
TZ400 Self - elevating Drilling Unit General Specification

(Revision: B1)

Name : TZ 400ft Self-elevating Drilling Unit (TZ301-1)
Flag/Port of registration : Panama
Call sign : T.B.A
Built : 2014
B u i l d e r :
Official Number : T.B.A
IMO Number : T.B.A
MMSI Number : T.B.A

GENERAL

Class : CCS
Notation : ★ CSA Self-elevating Drilling Unit, HELDK

PLATFORM DESIGN SERVICE LIFE

Design service life : 20 years
Self-sustaining capability : 20 days

PRINCIPAL DIMENSIONS

Length overall. : Approx. 98.67m
Width overall. : Approx. 72.0m
Length Moulded : 70.27m
Width Moulded : 72.0m
Depth moulded : 9.50m
Transit Draught : Approx. 5.7m
No. of legs : 3
Leg length : 166.97m (with spud can)
Spud can diameter : 17.8 m
Spud can projective area : 3 x 248 m²
Effective areas of deck : Approx.3700m²

DESIGN ENVIRONMENT

Air Temperature : 0°C~50°C (Steel structure design temperature:-10°C).
Humidity : 90%max. (Ambient temperature + 20°C)
Wind Survival Operations : 51.4m/s (100kn)
SW Temperature : 0°C ~ +32°C
Density : 1025 kg/m³ (For design purposes)

DESIGN OPERATING CONDITION

Design Storm Survival Condition

	Unit	Survival Condition I	Survival Condition II	Survival Condition III
Operating water depth	m	122	106	91
Maximum wave height	m	14.3	17.0	18
Relative wave period	s	14.5	15.0	15.5
Maximum wind speed	m/s	51.5	51.5	51.5
Current speed	m/s	0.77	0.77	0.77
Air gap	m	12.5	15.3	20
Leg penetration	m	5.6	5.6	5.6
Variable load	t	2900	2900	2900

Ps: The locking system is engaged

Design Normal Operating Condition

	Unit	Operating Condition I	Operating Condition II	Operating Condition III
Operating water depth	m	122	106	91
Maximum wave height	m	16.0	18.5	20.5
Relative wave period	s	14.7	14.7	16.0
Maximum wind speed	m/s	36.0	36.0	36.0
Current speed	m/s	0.77	0.77	0.77
Air gap	m	12.5	15.3	20.0
Leg penetration	m	5.6	5.6	5.6
Variable load	t	3900	3900	3900

Ps: The locking system is engaged.

Above data is based on:

Class approved calculation method.

50 years return period environmental condition.

The length of leg: 166.97m.

Without marine growth.

According to the P-delta effect ion and dynamic amplify coefficient.

MAIN PERFORMANCE

Maximum operating water depth	122m
Maximum drilling depth of rig	9000m
Variable load at drilling condition (including hook load)	3900t
Maximum longitudinal outreach of cantilever	22.5m
Maximum transverse movement of drill floor	±4.57m

CARGO CAPACITIES

Main deck (within pipe rack)		2.64 t/m ²
Main deck (outside pipe rack)		2.08 t/m ²
Cantilever deck (outside pipe rack)		1.30 t/m ²
Cantilever deck (within pipe rack)		2.64 t/m ²
Drill floor	Working area	1.95 t/m ²
	Setback	22.7 t/m ²
Living quarter deck		0.46 t/m ²
Living quarter roof		0.73t/m ²
Mud pit		7.00 t/m ²
Engine room		1.32 t/m ²
Sack storage room		2.64t/m ²
BOP storage area		2.64t/m ²
Helicopter deck load		According to Sikorsky S-92 helicopter

MACHINERY

Main engines	: 5 sets CAT 3516B, 5x1717kW, 1500rpm, V16.
Main Generators	: 5 sets Caterpillar SR4B, 5x1600kW, AC600V/50Hz/3P, cosφ0.8.
Emergency	: 1 x CAT3508B, 750 kW, AC400V/50Hz/3P,1500rpm
Jacking system	: NOV
Rack chock	: TZ
Fuel Purifier	: 2000L/H
Oily Water Sep	: 5m ³ /h
Sewage Plant	: 1 x 150 man capacity.
Ballast System	: Computerized hydraulically control
FW Generator	: 2 sets RO fresh water generator, be each of a capacity of 50m ³ /24h.
Air Compressors	: 3 sets, 0.8~1.0MPa, 14.2m ³ /min, 2 sets air dryer.
Pumps	: 2 x diesel oil transfer pumps, 40m ³ /h, 0.45Mpa, 970rpm(75cst), 15kW 4 x fresh Water pumps, 15m ³ /h, 0.5Mpa 1 x General Service pump 300m ³ /hr at 0.3Mpa

FIRE FIGHTING & SAFETY

Fire Fighting	: 2 x pumps 200 m ³ /hr h X 0.8Mpa
Life Boats	:2 x 120 persons+1 x 30 persons life/rescue boat
Life Rafts	:10 x 30 men

HELIDECK

1 x Heli-deck, 22.2m in diameter, suitable for Sikorsky S-92 helicopter

POWER SUPPLY

600VAC, 50Hz, 3Phase 3Wire insulation system

400VAC, 50Hz, 3Phase 3Wire insulation system

220VAC, 50Hz, 3Phase/1Phase 2Wire insulation system and 24VDC system

INTERNAL COMMUNICATION, BROADCASTING SYSTEM

One set of marine SPC telephone exchange

One set of sound power telephone

One set of marine broadcast system for the production, radio, alarm, entertainment

One set of satellite TV receive system

RADIO COMMUNICATION

(A1+A2+A3):

Name	Quantity(set)
250W MF/HF Radio telephone/DSC/NBDP	2
VHF Radio Telephone with DSC function	2
Helicopter VHF air band radio telephone	1
Helicopter VHF air band radio telephone (portable)	1
Helideck radio non directional beacon	1
INMARSAT-C station (with SSAS/EGC function)	1
NAVTEX receiver	1
Weather Facsimile	1
DGPS Navigator	1
INMARSAT-F communications station	1
Search and rescue radar transponder (SART)	5
406MHz Satellite EPIRB	1
two way GMDSS handheld VHF radio	5
Echo Sounder	1
Weather Data system	1

ACCOMMODATION

The accommodation and mess facilities are fit for 150 persons. Fire proof of the ship meet requirement of SOLAS (1974), material of lining panel, lining bar and ceiling using for living space, service space and machinery space is non-combustible.

REFRIGERATED STORAGE CAPACITY

The refrigerating system is used for freezer, refrigerator, and dry production store. The design can meet the requirement of 150 persons for 20 days food supply.

DECK MACHINERY

Main Deck Crane : 1 diesel-driven 50t x 36.5m deck crane is located at portside,

	2 electrical- hydraulic driven 50t x 36.5m deck crane are located at starboard and aft-starboard respectively
Moor System	: 4 x electrical motor anchor winches 50t, 100t brake holding, for first layer
Anchors	: 4 x anchors, 7.5t ea
Towing	: Tow Brackets 585t MBL
Recovery Winches	: 1 x 100KN, 7m/min, 120m 1 x 50KN, 12m/min,100m

Drilling Rig

Dimensions of derrick	40ft x 40ftx170ft
Derrick load	6750KN
Setback volume:	
5 1/2" drill pipe	320 strings
8" drill collar	8 strings
9 1/2" drill collar	4 strings
Hook load	6750kN (750st)
Rotary Load	6750kN
Set-back	409t
Power of Drawworks	About 2880kW
Power of high pressure mud pumps	3 x 2200hp
Rotary table opening diameter and power	49 1/2", 720kW
Top drive rated load	6750kN(NOV TDS-8SA)
Rotary table	49 1/2", 720kW
Traveling block	675 t, Φ 1524mm(Φ 60"), 7 sheaves, Φ 45mm (1 3/4") wire line
Max working pressure of choke & kill manifold	105MPa
Well control equipment:	
Diverter	47" x 500 psi
BOP	18 3/4" x 105 MPa
Cement Unit	Double pump cement skid, 97.6MPa
Conductor tension load	272t

BOP stacks

Annular BOP:	
Quantity	1 set
Drift diameter	475mm, (18 3/4")
Rated working pressure	70MPa (10000psi)
Hydraulic control pressure	14MPa (2000psi)
Working temperature	-29°C-121°C (-20.2°F ~ +249.8°F)
Double ram BOP:	
Quantity	2 sets
Drift diameter	475mm(18 3/4")
Rated working pressure	105MPa(15000psi)
Hydraulic control pressure	21MPa(3000psi)
Medium used crude oil, natural gas and the drilling fluid containing H ₂ S	

CIRCULATING SYSTEM

Reserve and active mud pit	918m ³ (8+2)
Mud sand trap pit	70m ³ (5)
Trip tank	12+3 m ³ (2+1)
Mud scraper	2 sets
Shale shakers	4 sets DERRICK, 900GPM (58L/S) / 1.09 g/cm ³
Mud cleaner	1 set
Degassers	2 sets,
Centrifuges	2 sets

JACKING SYSTEM

There are three (3) NOV D110H jacking assemblies for each leg, for a total of nine (9) assemblies. Each jacking assembly consists of six (6) pinions, each 2 pinions as a unit driven by an electric motor. Therefore there are 27 jacking units in total. The leg jacking system is designed to elevate the hull out of the water or lower the hull for floating,

NOV jacking system:

Model of jacking unit	D110H
Leg shape	Lattice - Triangular
Number of legs	3
Number of Chords per Leg	3
Number of Jacking Frames	9
Total number of jacking unit	27sets (54 pinions)
Number of jacking units per leg	9
Number of pinion per leg	18
Ambient Temperature	0°C ~ +50°C

RACK CHOCK SYSTEM

The 400ft Self Elevating Unit is fitted with three (3) triangular legs. On each leg are welded three (3) TZ racks. Each rack meshes with six (6) teeth unit mounted in a frame. Each frame takes place in a jack house.

Functions:

Vertical rated loads	≥7400 MT/set
Number	9 (each set includes two jackscrew up and down)



