



Missouri Department Track Mounted Drill Specification

The drill unit shall be an integral part of the track carrier, having a single engine power source. The power shall be appropriately directed to the carrier, hydraulic system, and hydraulically driven drill head. The width of the drill and carrier shall not exceed 84 inches and the travel height shall not exceed 102 inches. The drill shall have been in production for at least two years.

Power Unit -The unit shall be powered by a Deutz Model BF4L914 air-cooled, diesel, turbo four (4) cylinder, 97, HP @ 2,000 RPM engine. The engine shall include a 12-volt electric start system. The engine shall also include a cold weather-starting package, glow plug type.

Engine Leveling - A hydraulically operated engine leveler shall be supplied for use on slopes exceeding 30 degrees.

Feed Mechanism – Shall consist of a double acting chain drive mechanism connected to a hydraulic cylinder with a 72” stroke and capable of 11,000 pounds upward thrust and 11,000 pounds pull down. Feed speeds are 0-72 FPM up and down.

Drill Drive – Taken from prime mover through a variable volume over center piston pump and tandem fixed volume pump.

Rotary Drive – The drill head shall have a transmission of at least 8 speeds forward and 8 speeds in reverse. The transmission shall be mounted to the drill head and shall have a 2-speed hydraulic motor actuated electrically for the operator’s control panel. The rpms range from 0-975. The maximum drill spindle torque shall exceed 5000 foot-pounds in first gear. The spindle shall be hollow with at least 3-5/8” I.D. The drill head shall slide 12” off hole.

Mast – Welded structural steel construction and supports and guides the rotation and feed components. Positioned with one (2) hydraulic cylinders and rigidly held in the vertical position for drilling and is lowered to the travel position for moving from hole to hole and includes mast extension to allow for 20 ft. rod pulls. Mast mounting allows for angle drilling up to 45 degree as well as 90 degree vertical. Also includes mast dump to 60”. Includes crown block with sheaves.

Slide Head – Slide movements is 12 inches for allowing access to borehole.

Auger Guide – To accommodate 3-1/4” I.D. hollow stem auger, removable.

Hydraulic Leveling Jacks – Must have two (2) front and two (2) rear-mounted jacks with 36” stroke and lock check valves.



Tracks:

- A. Caterpillar 307C rubber tracts
- B. 18" wide tracks with 2-speed drive.
- C. Speed of the carrier shall be from 0-3.27 MPH.
- D. The engine throttle, steering, and 20,000# front winch shall be controlled by a wireless radio remote control. Backup system includes a wired controller.

Sheave Block Assembly – Low clearance with 20 ft. capability of mast extension.

Extruder – To be used with 3"x 36" Shelby Tube Samplers. To have quick release hold down clamp for installing Shelby Tubes and separate hydraulic control located at extruder to provide easy and convenient operation. To include a hinged or removable catch tray. Final mounting location to be approved by MoDOT personnel.

Main Drum Hoist – 8,800 lb. planetary type with 75 ft. of 3/8" cable with safety hooks attached.

Wireline Hoist – Hydraulically powered used for wireline core drilling to include 1000 ft, if 3/16" wireline cable. Lifting capacity is 800 lbs with integral hydraulic brake.

Front Winch – Hydraulic powered front mounted winch with 20,000 lb capacity, capable of operating in conjunction with tracks. This unit shall include 100' of 5/8" diameter steel cable with attached safety hooks.

Auxiliary Winch – Hydraulic operated with a maximum bare pull of 2,500 pounds. Includes 75 ft. of 3/8 cable with attached safety hooks.

Quick Disconnect Adapter – Shall fit a 1- 5/8" hex auger shaft.

Water Pump – Shall be a progressing cavity pump (Moyno 3L6 or equal) with drain plug, mounted to the drill rig, hydraulically driven and including pump speed controls and gauges.

Auger Rack – Front mounded auger rack provides storage for up to 50 4-1/4" hollow stem augers.

140-pound Automatic SPT Hammer- This must be 140 lb. automatic SPT hammer. Mounting location to be approved by MoDOT personnel.

Rod Tray – Capable of handling 150 feet of NQWL drill rods, 10, foot long. Mounted behind the toolboxes on the helper's side.

Double Tool Box –12-3/8" wide x 16" high x 90" long. Must be weatherproof as possible and include a lockable mechanism for the lids.



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Hydraulic Breakout Wrench and Rod Clamp - Must be able to handle up to a 4-1/2" O.D. drill rods. Removable from bottom of the mast and used in conjunction with angle holes; includes one (1) set of jaws.

Radio Remote Controller – Functions for the left track, right track, front winch, throttle control, emergency shut down. A wired controller shall also be furnished as backup. Valve controlling hydraulics needs provision for manual operation.

Miscellaneous – Must provide (3) three parts and (3) three operators manuals.

Color- Color to be manufacturer's standard safety or industrial yellow over a prime coat.

The Missouri Highways and Transportation Commission reserves the right to waive technicalities and to reject any or all bids and no bid is final until formally accepted by the Commission.