

ATLI
E N E R J I

Pi PK - 500
Information Document

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RIG TECHNICAL SPECIFICATION

RIG STORAGE CAPACITIES

DIESEL FUEL

The rig has a fuel storage capacity enough for minimum of 15 days of operations without refilling (120.000 l).

DRILL WATER

The water tanks total capacity, brake cool water excluded, minimum 400 bbl

LIQUID MUD

The maximum total storage capacity (active and reserve mud) minimum 2000 bbl.

SACKS STORAGE AREA

A shed, that can be easily mounted and demounted, to store about 1000 mud additive sacks in pallets and/or big bags.

PIPE CONTAINERS

The six (6) pipe containers have a total capacity of 4500 mt with 5" drill pipes

POWER PLANT

The Rig have its own electrical power generator system.

The Main accommodation camp have its own power generator system with 100% of redundancy.

MAIN POWER GENERATOR SYSTEM

The rig have the diesel engine driven electric generators providing Alternate Current (AC) power.

Variable Frequency Drive (VFD.), transformer and control system supply the AC electrical power to drilling motors (fourteen motors) and to the electrical utilities.

The total continuous power supplied by diesel engines, having one group standing by, is sufficient to run simultaneously two mud pumps plus the Top Drive and all the drilling rig AC users.

Each electrical generator group have a diesel engine; make MTU 16V 2000 coupled with the AC generator with an optimal power of 1500 kVA.

The Power Control Room (PCR) has two (2) air conditions for environment of the area of the operation

The diesel engines have low emission, noise attenuation, low fuel consumption and are equipped with anti sparking mufflers.

ELECTRICAL LIGHTING SYSTEM

The lighting system comply with ISO 8995-3. All the working and storage areas are well illuminated and, where required, the electrical material certified for hazardous area.

Three, 400 watt each, portable floodlights are also available for temporary use when and where they need.

EMERGENCY POWER GENERATOR SYSTEM

The drilling rig have an independent AC emergency generator that automatically enters in service in case of failure of the main generator system.

ELECTRICAL GROUNDING SYSTEM

To provide a common ground plane a single integrated earthing system is installed. Each electrical system, equipment and structure installation is connected to the earthing system.

The electrical earthing system will comply with applicable local and/or international standard as IEC 61000-5-2 or equivalent standard.

The electrical resistance between the earth grid and the general mass of earth not exceed 4Ω .

EMERGENCY SHUT DOWN SYSTEM

The Rig have an emergency shut- down system to shut off, partially or totally the electrical power, and the diesel engines. The shutdown system will be manually activated only due to the nature of drilling operations. Emergency shutdown push buttons installed on Driller's console and another remote control station (i.e. Tool Pusher).

AIR COMPRESSORS

One electrical driven air compressor, soundproofed with sufficient flow rate capacity and pressure for all rig users. The system is complete with air dryers and adequate air storage vessels. The air storage vessels are built and periodical inspected in accordance with the applicable laws and rules.

MAST AND ASSOCIATED EQUIPMENT

MAST

The Mast, self -elevating type, is designed and manufactured according to API Spec 4F last edition

The Mast will have the following main characteristics:

- Clear working height suitable to handle stands of three single range II drill pipes together with equalizer beam and Top Drive.
- Static hook load capacity of 1,100,000.00 lbs;
- Resistance to the wind speed up to 30.06 m/s at 60 knots with full set-back load
- Resistance to the wind speed up to 38.60 m/s at 75 knots without set-back load
- Racking capacity of approx 4800 m of 5" drill pipes and 300m of 6 ½" O.D. drill collars. Racking platform is suitable to rack also 3 ½" drill pipes, 9", 8 ¼", 4 ¾" O.D. drill collars.

MAST ACCESSORIES

Stairs going to the racking platform and to crown block complete with safety cage. Red lights as per regulation on top of mast.

- One video camera is installed at racking platform level;
- One video camera installed at working floor level;
- One video camera installed to see tubular connection on working floor
- One video camera installed at mud pump level
- One video camera installed at first pipe connection
- One video camera installed to view lay up and down machine movement
- One video camera installed at monkey board
- One video camera installed at tilting pipe rack
- One video camera installed at mud tank shakers
- The monitor is installed into the driller's cabin.
- Top drive and equalizer beams have mast guidance system

SUBSTRUCTURE

The Substructure, fast mounted and self erecting type, designed and manufactured according to API Spec 4F last edition.

The main characteristics are:

- Rotary rated load capacity same as the Mast static hook load.
- Set-back rated load capacity to hold the weight of approx 4800 m of 5" drill pipes and 300m of 6 ½" O.D drill collars.
- The clear height inside the substructure will permit easy installation on the wellhead of a 13 ⅝" - 10,000 BOP Stack having one annular, one single rams, one double ram BOP.

RIG FLOOR

- The rig floor dimensions allow to the drilling crew to operate safely (7 X 5 m).
- The set-back area is with the rig-floor and the decking area is of a surface material that does not damage the drill string tool joints.
- The rig floor have stairs to access and escape on two sides. The stair, alongside the 'V'-door ramp utilized only for escape purposes.
- The drill floor have a drainage system.

DRILLER'S CABIN

The driller's cabin is air conditioned, with large visibility to the rig floor. The dimensions are adequate to house the control panels, all the instruments, buttons, handles and joy-stick, desk, safety and first aid equipment.

The crown block platform have handrails on all the sides.

TRAVELLING BLOCK

The travelling blocks inside the mast elements are designed and manufactured according to API 4F last edition.

The maximum rated load capacity of the travelling blocks is equal to the maximum static hook of the Mast.

The travelling blocks are guided inside the masts.

LOAD CELLS

FOUR LOAD CELLS are assembled on the equalizer beam of the top drive and are also the pins for the cable ends. Rated load capacity of the four is equal to the maximum rig pulling capacity.

DRILL CABLES

The drilling cables are built in accordance with API 9A. The four (4) drilling cables together (2 ¼"), considering maximum rated hook load of the rig hoisting system, allow a minimum safety factor of three in drilling mode and a minimum safety factor of two in running casing mode.

DERRICK SAFETY DEVICES

The following safety devices are installed on Mast and travelling equipment:

- A laser camera assembled on the top of the mast measuring the top drive stroke with safety stop when reaching "0" meters.
- A slowing down and stop proximity switch which intervene just after passed laser stop signal.

ROTATING EQUIPMENT

TOP DRIVE

Top Drive Specs		
Item	Description	Enquiry
1	Make & Type	TBQIE 500
2	Hoisting capacity	500 Ton
3	Continious torque	37700 lbs/ft @ 100 RPM
4	Intermittent torque	50600 lbs/ft
5	Length	18 ft
6	Width	4 ft
7	Maximum working pressure	7500 PSI
8	AC Motors	500 HP x 2
9	Break out tongs	
	<div style="display: flex; justify-content: space-between;"> <div>Tubular Size</div> <div>2 7/8" to 9"</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Drill Pipes</div> <div>3,5" to 5,5"</div> </div>	
10	Mud passage	3"

Designed and built in accordance with API 8C- PLS1 with the following characteristics:

- Provision to be connected directly to the equalizer beam.
- S-Pipe, swivel and wash pipe are rated to the same working pressure of high
- Pressure mud circulation system (mud pumps, etc.) 5,000 PSI.
- The swivel head is integral type, with wash pipe inside diameter of 3 in and with wire line access fitting.
- Pipe clamp complete with one inside BOP remote operated valve and one inside BOP manual operated valve, size 3.1/16-5,000 working pressure.
- Pipe handler is complete with a 360° degrees rotating head;
- Pipe handler complete with one link tilted system
- One set of link elevators, built in accordance with ISO 13535 (API 8C-PLS-2)
- With adequate length to handle DP and heavy wall drill pipe.
- Rated load capacity: 500 tons.

PULL UP

Pull up and down system has 2800 HP

- The hydraulic cylinders system has a pulling capacity with four cables of 1,100,000.00 Lbs.

The twelve (12) hydraulic pumps have the following characteristics and accessories:

- Driven by AC Water cooled electric motor
- Automatic driller system

CROWN BLOCK

The maximum rated load capacity of the crown block allow the application of maximum static hook of the Mast.

The crown block is designed and manufactured according to API 4F

The crown block assembly has four sheaves on each side grooved for the diameter of the four drilling cables (2 ¼). The sheaves are complete with jumper bars (one on top and one on each side) to prevent the drilling cables from jumping off the sheaves.

ROTARY TABLE

The rotary table has a maximum opening of 37 ½"; and is built in accordance with API 7K, with the rated static load equal to the Mast hook load capacity (1,100,000.00 lbs).

Complete with all the necessary accessories as master bushing, insert bowls for casing, drill collars, drill pipes and driven by an independent electrical 400 HP motor

RIG FLOOR TOOLS

On the rig floor are installed:

- Iron roughneck
- Automated slips

Mud saver buckets for drill pipes in use.

- Pipe centralizer
- Subs and bits loaders
- Stabilizers loader

UTILITY HOIST EQUIPMENT

One air operated utility winch installed on Rig floor with rated hoist capacity of 5,0 t;

BOP HANDLING SYSTEM

The hydraulic powered overhead BOP handling system is capable to lift the heaviest BOP STACK in one piece and also having the capability to install or remove on site any single component the STACK

PICK UP AND LAY DOWN MACHINE

The rig has a pick up and lay down machine for handling, loading from the pipe containers and transfer to rig floor and vice versa tubing, drill pipes, drill collars and casing with size from 3 ½" up to 20" casing.

HP- MUD PUMPS

Two (2) mud pumps triplex and single acting type, with rated input power of 1600HP; maximum discharge pressure of 5,000 PSI., designed and manufactured as per API 7K.

The rig power system is capable of run the three pumps simultaneously.

The mud pumps have the hydraulic powered system to quick change liners and pistons and adequate sets of 6 ¾" - 5 ½" liners and pistons, suitable for oil base mud. Each mud pump is equipped with:

- A proper surcharging centrifugal pump (6x8),
- Suction and discharge lines
- Suction and discharge dampeners
- Suction and discharge filters,
- Safety valve and pressure gauge
- All the necessary accessory tools

The HP Mud pumps and the surcharging pumps are operated from the Driller's console.

HP- DISCHARGING LINES

Each Mud Pump have a discharge line connected with the discharge manifold that will enable different pumping combinations.

From the discharge manifold two discharge lines are connect to the rig floor mud manifold.

Each discharge line have a steel rigid section with 4" inside diameter and a 3 ½" inside diameter vibrator hose section built according to API std. 7K, with hub end connections, suitable for oil base mud and complete with safety clamps and chains.

RIG FLOOR MUD MANIFOLD

The rig floor mud manifold is 3 ½" inside diameter, 5000 PSI

Each outlet have an isolation valve. The mud manifold have the outlet connections for the following instruments:

- Mud pumps pressure gauge.
- Sensor, membrane type, to transmit mud pumps pressure to Driller's console.
- Sensor, (supplied by third party) to transmit mud pumps pressure to the Mud logging unit.
- Sensor, (supplied by third party) to transmit mud pumps pressure to the MWD cabin.
- For line to kill Manifold
- For line to fill-up the well
- For line to fill-up the casing
- For line to bleed off the pressure

STAND PIPE

4" inside diameter dual stand pipe with the same rated working pressure as the mud manifold, complete with vibrator hose, gooseneck and rotary hose of 3 ½" inside diameter, manufactured as per API 7K fitted to operate with oil base mud and complete with safety clamps and chains.

One spare rotary hose available at rig site.

LOW PRESSURE MUD SYSTEM

MUD TANKS

The mud tanks capable of handling all types of muds including oil base mud and completion brine and suitable to contain the mud with the of maximum density used in oilfield (2 kg/dm³).

Each tank has an efficient mud agitation system such as electrical agitators and bottom guns.

The total mud tanks storage capacity is 2000 bbl.

ACTIVE MUD TANK SYSTEM

MUD TREATMENT TANKS SYSTEM

- One Sand Trap: about 5 m³ of capacity where the shale shakers will discharge the treated mud; the sand trap has the bottom sloped and a quick opening to rapidly evacuate the solids accumulated on bottom.
- One Degasser/Mud cleaner Suction Tank: about 5 m³ of capacity adjacent and connected with the overflow to the sand trap; inside are the suction lines for the degasser and the mud cleaner
- One Degasser/ Mud cleaner Discharge Tank: about 5 m³ of capacity adjacent and connected with the underflow to the previous; here will be discharged the mud treated with the degasser or mud cleaner; this tank have the mud agitators.

MUD CIRCULATING/MIXING TANKS SYSTEM

- One equalizing tank: about 10 m³ of capacity complete with mud agitators.
- One suction tank of capacity adequate to the size of the drilling rig (in the range of 50-75m³) having a 10/15 m³ capacity pill/slug compartment. The compartments have mud agitators.
- One mixing/mud weighing tank of capacity adequate to the size of the drilling rig (in the range of 50-75m³) complete with mud agitators

MUD TREATMENT SYSTEM

SHALE SHAKERS

Three High efficiency type shale shakers with balanced elliptical motion (BEM) complete with a range from 20 to 220 mesh of screens. Derrick Flo.

MUD CLEANER

16 by 4" desilter cones mounted on top of one of the shakers and fed by a 6 x 8 centrifugal pump.

DEGASSER

One centrifugal Swaco degasser or equivalent.

POOR BOY DEGASSER

Made by Pi Makina with one centrifugal

TRIP TANK

The trip tank have minimum 5m³ capacity and its geometry so that can be easily read a level change of 2 barrels.

The trip tank complete with a float to gauge the mud level and its level indicator clearly visible from driller's side.

LINES FOR CEMENTING JOBS

- Two high pressure fixed lines 2.1/16" – 15000 PSI with 2" Weco union figure 1502 end connection running from cementing unit area to rig floor.
- One low pressure, drill water line 4" ID with quick union end connection running from water storage to cementing unit area for exclusive use of cementing jobs.
- One low pressure, mud supplying line 4" ID with quick union end connection running from mud tanks to cementing unit area.

WELL CONTROL EQUIPMENT

13 5/8-10000 BOP STACK

The 13 5/8-5000 BOP Stack equipped as follows:

One 13 5/8-5000 Annular preventer with 13 5/8-5000 upper connection studded and 13 5/8 - 10,000 lower connection flanged.

One 13 5/8-10,000 Ram Preventer dual type with upper and lower connections flanged 13 5/8 - 10,000. The lower ram cavity equipped with the bonnet and operating piston capable to shear the 5" 19,5 lb/ft G-105 drill pipe with an operating fluid pressure not higher than 2800 PSI.

One 13 5/8- 10,000 Ram Preventer single type Ram Preventer with upper and lower connections flanged 13 5/8 - 10,000.

KILL & CHOKE LINES

Two Kill Lines, with flanged end connections, with minimum 2" inside diameter, same working pressure as the BOP stack, H2S service, connecting the BOP outlet valves with the kill manifold (see the applicable schematic drawing at the end of this chapter)

If the line is flexible (Coflexip type) built according to API std. 16-C with hubbed (or flanged) end connections.

Two Choke Lines, with flanged end connections, with minimum 3" inside diameter, same working pressure as the BOP stack, H₂S service, connecting the BOP outlet valves with the choke manifold.

If the line is flexible (Coflexip type) it was built according to API std. 16-C with hubbed (or flanged) end connections.

KILL & CHOKE MANIFOLD

10000 PSI Working pressure Kill & Choke manifolds

H.P. AUXILIARY TOOLS

CHICKSAN JOINTS

Minimum ten chicksan joints 2"-10000 PSI w.p. with standard lengths of 12, 9 and 6 ft figure 1502 hammer end connections.

CASING CUP TESTERS

Cup testers with cups 13 3/8", 9 5/8", and 7" casing. complete with cross overs and casing pup joints to test the casing.

BOP TESTING UNIT

A portable testing unit minimum 10,000 PSI working pressure.

DOWNHOLE TUBULARS

DRILL PIPES

DRILL PIPE FOR 8 1/2" HOLE

5000m of 5" OD drill Pipes 19,5 lb/ft G-105, range 2, with tool joint 6 5/8" OD x 3 1/4" ID, complete with casing friendly hardfacing, NC-50 API connections.

- Two 1,5m long same OD, drill pipe pup joint
- Two 3m long same OD, drill pipe pup joint

DRILL PIPE FOR 6" HOLE

3000 m of 3.1/2" OD 15,5 lb/ft, grade G-105, range 2, with tool joint 4 3/4", NC-38 API connections.

HEAVY WEIGHT DRILL PIPES

No 20 joints of 5" OD heavy weight drill pipes (50 lb/ft)

No 15 joints of 3 1/2" OD heavy weight drill pipes (26 lb/ft)

DRILL COLLARS

- **6 joints** of 9 ½" OD x 3" ID drill collars spiral type with slip recess only, 31ft total length, API 7 ⅝ reg connections.
- **1 joints** of 9 ½ OD x 3" ID short drill collars 6-10 ft long
- **20 joints** of 8" OD x 2.13/16" ID drill collars spiral type with slip recess only, 31 ft total length, API 6 ⅝ reg connections.
- **2 joints** of 8" OD x 2.13/16" ID short drill collars 6 -10 ft long
- **24 joints** of 6 ½" OD x 2.13/16" ID drill collars spiral type with slip recess only, 31 ft total length, API NC-46 connections.
- **2 joints** of 6 ½ "OD x 2.13/16" ID short drill collars 6 –10 ft long.
- **10 joints** of 4 ¾" OD x 2" ID drill collars with slip recess only, 31 ft total length, API NC-38 connections.
- **2 joints** of 4 ¾" OD x 2" ID short drill collars 6 -10 ft long

BIT SUBS AND CROSS-OVERS

Minimum two of each bit subs, coss-over subs to connect and run in hole all the Contractor's furnished drill and fishing strings and 3 ½" tubings.

INSIDE DRILL STRING PRESSURE CONTROL TOOLS

DRILL STRING CIRCULATING HEAD

Two (2) Drill String Circulating Head with the bottom connection for 5" OD Drill Pipes, complete with 2"-ID valve, same working pressure as well control equipment and top connection 2" Weco fig 1502.

Two (2) Drill String Circulating Head with the bottom connection for 3 ½" OD Drill Pipes, complete with 2"-ID valve, same working pressure as well control equipment and top connection 2" Weco fig 1502.

FULL OPENING SAFETY VALVE

Two (2) 2.13/16 " ID Full Opening Safety Valves (Lower Kelly Cocks), top and Bottom connections for 5" OD drill pipes, same working pressure as well control equipment.

One (1) 2 ⅝" ID Full Opening Safety Valve (Lower Kelly Cock), Top and Bottom connections for 3 ½" drill pipes, same working pressure as well control equipment.

INSIDE BOP VALVE

Two (2) Inside BOP valve (Gray type) with the same working pressure as well as control equipment. The top and Bottom connections same as 5" OD drill pipes.

Two (2) Inside BOP valve (Gray type) with the same working pressure as well control equipment. The top and Bottom connections same as 3 ½" drill pipes.

FLOAT VALVE

- **Two (2)** each Float valve Baker type GA for 7 ½ Reg and 6 ¾ Reg drill collar connections.
- **One (1)** each Float valve Baker type GA suitable for NC-46 drill collar connection.
- **One (1)** each Float valve Baker type GA suitable for NC-38 drill collar connection.

DRILL PIPES / DRILL COLLARS HANDLING TOOLS

POWERED /MANUAL SLIPS

POWER SLIPS

One remote operated power slips.

DRILL COLLARS LIFT SUBS

Two Drill Collars Lift Sub for 9 ½" OD drill collars

Six Drill Collars Lift Sub for 8 ¼" OD drill collars

Six Drill Collars Lift Sub for 6 ½" OD drill collars

Four Drill Collars Lift Sub for 4 ¾" OD drill collars

CASING HANDLING TOOLS

All the casing hoisting tools in accordance with ISO 13535 (API 8C) PLS-2 with the supplementary requirements SR-1 Proof load test, SR-3 - Data book.

CASING BUSHING/SLIPS

- One set of casing bushing, splitted type for 20" casing.
- One 13 ⅜" casing slips for rotary table.
- One 9 ⅝" casing slips for rotary table.
- One 7" casing slips for rotary table.

SIDE DOOR CASING ELEVATORS

One 20" side door casing elevator, 150 t rated capacity.

One 13 ⅜" side door casing elevator, 150 t rated capacity.

One 9 ⅝" side door casing elevator, 150 t rated capacity.

CASING ELEVATOR/SPIDERS

One casing elevator manual and remote operated type for 20 - 13 ⅜", 9 ⅝", 7" OD casing 500t rated load.

One casing spider manual and remote operated type for 20 - 13 ⅜", 9 ⅝", 7" OD casing 500t rated load.

SINGLE JOINT ELEVATORS

One 20" single joint casing elevators

One 13 $\frac{3}{8}$ " single joint casing elevators

One 9 $\frac{5}{8}$ " single joint casing elevators

One 7" single joint casing elevators.

CASING TONGS

Two manual casing tongs for 20", 13 $\frac{3}{8}$ ", 9 $\frac{5}{8}$ ", 7" OD casing.

Hydraulic power tong for 13 $\frac{3}{8}$ ", 9 $\frac{5}{8}$ ", 7" OD casing.

CASING CIRCULATING HEADS

One 13 $\frac{3}{8}$ " casing circulating head.

One 9 $\frac{5}{8}$ " casing circulating head.

One 7" casing circulating head.

CASING THREAD PROTECTORS

Three each casing thread protectors for 20" OD casing.

Three each casing thread protectors for 13 $\frac{3}{8}$ " OD casing.

Three each casing thread protectors for 9 $\frac{5}{8}$ " OD casing.

Three each casing thread protectors for 7" OD casing.

CASING DRIFT

One each casing drift for 20" OD casing

One each casing drift for 13 $\frac{3}{8}$ " OD casing

One each casing drift for 9 $\frac{5}{8}$ " OD casing

One each casing drift for 7" OD casing

CASING SCRAPER

One each casing drift for 9 $\frac{5}{8}$ " OD casing.

One each casing drift for 7" OD casing.

TUBING HANDLING TOOLS

All the tubing hoisting tools in accordance with ISO 13535 (API 8C) PSL-2. Equipments for the following tubing size 2 3/8", 2 7/8" (requested 1 each size).

FISHING TOOLS

Fishing tools to fish all the proposed tubular.

INSTRUMENTATION

INSTRUMENTATION AT DRILLER'S CONSOLE

Monitors and recorders designed for installation into driller's console.

Screen monitors displaying the following information:

- Hook-load
- Weight on bit
- Rotary / Top Drive torque
- Rotary / Top Drive RPM
- Tongs pull indicator
- Standpipe pressure
- Mud pump SPM for MP1, MP2, MP3

SAFETY EQUIPMENT

All the visual and acoustic alarms requested to safeguard the personnel, the well and the equipment grouped on the rig floor easily audible and visible from driller's side.

RIG SITE UTILITIES

COMPANY OFFICE BARRACK

One Company office with two separated areas, one for the office and the other for meeting room and or second office; with two independent entrances, large windows with direct view to rig floor, sound proofed and air conditioned.

The office have all the necessary furniture, two desks, one table for meeting and adequate quantities of chairs and a small refrigerator.

ACCOMODATION CAMP

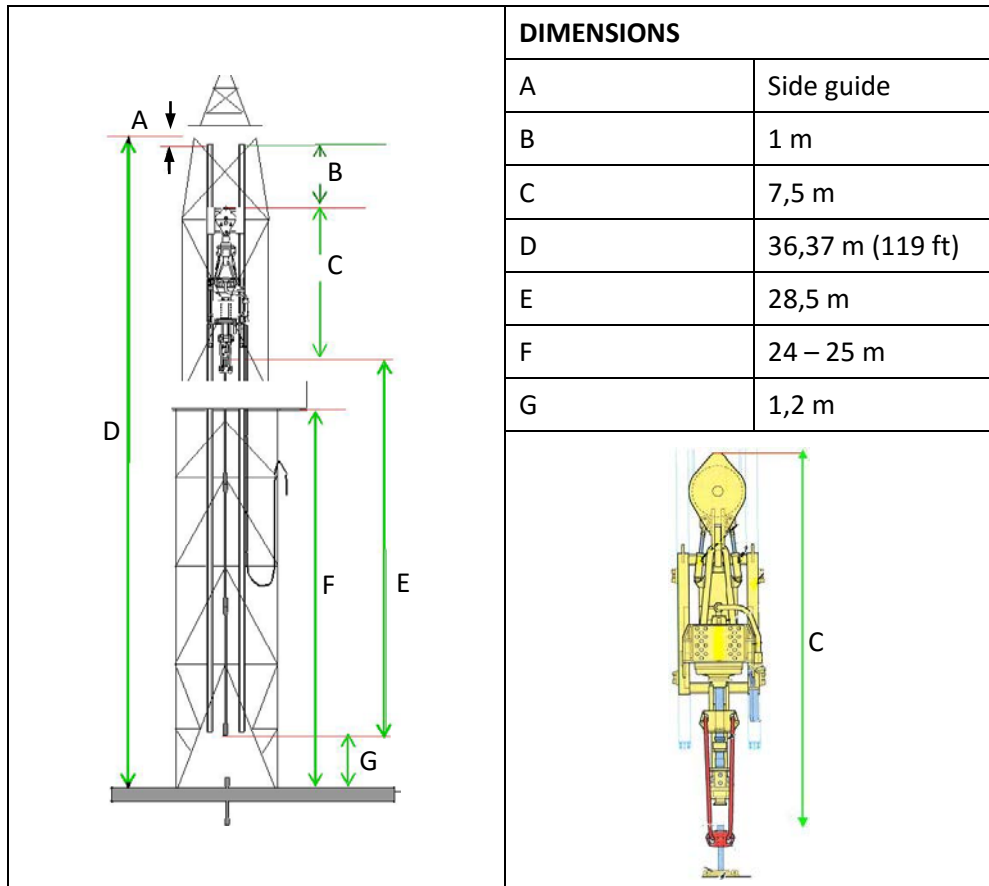
The main accommodation camp, designed for the environment of the area of the operations, fully air conditioned, suitable for board 60 persons.

DRILLING RIG EQUIPMENT LIST

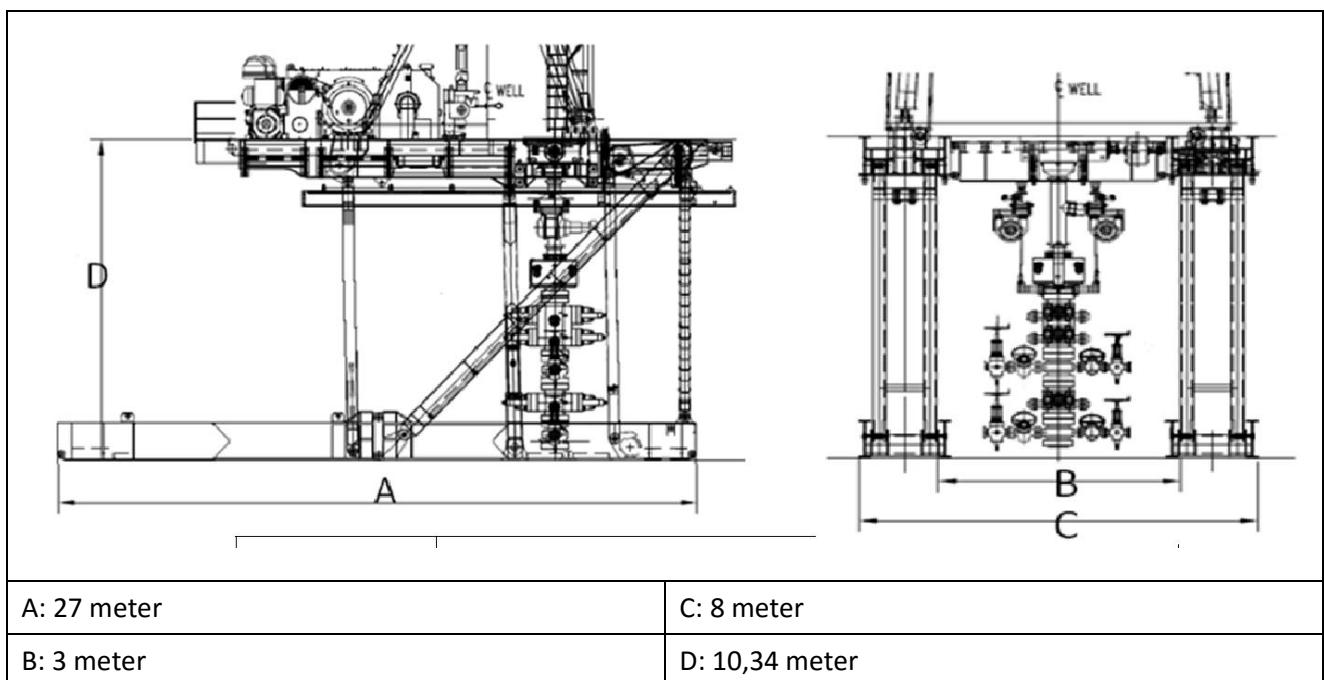
SUMMARY OF THE HOISTING EQUIPMENT RATINGS

Maximum Rated Load Capacities Considering Maximum Number Of Lines Installed		
Item	Description	Enquiry
1	Mast Static Hook Load Capacity With max. Number Of Lines	500 Ton
		4
2	Crown block Rated Load Capacity	500 Ton
3	Travelling block Rated Load Capacity	500 Ton
4	Hook block Rated Load Capacity	500 Ton
5	Swivel head Rated Load Capacity	500 Ton
6	Top drive Rated Load Capacity	500 Ton
7	Raking platform DP Stands Capacity (No) DC Stands Capacity (No)	155
		20
8	Rig floor set back Rated Load Capacity	300 Ton
9	Rotary capacity Rated Load Capacity	400 Ton
10	Hydraucylinders 4 Lines Rated Load Capacity	2 ¼"
		500 Ton
11	Load cells Number Rated Load Capacity	4
		500 Ton
12	Maximum Load That Rig Can Handle In Drilling Mode (Drilling Line With Safety Factor >3) In Running Casing Mode (Drilling Line With Safety Factor >2)	280 Ton
		320 Ton

MAIN DIMENSIONS OF THE MAST

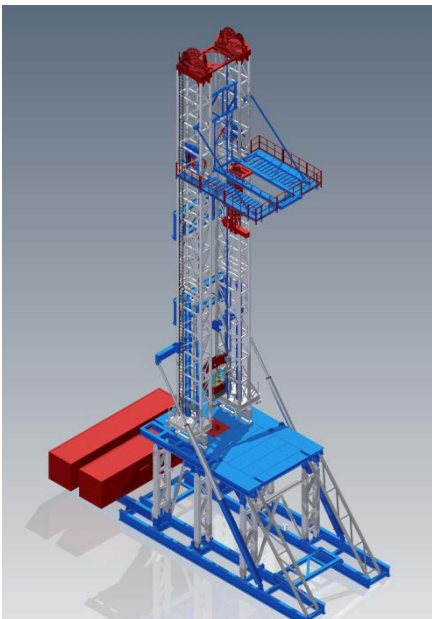


MAIN DIMENSIONS OF SUBSTRUCTURE



QUICK LOOK UP SUMMARY TABLES

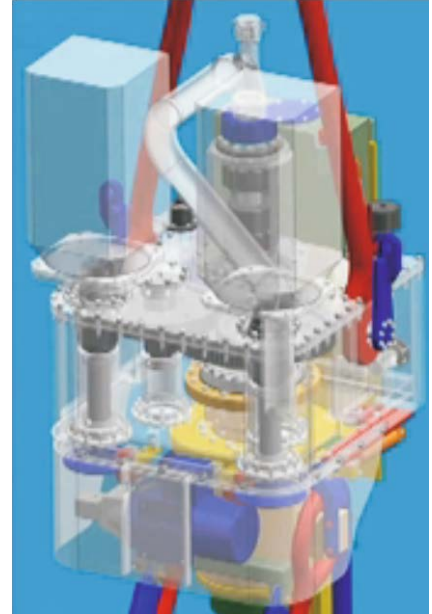
Mast		
Item	Description	Enquiry
1	Make / Model	Made in Italy
2	Hook load capacity	500 ton
3	Mast height	36 m
4	Pipe handling	3, range 2 tubular
5	Mast base dimensions	2,7 m x 5,1 m
6	Racking capacity	5,5" Drill pipes: 170 stands 8" & 9,5" Drill collars: 10 stand, 90 ft each
7	Wind rating (standart operations)	40 knot



Substructure		
Item	Description	Enquiry
1	Make / Model	Pi Makina (Made in Turkey)
2	Rotary load	500 ton
3	Setback load	320 ton
4	Clear height under rotary	8,3 m
5	Drilling floor height	9,1 m
6	Drilling floor dimensions	9,1 m x 9,1 m

Top Drive

Item	Description	Enquiry
1	Make / Type	TBQIE 500 (Made in Italy)
2	Hoisting capacity	500 Ton
3	Continious torque	37700 lbs/ft @ 100 RPM
4	Intermittent torque	50600 lbs/ft
5	Maximum speed	180 RPM
6	Length	18 ft
7	Width	4 ft
8	Maximum working pressure	7500 PSI
9	AC Motors	500 HP x 2
10	Break out tongs Tubular size Drill pipes	2 7/8" to 9" 3,5" to 5,5"
11	Mud passage	3"



Mud System & Mud Pumps



Mud System

Item	Description	Enquiry
1	Tanks Make / Model	Pi Makina (Made in Turkey)
2	Number of tanks	5
3	Tanks capacity (per each)	400 bbl
4	Tanks total capacity	2000 bbl
5	Tanks dimensions	12,5 m x 2,5 m x 2,5 m
6	Number of 6x8 Booster pumps	2 (USA Magnum)
7	Number of mixing cones & Type	2 & Venturi

Mud Pumps

Item	Description	Enquiry
1	Make / Model	Made in USA
2	Power	1600 HP (Electrical motors made in Houston / US)
3	Type	Triplex
4	Driven by	2 Water cooled electrical motors
5	Power of electrical motor	800 HP each
6	Booster pumps	6 x 8
7	Power of booster pumps	100 HP

Hydraulic Power Packs



Item	Description	Enquiry
1	Make / Model	Made in Italy
2	Number of hydraulic power units	1
3	Electrical motors	12
4	Cooling system	Water cooled
5	Number of gear pumps	12
6	Maximum pressure	420 bar
7	Working pressure	300 bar
8	Hydraulic fluid type	Hydraulic oil or water with additives
9	Number of booster pumps	2
10	Number of output lines	16
11	Pressure lines size	4"
12	Total fluid volume	6000 liter
13	Electrical motors driving control	VFD

Power System



Item	Description	Enquiry
1	Number of diesel generators	4
2	Make / Model	MTU (Made in Germany)
3	Maximum Power (each)	1500 HP
4	Total power	6000 HP

Water Cooled AC Motors



Make / Model Made in Italy

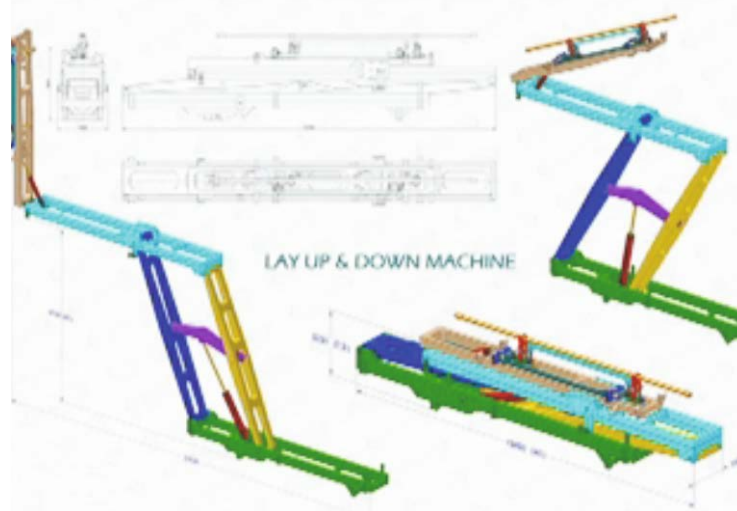
1	Develop better torque
2	No transmission or clutches
3	Less weight and smaller dimensions
4	Reliable control
5	Fuel saving and eco friendly
6	Silent

VFD Units



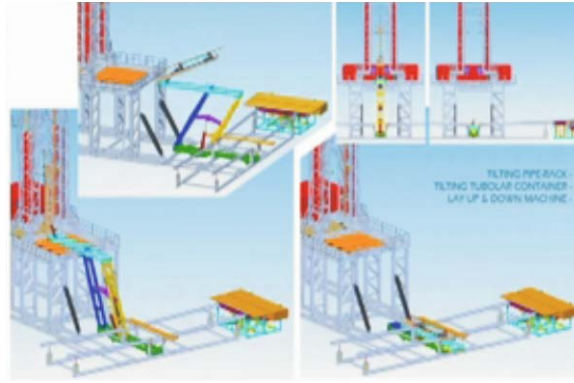
Item	Description	Enquiry
1	Make / Model	Made in Italy
2	Number of rig hydraulic power packs VFD units	2
3	Max power for each VFD unit	1400 HP
4	Number of inverters per unit	6
5	Total Number of inverters	12
6	Power capacity for each inverter	240 HP
7	Cooling system of inverters	Water cooled

Lay Up & Down Machine



Item	Description	Enquiry
1	Make / Model	Made in Italy
2	Reachable height	9,1 m
3	Travelling speed	0,5 m/s
4	First reach	9,1 m horizontal, on the working floor (for casing)
5	Second reach	9,1 m well center, vertical, inside the mast, below top drive (for pipes, collars, and casing)
6	Clamping system	Two hydraulic clamps
7	Clamping size	From 2 $\frac{7}{8}$ " to 13 $\frac{3}{8}$ "
8	Type of movement	Parallelogram
9	Type of driving	Hydraulic
10	Controlled from	Driller control cabin
11	Driven by	Independent hydraulic power pack

Tilting Pipe Rack and Pipe containers



Item	Description	Enquiry
1	Make / Model	Pi Makina (Made in Turkey)
2	Pipe rack capacity (Left & Right)	510 pcs of 5" Drill Pipes
3	Tilting degrees	+/- 2Degree
4	Pipes containers quantity	4
5	Pipes containers quantity each	80
6	Number of pipes between pipe racks and pipe containers	480 or 640
7	Driven by	Hydraulic power pack
8	Controlled from	Control cabin
9	Number of video camera	One

Travelling Blocks

Item	Description	Enquiry
1	Make / Model	Pi Makina (Made in Turkey)
2	Number of travelling blocks	2
3	Sheaves each block	2
4	Sheaves grooved for	2¼" cable
5	Pulling cable equalizer beam	2



Subs, Bits and Stabilizers Loaders



Item	Description	Enquiry
1	Quantity of subs in the loader	6
2	Quantity of bits in the loader	4
3	Type of positioning	Hydraulic
4	Controlled from	Control cabin
5	Driven by	Hydraulic power pack
6	Movement	From mast side to well center
7	Type of driving	Hydraulic
8	Also controlled from	Hydraulic power pack

Automated Monkey Board

Item	Description	Enquiry
1	Make / Model	Pi Makina (Made in Turkey)
2	Monkey board racking capacity	170 stands
3	Number of hydraulic clamps	2
4	Grabbing size	From 2 7/8" to 9,5"
5	Rotation mode	90 degree each side
6	Positioning control system	Magnetic bars
7	Controlled from	Driller's control panel
8	Number of video cameras	2



Driller's Cabin

1	Made in Italy
2	High visibility
3	Ergonomic controls
4	<p>Nine (9) video camera monitors</p> <ul style="list-style-type: none"> • Racking platform • Working floor • Tubular connection on working floor • Mud pump • First pipe connection • Lay Up & Down machine • Monkey board • Tilting pipe rack • Mud tank shakers
5	Controls for rig operations
6	Controls for TBQIE top drive
7	Air conditioned



BOP Handling System

Item	Description	Enquiry
1	Make / Model	Schaffer (Made in USA)
2	Type	Hydraulic
3	Driven by	Hydraulic power pack
4	Stroke length	10 m (horizontal)
5	Handling capacity	From 60 to 200 ton
6	Vertical stroke	6 m
7	Controlled from	Hydraulic control panel
8	BOP test stump fram	Yes, flanged 13 $\frac{5}{8}$ " - 10000 PSI

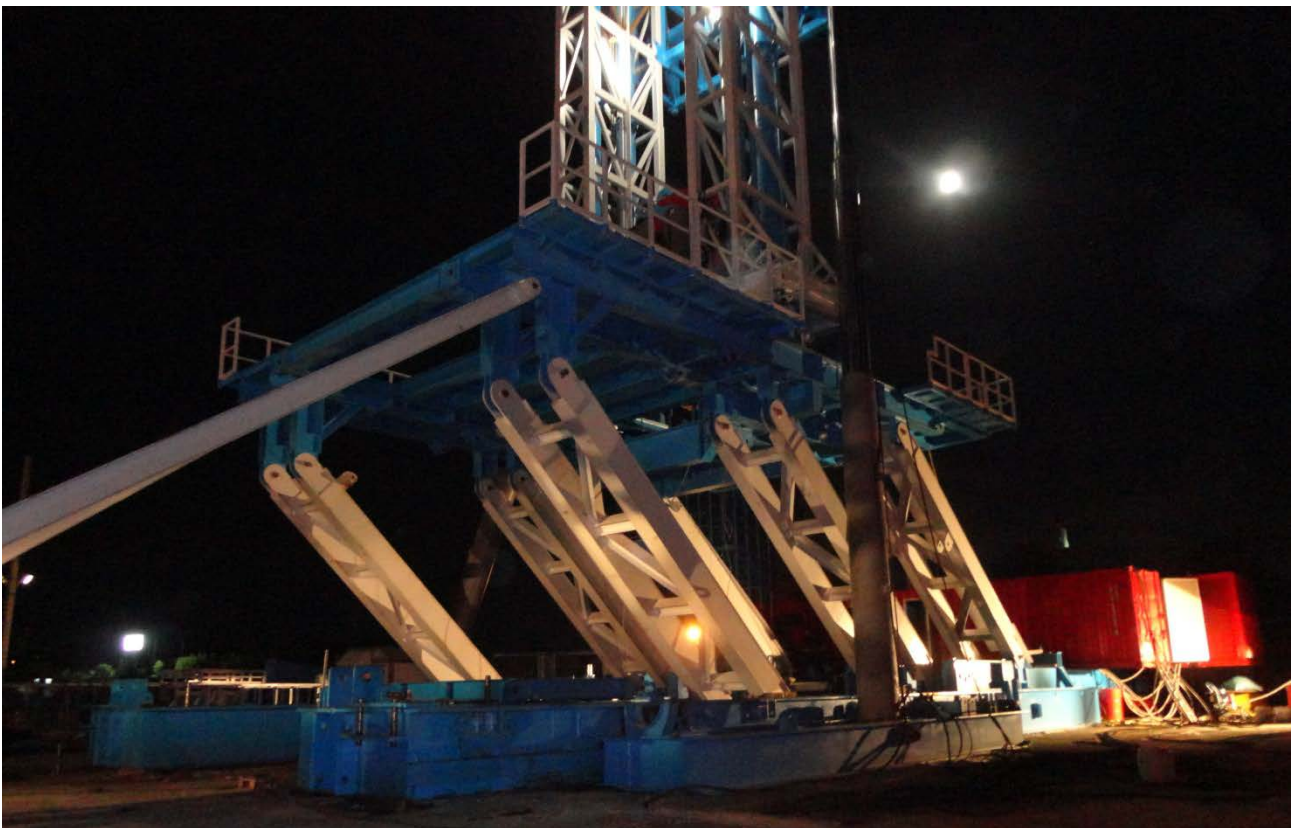
















INTERNATIONAL STANDARDS

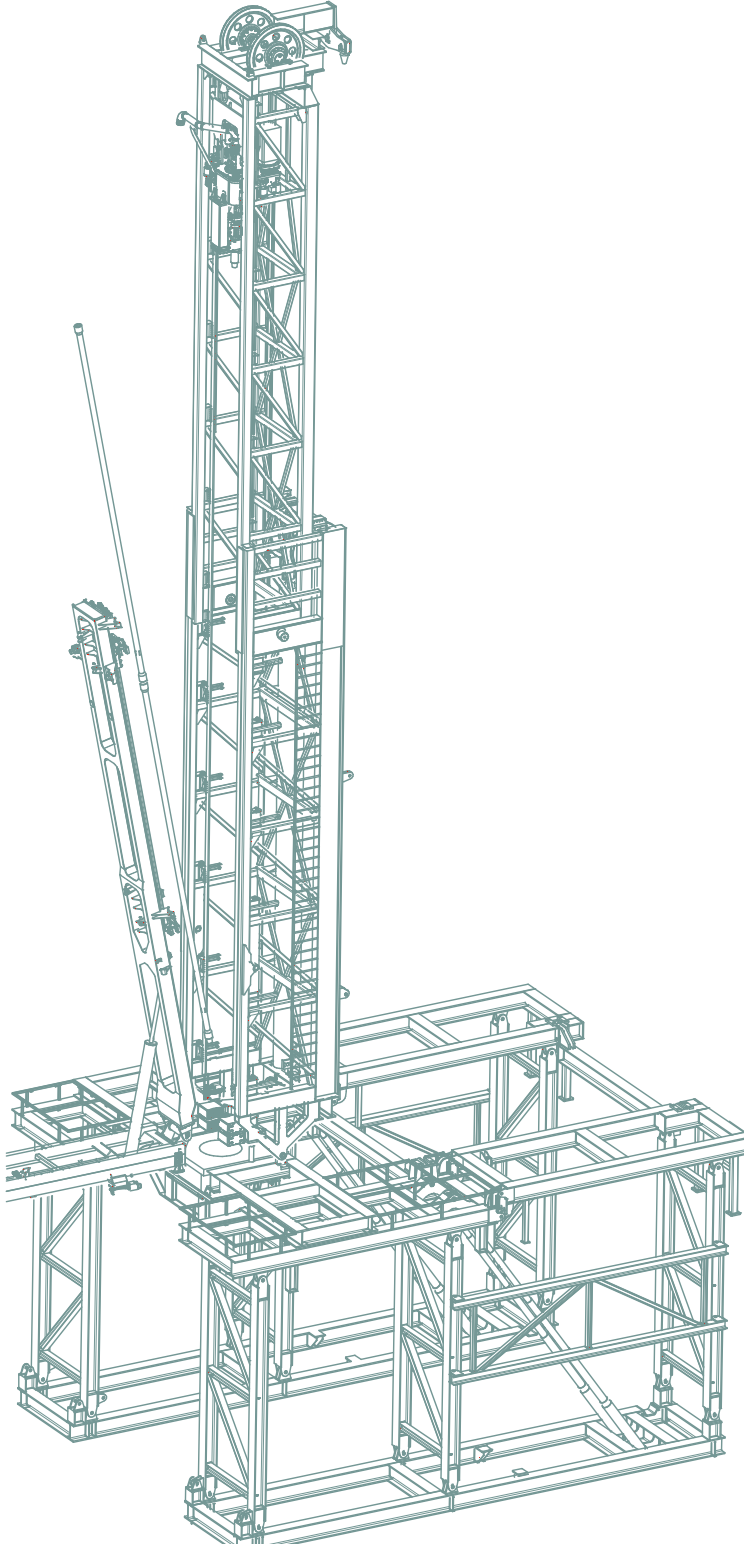
TITLE	STANDART
Drilling and well-servicing structures	ISO 13626 1st edition (2003)
Specification for Drilling and Well Servicing Structures	API SPEC 4F 3rd edition (January 2008)
Recommended Practice for Use and Procedures for Inspection, Maintenance, and Repair of Drilling and Well Servicing Structures	API RP-4G 3rd edition (April 2004)
Steel pipe for pipeline transportation systems	ISO 3183 2nd edition (2007)
Steel pipe for pipeline	API Spec 5L 44th edition (October 2007)
Steel drill pipe	ISO 11961 2nd edition (2008) & Technical corrigendum 1 (2009)
Steel pipes for use as drill pipe – Specification	API Spec 5D 5th edition (October 2001)
Specification for Drill Pipe	API Spec 5DP 1st edition (August 2009)
Wellhead and Christmas tree equipment	ISO 10423 3rd edition (2003)
Specification for Wellhead and Christmas Tree Equipment	API Spec 6A 19th edition (July 2004)
Part 1: Rotary drill stem elements	ISO 10424-1: 1st edition (2004=
Part 2: Threading and gauging of rotary shouldered thread connections	ISO 10424-2 1st edition (2007(
Specification for Rotary Drill Stem Elements	API Spec 7, 14th edition, (Nov. 2001)
Specification for Rotary Drill Stem Elements	API Spec 7, 14th edition, addendum-1, (August 2004)
Specification for Rotary Drill Stem Elements	API Spec 7, 14th edition, addendum - 2, (March 2006)
Specification for Rotary Drill Stem Elements	API Spec 7, 14th edition, addendum - 3, (June 2008)
Specification for Rotary Drill Stem Elements	API SPEC 7-1 1st edition, (March 2006)
Specification for Threading and Gauging of Rotary	API SPEC 7-2 (formerly in spec 7) 1st edition, (June 2008)
Shouldered Thread Connections Drill Stem design and Operating Limits	ISO 10407

Inspection and classification of used drill stem elements	ISO/FDIS 10407-2
Recommended Practice for Drill Stem Design and Operating Limits	API RP 7G 16 th edition (August 1998) Addendum 1 (November 2003)
Drilling and well-servicing equipment	ISO 14693 1 st edition (2003)
Servicing Equipment Drilling and well servicing equipment	API Spec 7K 4 th edition (June 2005)
Procedures for Inspection, Maintenance, Repair and Remanufacture of Drilling Equipment	API RP 7L, 1 st edition (Dec 1995) Addendum 1, 2
Hoisting equipment	ISO 13535:2000 1 st edition (2000)
Specification for Drilling and Production Hoisting Equipment (PSL 1 and PSL 2)	API Spec 8C 4 th edition (Feb 2003), Addendum (April 2004)
Inspection, maintenance, repair and remanufacture of hoisting equipment	ISO 13534; 1 st edition (2000)
Recommended Practice for Procedures for Inspections, Maintenance, Repair and Remanufacture of Hoisting Equipment	API RP 8B, 7 th edition (March 2002)
Steel wire ropes for the Petroleum and Natural Gas Industries – minimum requirements and terms of acceptance	ISO 10425 1 st edition (2003)
Specification for Wire Rope Recommended Practice on Application, Care and use of Wire Rope for Oilfield Service	API Spec 9A 25 th edition (Feb 2004) API RP 9B 12 th edition (June 2005)
Drill through equipment	ISO 13533 1 st edition (2001)
Drilling and production equipment - Drill through equipment	API Spec 16A 3 rd edition (June 2005)
Choke and Kill System	API Spec 16-C 1 st edition
Control system for Well Control Equipment	API Spec 16-D 2 nd edition
Drill through equipment	ISO 13533 1 st edition (2001)
Drilling and production equipment - Drill through equipment	API Spec 16A 3 rd edition (June 2005)
Choke and Kill System	API Spec 16-C 1 st edition
Control system for Well Control Equipment	API Spec 16-D 2 nd edition
Drilling and Well Servicing Operations Involving Hydrogen Sulphide	API RP 49 3 rd edition
Equipment System For Drilling Operation	API RP 53 3 rd edition
Occupational Safety For Drilling And Servicing	API RP 54 3 rd edition
Recommended Practice for Diverter Systems Equipment and Operations	API RP 64 2 nd edition

Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2	API RP 505 1 st edition
Lighting of work places —Part 3: Lighting requirements for safety and security of outdoor work places	ISO 8995-3
Electrical apparatus for explosive gas atmospheres Equipment intended for use in Potentially Explosive Atmospheres (ATEX)	EN-60079-10:2003 Directive 94/9/EC
Pressure Vessel Inspection Code	API 510
Inspection of Pressure Vessel	API RP 572
Inspection Practices for Piping System Components	API RP 574

SYMBOLS OF UNITS USED IN THIS DOCUMENT

Maximum Rated Load Capacities Considering Maximum Number Of Lines Installed			
Symbol	Name	Symbol	Name
"	Inch	kW	Kilowatt
ft	Foot	kg/m	Kilogramme Per Meter
lb/ft	Pound Per Foot	V	Volt
lb	Pound	A	Ampere
bbbl	Barrel	Hz	Hertz
PSI	Pound Square Inch	kVA	Kilo-Volt-Ampere
HP	Horse Power	knots	Miles Per Hour
m	Meter	No	Number
l	Liter	RPM	Revolutions Per Minute
m ³	Cubic Meter	t	Metric Ton
bar	Bar	d	Day



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