

A nighttime photograph of an oil rig, illuminated by bright lights. The rig's complex metal structure is the central focus, with a tall derrick extending upwards. The scene is set in a dark environment, with some ground-level structures and containers visible in the foreground. A semi-transparent dark blue box with a thin white border is centered over the rig, containing the text 'PI MAKINA OILRIGS' in a bold, gold-colored font.

PI MAKINA
OILRIGS



PI MAKINA

Half Century Of Experience

ABOUT Pi MAKiNA

Pi MAKiNA founded in 1974 as the manufacturing division of its constituent company ERG Construction Trade and Industry Co. Inc. dedicated to manufacturing equipment that helps build the world's infrastructure. Our management policy is to use advanced technology with continuous improvement approach to ensure customer satisfaction through timely and high quality production.

Pi MAKiNA has been proudly and manufacturing a broad range of products and providing high quality services in construction machinery over 40 years. We have accomplished a remarkable achievement in offering better solutions for customers' business needs.

In our 500.000 sqm manufacturing plant, located in Ankara, Pi MAKiNA employes around 1000

personnel. Our facility is a pioneer in the area by offering multiple, modern and innovative solutions under same roof. The prominent units are Project and R&D departments, CNC Machinery Center, Heat Treatment Center, Test Centers, Sand Blasting, Paint Drying Unit, Total Quality Control Unit. After sale service offers 7 days and 24 hours service and spare parts in Turkey as well as various countries around the World.

Whenever you use Pi MAKiNA construction equipment, you get efficient, powerful and reliable machines that help you accomplish any task within budget and on time. From concrete plants to concrete pumps, tower cranes to crushing plants, backhoe loaders to excavators..

"Pi MAKiNA has the products that Works for you..."



Technology

Capable of keeping pace with the dynamics of the time, Pi MAKiNA implements necessary works for manufacturing modern machines as well as developing and improving machineries. Pi MAKiNA constantly improves its technology with its R&D team of about 50 people. Pi MAKiNA transfers its experience of a half-century to all its products thanks to:

- Innovatively and systematically working R&D unit;
- Production preparation unit, Electric Unit, CNC Processing, Machining, Heat Treatment, Dyeing and Sandblasting Units; and
- Quality control department that controls the process at each stage of production with utmost accuracy (input control of materials, non-destructive test, laboratory tests, static and dynamic tests).



Engineering

Offering reliable solutions at any aspect as per customers' demands owing to its knowledge and experiences over the years, Pi MAKiNA devises and develops new projects almost every day with its experienced engineer staff. All necessary data is systematically collected at state-of-the-art technology and then analyzed and processed after measuring the results.

Pi MAKiNA engineering unit works in accordance with national and international standards and readies the products for use on many subjects such as:

- Designing works;
- Collecting data;
- Static and dynamic analyses;
- Stress analyses;
- Running safety tests; and
- Specifying working conditions for products



Service

Pi MAKiNA, with its specialized technical staff, offers rapid and long-lasting solutions for maintenance and repair works of all products in its product range and helps extending service life of your machines by maintaining and repairing your machines with original parts and experienced service staff.

Working 24 hours and 7 days to fulfill customer demands, Pi MAKiNA delivers all services under warranty after running all necessary checks with its Service Department to make sure customers suffer no loss of time and business.



Training

Conscious of the fact that being an innovative and problem-solving company requires certain training, from its very day of establishment

Pi MAKiNA offers necessary information and training both to its personnel and customers on many subjects including but not limited to:

- Working systems of products;
- Standard maintenance; and
- Trouble shooting

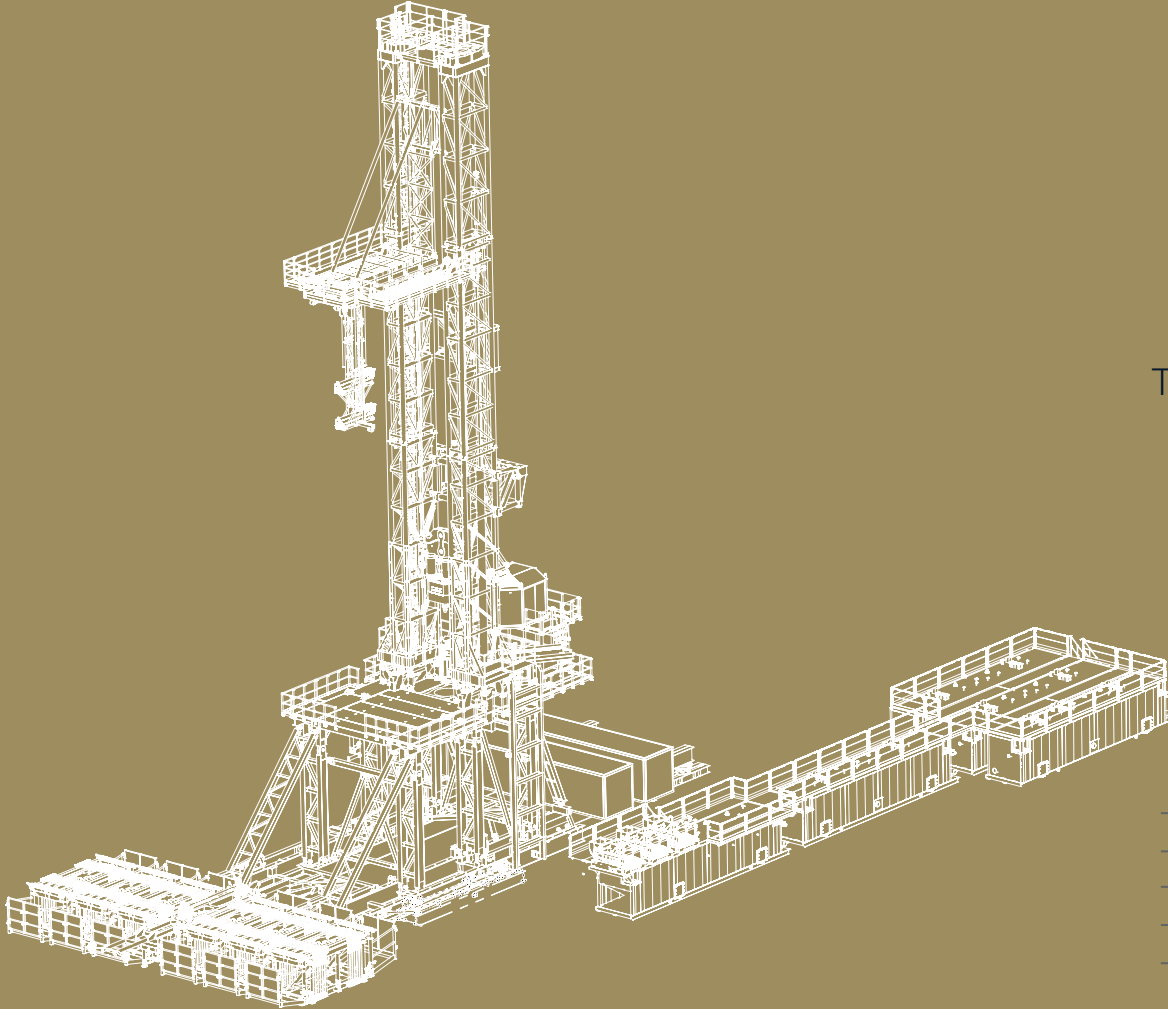




Pi Makina Oil Rigs

By use of its experience of half-century in business and production of construction machines, Pi Makina produced the first and the foremost full-automatic Oil/Natural Gas rig in Turkey blazing a trail to reduce foreign dependency for Oil/Natural Gas and Geothermal oil rigs. Designed for deep targets and with a bearing capacity of 500 tons, this rig was followed by another rig with a bearing capacity of 250 tons to continue engineering and designing works for a local rig aiming at shallower targets.

Capable of testing its oil rigs all around Turkey to prove its production of properly functioning facilities, Pi Makina in its designs for oil rigs, conceives using specific equipment that enables minimizing costs and finishing the works in the shortest possible time.



Pi PK 500

500
TON
TOP DRIVE SYSTEM

2800
HP
POWER RATING

30
FT
SUBSTRUCTURE

AUTO
MONKEY
BOARD

Mast Height 119 feet (36,37 m)

Hydraulic

Power pack to drive cylinders AC driven

Hydraulic valves braking system

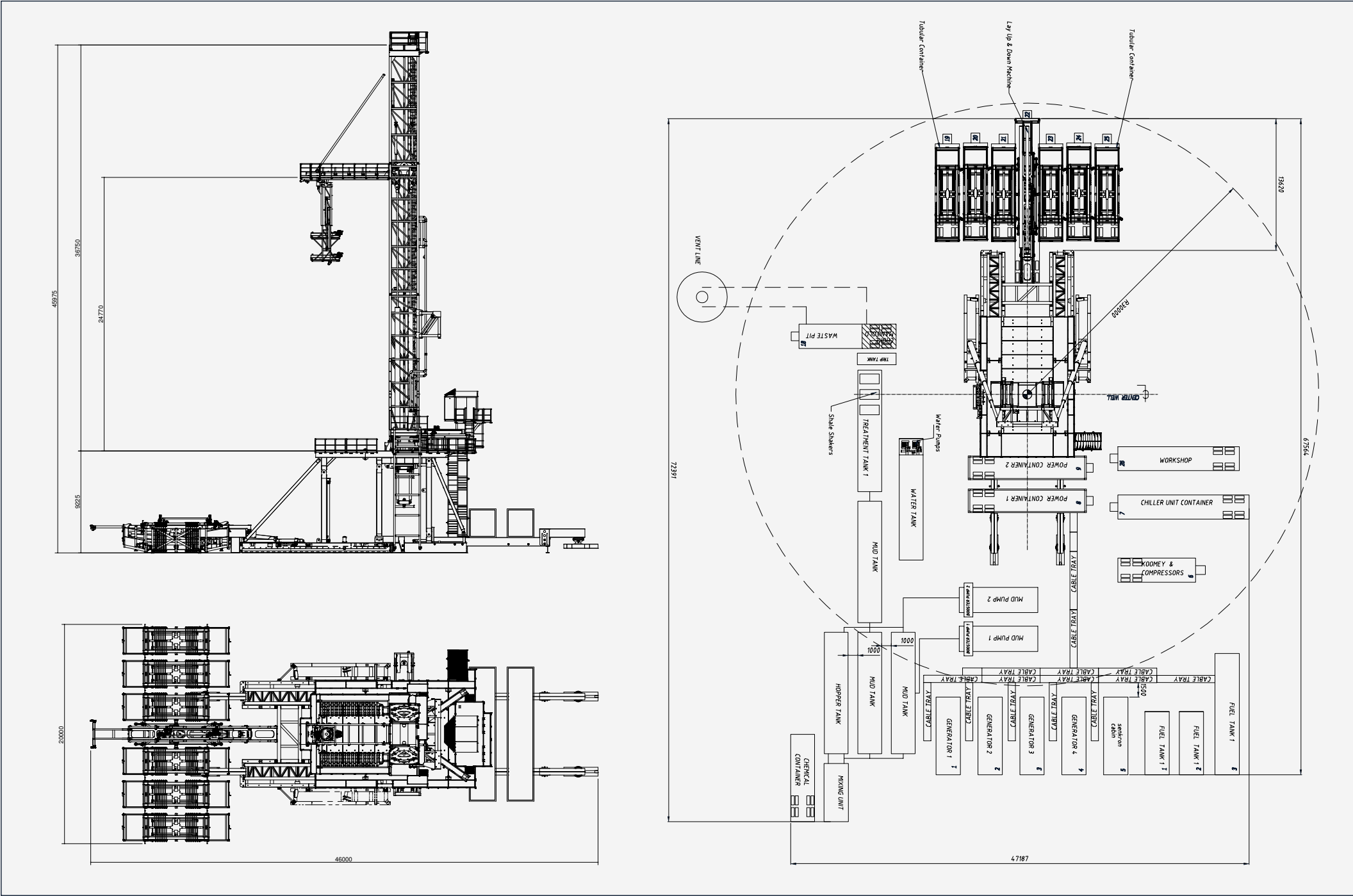
Rotary table 37 1/2" AC driven

Top drive system 500 ton AC driven



Pi PK 500

Harboring any kind of specifications to define a cutting-edge rig, Pi Pk 500 runs full automatic operation with hydraulic system, has a bearing capacity of 500 tons and is capable of going deep targets at 7000 meters and above thanks to its height of 46 meters. Equipped with a hydraulically moving top drive unit, oil rig can shorten maneuver times with full automatic pipe sequencing and provides substantial contributions to boring times.





GENERAL SPECIFICATIONS

Land rig 2800 hp: Mast & Substructure 119' x 18', Hydraulic power pack to drive cylinders AC driven, hydraulic valves braking system, Rotary table 37 1/2" AC driven, Top drive system 500 ton AC driven, Mud pump BW1600 AC driven, Hydraulic system pressure 420 bar, Generator set, VFD unit, Air unit, Drilling equipment, Auxiliary equipment, Rig instrumentation, CCTV system, communication system.

SUBSTRUCTURE

Substructure is designed in three (3) sections, with dimensions to be transported on standard trucks

- The working floor is equipped with pipe ramp, walkways, ladders and break out tongs.
- The rotary table is inserted in the working floor and it is flush without discontinuity or steps

The substructure is complete with:

- intermediate bracing between the two main substructures
- Rotary table frame and support
- Beams for setback support
- Dog house support frame
- Beams for BOP handling system
- Drip pan for mud under rotary table and set back complete with drain

Technical data

Casing load capacity 1,100,000 lbs (500 metric ton)

Setback load capacity 800,000 lbs (363 metric ton)

Simultaneous capacity 1,800,000 lbs (815 metric ton)

Floor height from ground 30 ft (9,140 mm)

Clear height under rotary beams 27 ft (8,230 mm)

MAST

Double system mast self elevating, open face both sides:

Mast dimensions: 119 ft (36,3 m)

Static hook load 1,100,000 lbs (500 metric ton) with four cylinders

Wind capacity as per API 4F (pipe racked) 60 knots

Wind capacity as per API 4F (bare setback) 75 knots

CROWN BLOCK

Crown block sheaves are mounted on conical tapered roller bearing.

The sheaves are equipped with jumper bars to prevent the drilling line from jumping off the sheaves.

The crown block has handrails on all sides of the platform

Line for sheave 59 mm

crown block sheave 49" (1250 mm)

Groove 2 1/4" (57.15 mm)

CASING STABBING BOARD

Casing stabbing board with adjustable height from floor, powered by Pneumatic motor, equipped with:

Two (2) safety device (Automatic, Manual) to avoid falling in case of failure

Safety screen installed on back side of riding platform,

An emergency stop block on bottom of casing stabbing board (shock absorber)

Adjustable height from drill floor From 25' to 45'

Pull capacity of hoisting equipment 1,100 lbs (500 Kg)

DRILLER CONTROL CABIN

The driller control cabin is fabricated from heavy-duty steel, installed on driller side, complete with walls on each side and sliding door behind chair. The roof of cabin is designed strong enough to ensure the safety of the operator.

The access platform to drill floor is flush without steps or stairs, and it is designed in order to include suitable computerized system to allow managing the rig operation.

Control cabin window is complete with windshield wiper, and allow good visibility of racking board and rotary table.

Control panel will be positioned around an adjustable driller's chair.

Complete with air conditioning system

Driller control cabin mounted on skid includes:

Tool box bench combination, Work table with 4 drawers, Doors and windows, Air conditioning system

Overall dimension (H x W x L) 2.6 m (81') x 2,5 m (10') x 6.1 m (20')

Main Control Panel is mounted inside driller cabin with all controls for drilling operation:

- Power control panel, - Top drive control panel, -Power pack control panel, - Rotary table control panel
- Ezy torque controls, - CCTV monitor, - main instrumentation panel

HYDRAULIC MAIN POWER SYSTEM

Two Independent Hydraulic Units each one positioned inside one container, independently electrically driven, each one composed by six (6) water cooled electrical motors, driving six (6) hydraulic, high pressure, gear pumps.

Every unit is complete with booster pump, filtering system, oil reservoir, suction and delivery manifold.

Every unit contain: Hydraulic power pack, Chiller unit, VFD/Inverter control panel and controls.

Each one of the two units built in accordance with the European Standards:

Rated input 2,800 HP

Container dimensions: (L x W x H) 12500 mm (40') x 2500 mm (8') x 2500 mm (8')

TOP DRIVE

TOP DRIVE system Pí TD 500, equipped with 500x2HP AC motors is complete with Top drive support unit (TDSU) 600 V

60 Hz, control console and torque guide.

Static Hoist Rating 500 Tons

Output Power: Continuous 800 HP (650 kW) Intermittent 1000 HP (740 kW)

Drilling Torque Rating 37700 lbs/ft @ 100 RPM

Intermittent Torque Rating 50600 lbs/ft

Pipe Handler Orientation Unlimited, remote controlled

Diameter Range 2 7/8 to 9.0 inches with alternate die blocks, adapters

Back-Up Wrench Maximum Travel 43.25 inches (110 cm)

Circulating Pressure Rating 5000 PSI (34 500 kPa)

ROTARY TABLE

Rotary table with 37,1/2" opening, rectangular base and guards complete with:

- High capacity roller bearing, - Side shaft, - Oil bath lubrication

- Rotary table top covered with safety pan anti-slipping

Table opening: 37,1/2" (953 mm) Gear ratio 3,6

Static Load capacity 650 ton (590 metric ton -1,300,000 lbs)

Output shaft diameter 125,42 mm (4,15/16")

Max RPM with 1 ° speed 270

Max RPM with 2° speed 160

AUTOMATED MONKEY BOARD

Automated monkey board does not need operator.

Tubular are handled automatically through the main control cabin on the rig floor.

Racking board mounted on mast section with storage capacity of triple stand of DP Range 2

- Hydraulically driven grabbing clamps two (2)

- Clamps pivoting system one (1)

- Handrails one set

Drill pipe capacity: 5" OD DP with 61/2"OD T.J. Drill collar capacity: 170 Triple Stands

8" – 91/2" OD DC 10 Triple Stands (90 feet each)

TILTING PIPE RACK

The tubular handling start from the tilting pipe rack system.

This pipe rack has the possibility, by means of hydraulic cylinders, to lift and lower the two pipe racks when the need is to feed the lay-up and lay-down machine or need to take the tubular from it.

Degree of orientation: 2°

Height from ground: 1600 mm

Number of tubular (each side): 80 pcs

LAY-UP & LAY-DOWN MACHINE

Automated lay up and down machine to transfer tubular from the pipe racks to the drill floor composed of:

- tilting pipe Racks (2) - tubular selecting device - frame - Hydraulic Power Unit

- Control System - Complete with Wireless Remote Control Device

Tubular handling Length Maximum 40'- Range 2 Single

Tubular OD handling Maximum 13 3/8"

Tubular handling Weight Maximum 10,000 lbs

Drill Floor reachable Height 30'

Lay up and down machine Height 60"

Power Requirement 100 HP

SUBS AND BIT CHARGER

Subs and bit charger is mounted on the left side corner of the mast and can be hydraulically rotated to bring to center well the subs or bits preloaded during the rig up

Type: Carousel type Number of subs: six (6) Number of bits: Three (3)

SELF LIFTING DRILL PIPES SYSTEM CONTAINERS

Tilting platform lifted to different height by means of a hydraulic cylinder.

Tilting platform has provision for tilting system that allow feeding the tilting pipe rack system or empty it

Containers numbers: four (4)

Racking capacity: 80 pcs with 5" drill pipes

Tilting degree: 2°

Dimensions: WxHxL 2,5 mt x 1,2 mt x 6.0 mt

Empty weight empty: 3000 kg Loaded weight: 25000 kg

MUD SYSTEM

Dimension of each tank will be 12.7 m long and 2,45 m

wide and 2.5 m high (approx dimensions).

One (1) Shaker tank#1 52 m³ (436 bbl)

One (1) Intermediate tank#2 56 m³ (469 bbl)

One (1) Suction tank#3 56 m³ (469 bbl)

One (1) Mixing tank#4 56 m³ (469 bbl)

One (1) Reserve tank#5 56 m³ (469 bbl)

One (1) Reserve tank#6 56 m³ (469 bbl)

Two (2) Water tank#7- 8 78 m³ (654 bbl each)

Piping connections of mud tank will be with hammer union.

DATA MONITORING SYSTEM

The Data Acquisition system is an advanced driller's monitoring system, installed on main control room, that can accurately measure, monitor and display all drilling variables in real time.

· Integrated microcontroller technology · Drilling data can be transmitted to a remote monitor

· Color driller' s monitor , · Chart recorder, · Box assembly junction, · Horn, · Monitor assembly remote

The Data-Acquisition system is a versatile, computerized data-acquisition system that provides the following information:

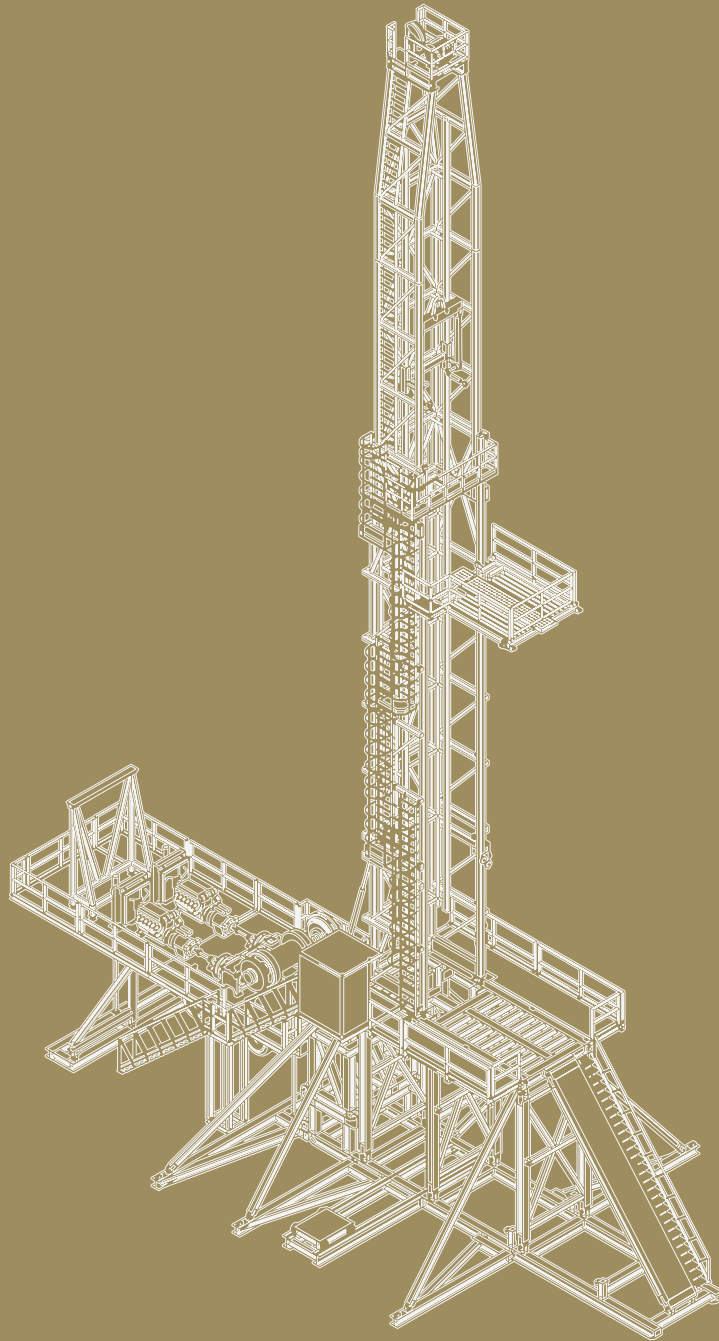
· Hook-load, · Weight on bit, · Rotary I Top Drive torque, · Rotary I Top Drive RPM, · Tongs pull indicator

· Stand pipe pressure, · Mud pump SPM for MP1, MP2, MP3 and total

· Mud Pump accumulated strokes for MP1, MP 2, MP3 and total

· Free selectable set points for min/max alarms.

Scale of instrumentation will be defined by operator.



Pi PK 250

250

TON

TOP DRIVE SYSTEM

1300

HP

POWER RATING

22,9

FT

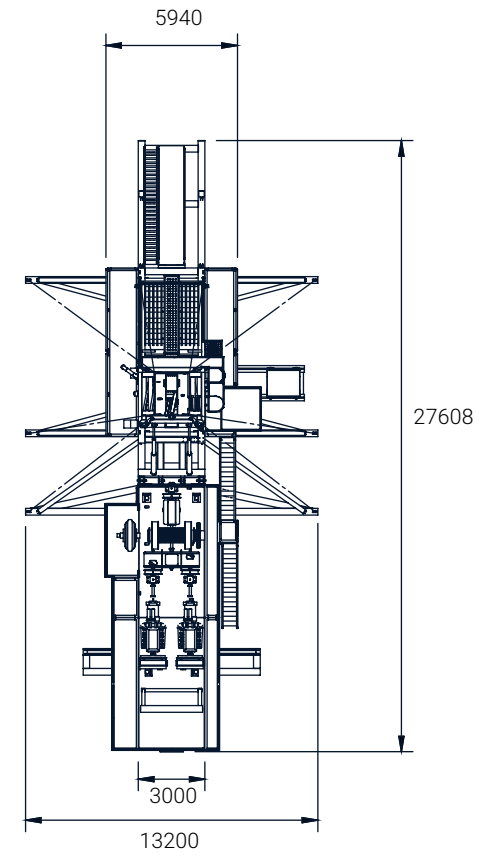
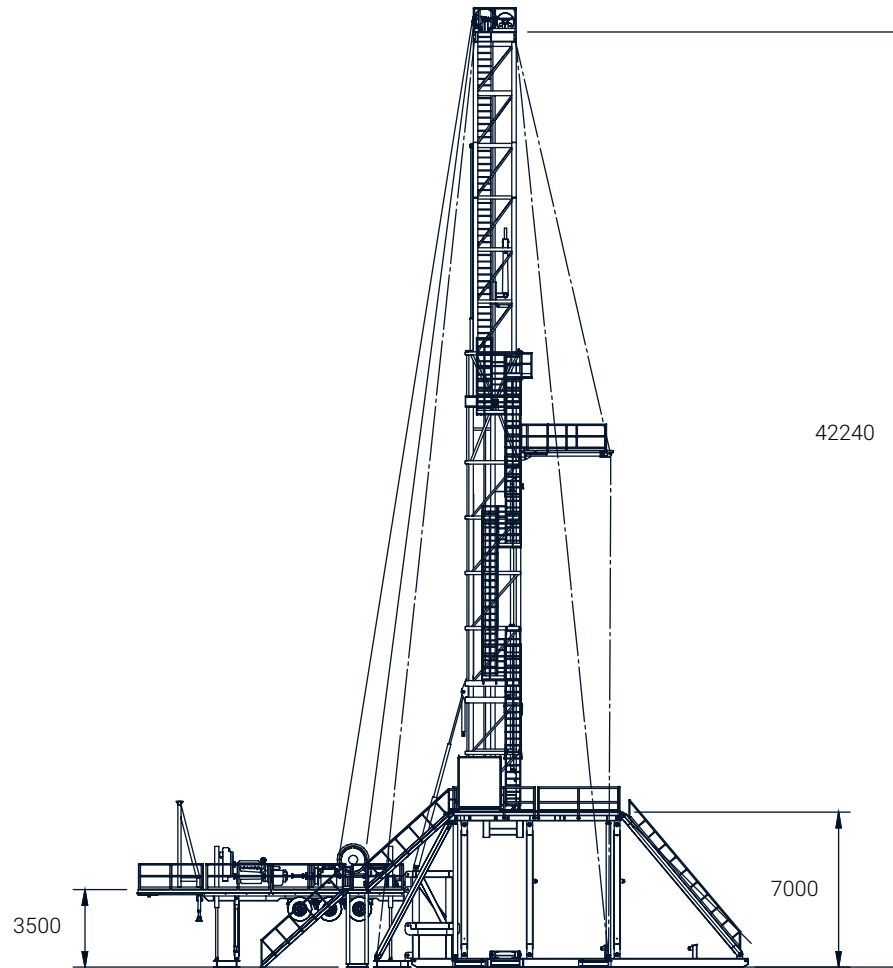
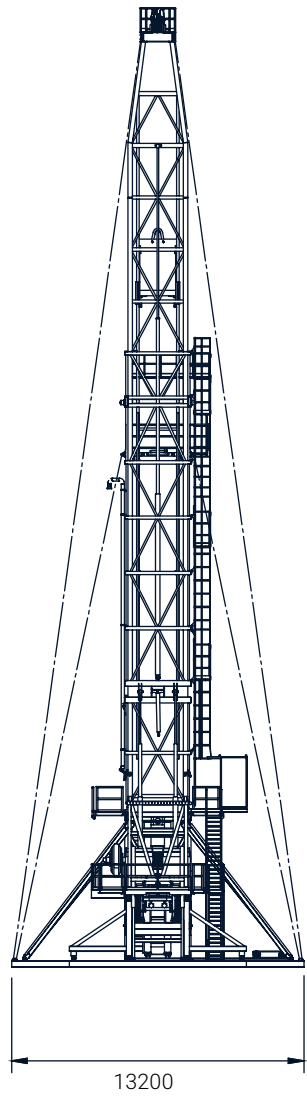
SUBSTRUCTURE

Static Hook Load	250 TON
Number Of Lines	8-10
Capacity	RANGE 2 Double
Mast Clear Height	115 ft
Drawworks Drum (D X L)	680 x 1200
Input Power	1300 HP
Main Brake	Band
Auxiliary Brake	Hydromatic
Drill Line	1 1/8"
Power Pack	2 x 12V71 Detroit Diesel
Substructure Height	7m (22.9 ft)
Working Platform Height	7m (22.9 ft)
Rotary Table	27,5"
Standpipe Pressure	5000 psi
Mounted On/Remarks	Semitrailer or Carrier



Pi PK 250

Pi Pk 250 mobile oil rig has a bearing capacity of 250 tons, table height of 22.9 feet and 1300 horsepower and is designed for depths 4000 and more and to work for long years.





GENERAL SPECIFICATIONS

Design Pi Makina
 Estimated drilling depth rating 13,000 ft (4000 m)

MAST

Type Pi Makina
 Height 115 ft (35 m)
 Nominal gross-load capacity 551156 lb (250 ton)

SUBSTRUCTURE

Type Pi Makina combination box
 Height 22.9 ft (7 m)
 Clear height, rotary beam to ground 18 ft (6.5 m)

DRAWWORKS

Type UPETROM F-250
 Power rating 1500 HP
 Input power 2 × 12V71T diesel motors
 Drilling line diameter 1 1/8 in.

TOPDRIVE

Static Hoist Rating 250 Tons
 Powered by one (1) Water Cooled Electric Motor
 Drilling Torque Rating 34700 lbs/ft @ 118 RPM
 Circulating Pressure Rating 5000 PSI (34 500 kPa)

ROTARY TABLE

Type : Upetrom 275
 Table opening 27 1/2 in.
 Drive type : Independent drive

GENERATORS

Generators (1x650 kW)+(1x350 kW)+(2x1200 kW)

WELL CONTROL

Annular 1 × Hydril GK, 13-5/8 in., 5,000 psi
 Ram preventer 1 × Cameron type U,
 13-5/8 in.,
 10,000 psi single 1 × Cameron type U,
 13-5/8 in., 10,000 psi double
 Choke-and-kill manifold 4 in. × 5000 psi
 Accumulator unit Koomey, 3,000 psi, 8 stations

MUD SYSTEM

Mud pumps 2 × BW1000
 Power rating 1,000 HP
 Pressure rating 5,000 psi
 Mud volume 1,200 bbl
 Shale shakers 2 × Derrick flow 2000
 Desilter 4 × 16 cones swaco

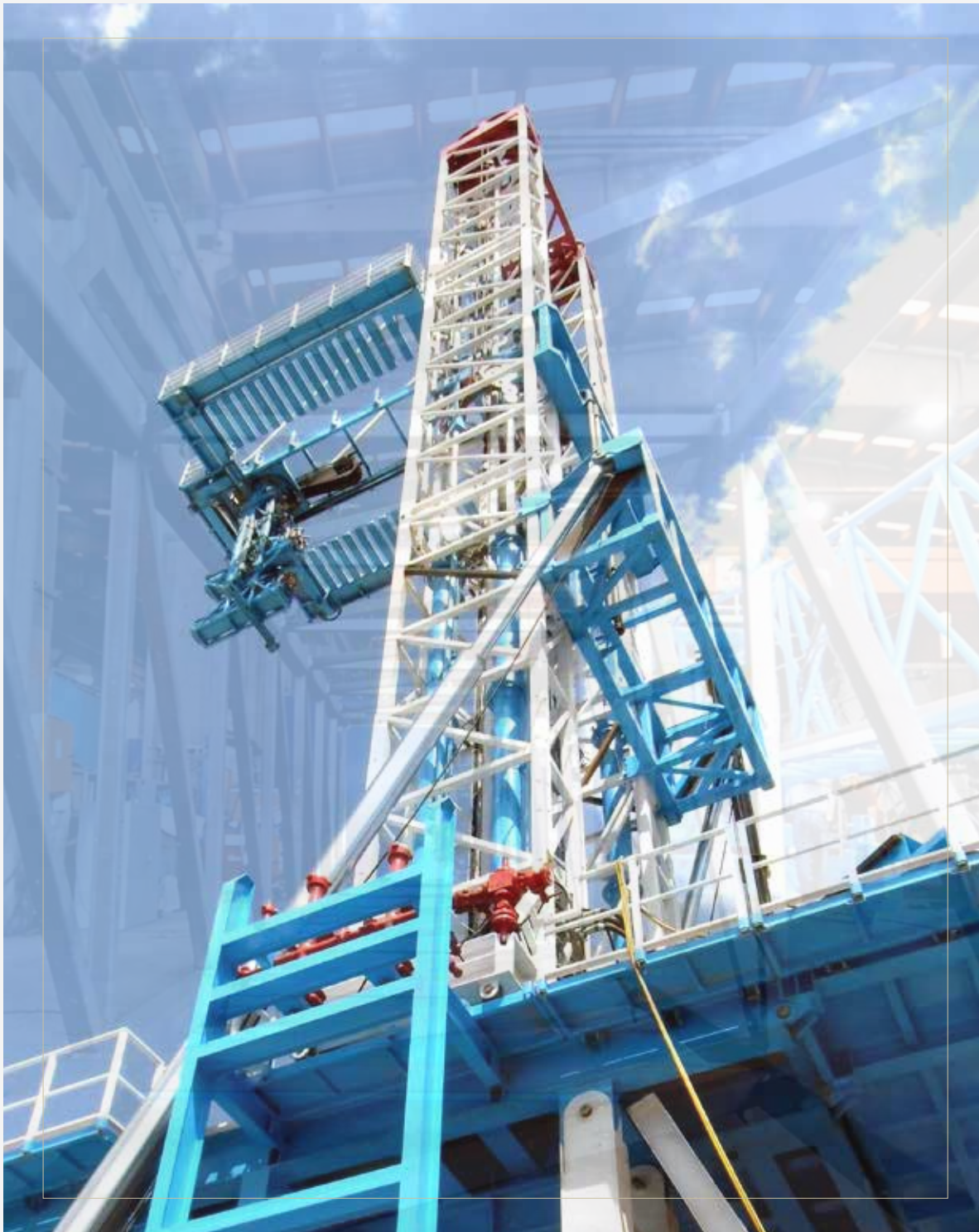


Policy

Pi MAKiNA is a pioneering enterprise in construction machines. In addition to its technologic and top-end production principles, Pi MAKiNA is also conscious of its responsibilities for environment, society and its employees. Pi Makina keeps pace with latest trends and developments in Oil and Natural Gas market while guaranteeing customer satisfaction by offering products and services beyond their expectations with observations and analyses.

Accordingly Pi MAKiNA is based on the grounds of:

- Complete customer satisfaction;
- Systematically and properly evaluating all activities in its scope of business and service to constantly reach the better and the accurate;
- Seizing technological developments, advanced service network and consistency in product quality; and
- Ensuring environmental protection, health and safety of employees.



Certificates

Pi MAKiNA holds all certificates necessary to have international validity regarding its all machines and facilities. Moreover, Pi MAKiNA produces environment conscious, safer and long-lasting facilities in full compliance with the requirements of such standards.

ISO 9000
ISO 9001-2008
ISO 14001-2004
ISO 18001-2007

GOST-R
CE
EN 1090
ATEX

Pİ MAKİNA

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