IFC active tubing (OD: 0.094 in and ID: 0.074 in)

Safety head	Qualified to Norsok D-002
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Coiled tubing BOP