

Rig 421 – Key Statistics

Rig 421 is a Diesel-Electric Triple

- “**Triple**” refers to the height of the mast and its ability to lift 3 joints of 30 foot pipe onto the drilling floor at a time.
- “**Diesel-electric**” refers to the power generation system comprised of 3 primary diesel engines which run 3 generators that in turn power the rig. The diesel engines are rated at 800 HP each and the 3 generators at 800 kW.
- A rig is made up of a substructure, mast, drawworks, hoisting and rotating equipment, mud containment and circulating equipment, drill pipes and pipe racks plus power generation units.

Size and Scale

- Rig 421 measures 43 metres/141 feet from the ground to the top of the mast.
- The crew works on a “drilling floor” atop a substructure. The drilling floor is about 4 metres/14 feet above the ground.
- Thirty-seven truckloads were required to transport Rig 421 to Copiapo.
- The working area for the rig is approximately 70 metres by 110 metres (230 feet x 360 feet).

Drilling Capacity

- Rig 421 is rated to drill to a vertical depth of 3200 metres/10,500 feet and can lift 160,000 daN/360,000 pounds. Lifting capacity determines how much drill string and drag the rig can accommodate as the hole gets longer.
- The drill bit is attached at the end of the drillstem. Lengths (or joints) of pipe are continuously added at the drilling floor as the hole extends. A length of pipe weighs approximately 600 pounds per 30 foot joint, depending on the diameter.
- From time to time, the bit must be replaced. The process is reversed, three joints at a time, to remove the drillstem from the hole and access the bit.

Rig 421 – Rig Crew

Two full crews will keep the rig operational 24 hours per day. Each shift is made up of:

- Rig Manager – foreman of the rig overall
- Driller – leads the crew (Derrickhands, Motorhand and Floorhands)
- Derrickhands (x 2) – responsible for work above the drilling floor and the drilling fluid
- Motorhand – responsible for the equipment
- Floorhands (also called Roughnecks) (x 2) – general labour
- Electrician
- Mechanic

The operations are supported by an on-site Safety Supervisor and Engineer.

Crew Position Descriptions (see also www.toughnecks.com)

Floorhand

This position is primarily responsible for assisting the Derrickhand and Driller on the drill floor and conducting preventative maintenance on rig equipment. Floorhands also assist in the mixing of mud and chemicals, clean and paint as required, and assist in moving the rig, rigging up and rigging out. Safety is the top priority for all drilling rig personnel.

Motorhand

Motorhands are integral members of the rig team. Motorhands ensure all equipment is clean and operating properly, assist the Derrickhand and Driller on the drill floor and fill out log sheets and maintenance cards. Safety is the top priority for all service rig personnel.

Derrickhand

Derrickhands are responsible for all work above the rig floor, monitoring and maintaining proper drilling characteristics and ensuring proper drilling fluid properties. Safety is the top priority for all drilling rig personnel.

Driller

Drillers lead a crew. Drillers are responsible to ensure the proper training and safe working of their crew and the safe operation of all equipment on the drilling rig. Drillers also operate and monitor the essential systems of the drilling rig including: the hoisting, well control, mud and power systems found on all drilling rigs. Additional duties include: conducting safety drills, organizing the moving and setting up of the rig and camp and liaising between the Rig Manager and crew. Safety is the top priority for all drilling rig personnel.



Precision Drilling