State of Illinois

Department of Transportation

Bureau of Business Services

**Specifications for a Trailer Mounted Core Drill Unit**

December 2018

This specification is designed to aid the Department of Transportation in the purchase of efficient and dependable trailer mounted core drill unit for pavement testing.

**Requirements of the Bidders:**

All bidders are expected to quote upon a manufacturer's latest standard model complete with all standard equipment plus any optional or special equipment required meeting the following specifications. The unit shall have all necessary accessories and attachments mounted on the trailer when delivered and as described in the attached specifications. Deviations from these requirements in efforts to obtain extremely low prices will not be acceptable.

Bidders quoting on other-than-specified equipment must submit with their bid written proof of the following:

1. The manufacturer of the equipment proposed has been actively involved in the manufacture of the equipment called for in the Proposal for a period of not less than 5 years.
2. Parts and service for the equipment proposed are readily available within the State of Illinois.

It is the responsibility of each bidder to complete and return this questionnaire with the bid.

**Unless otherwise specified, the proposed equipment shall be complete in all parts and ready for immediate use upon delivery.**

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| --- |
| **Bidders are advised to carefully read these specifications as changes have been made since the last solicitation issue.**  **Proposed with This Bid:** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Make: |  | | | | | |
| Model: | |  | | | | |
| Manufactured by: | | | | | |  |
| Bidder: | | |  | | | |
|  | | | |
| Contact name: | | | | |  | |
| Telephone: | | | |  | | |
| Email: |  | | | | | |

**Boring / Drill Machine:**

The trailer mounted drill machine shall be a self-contained unit having a single engine power source. It shall have the capability of drilling with thin wall diamond bits for pavement testing in sizes ranging up to 13” in diameter.

Complies: Yes  No

**Engine:**

Liquid-cooled, diesel powered, Tier 4 final operating with approximately 24 HP @ 2400 RPM. Engine shall meet all federal mandates for small stationary engines.

Complies: Yes  No

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| H.P.: |  | @ |  | RPM |

**Electrical / Starting System:**

The unit shall be equipped with a 12-volt electric starting system including an alternator, battery and battery box with locking lid.

Complies: Yes  No

**Transmission:**

The transmission shall be a four (4) speed synchromesh automotive type with reverse or hydraulically driven and allow for infinitely variable speeds.

|  |  |
| --- | --- |
| Transmission type: |  |

Complies: Yes  No

**Drilling Head:**

Mechanical drill head with 30” spindle travel to accommodate AW rods.

Complies: Yes  No

The drilling head shall be a closed type with spiral bevel gears, roller bearing mounted bronze quill, and octagonal spindle with 1-27/32” inside diameter and bolted flange thin wall bit mounting axle and 2” bore twin cylinders with 30” stroke.

Complies: Yes  No

The drill head shall swivel through 360° for angle hole drilling

Complies: Yes  No

The spindle speeds shall be capable of approximately 220, 450,840, and 1400 RPM with the engine speed @1,800RPM.

Complies: Yes  No

The drill spindle pulling (retract) force shall be greater than the thrust force to enable the operator to remove stuck cores and bits from the surface samples (pavement).

Complies: Yes  No

The unit shall include a drill rate gauge.

Complies: Yes  No

**Core barrel Guide:**

The core barrel guide shall be capable of raising and lowering hydraulically. The guide shall have a 13” minimum opening, flexible ground skirt opening, and 3 cam roller adjustable guides attached to 2 cylinders mounted to the main structural frame of the drill.

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| --- | --- |
| Guide size: |  |

Complies: Yes  No

Core barrel attachment shall accommodate the use of expanding ring adapter concept on 2” diameter and larger sizes of solid concept.

Complies: Yes  No

**Dual Axis Slide Base:**

Provides a minimum 12” forward and backward movement and a minimum lateral movement of 6” each side of center.

Complies: Yes  No

**Hydraulic System:**

The hydraulic gear pump shall have a constant delivery capable of delivering approximately 6 GPM @1000 PSI.

Complies: Yes  No

The pump shall be PTO driven off an auxiliary pad attached to the diesel power unit. Disengagement of the main clutch shall not affect the operation of the water pump or the hydraulic pump.

Complies: Yes  No

The unit shall be equipped with an approximately 16-gallon hydraulic oil tank with a sight gauge, combination filter cap/air filter, and a magnetic drain plug.

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| --- | --- |
| Tank size: |  |

Complies: Yes  No

The hydraulic system shall have a return line with a replaceable filter.

Complies: Yes  No

The control valve assembly shall be 3 spool stack type with 4-way control valves and an adjustable type master relief valve.

Complies: Yes  No

The unit shall be equipped with a system gauge with a pulsation dampener reading the bit weight in pounds.

Complies: Yes  No

A manually adjustable valve for infinity variable drill head feed rate and fast return feature.

Complies: Yes  No

A manually adjustable valve for infinitely variable bit weight.

Complies: Yes  No

**Water Pump:**

A constant displacement tubular type pump driven by an in-line hydraulic motor capable approximately of 7.6 GPM @ 75 PSI maximum. The hydraulic controls shall be easily accessible at the operator’s station.

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| --- | --- |
| GPM: |  |
| PSI: |  |

Complies: Yes  No

**Plumbing:**

The water piping and plumbing shall consist of the following**:**

* Pump relief valve
* Pump by-pass valve
* Pump flexible suction hose from the tank with a check valve.
* Metering valve from pump discharge to water swivel.
* Hand valves permitting suction from the tank or other source.
* Priming port
* Drain port
* Pressure gauge
* Piping shall allow for the use of garden type hose for hand held operations.

Complies: Yes  No

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| --- | --- |
| If No, Please Describe: |  |
|  | |
|  | |

*Note: All flow regulating valves shall be located at the operator’s station.*

**Water Tank:**

A stainless-steel water tank with approximately 200 gallon capacity. The tank shall have longitudinal and transverse baffles for highway travel. Shall include drain with shutoff for flushing tank or winterizing.

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| Tank size: |  |

Complies: Yes  No

The tank deck and all step access points shall have a non-skid surface.

Complies: Yes  No

**Stanchion Mounted Control Panel:**

All controls shall be located in a stanchion mounted panel. This will allow the operator to pivot the panel left to right for drilling operations. If a vandal proof cover is available it shall be provided.

Complies: Yes  No

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| --- | --- |
| If No Describe: |  |
|  | |

**Safety Shutdown:**

The unit shall include a safety function in operators control panel that simultaneously disengages the main power source and stops all drilling operations.

Complies: Yes  No

**Tools:**

The unit shall be equipped with the following tools for normal operation and adjustment of the drill.

* (1)- ball bearing water swivel
* (1)- ¾” x10’ water swivel hose
* (1)- drill spindle adaptor to 1 ¼” 7 TPI pin or as needed
* (1)- 1 ½” x 20” suction hose with foot valve and strainer

Complies: Yes  No

|  |  |
| --- | --- |
| If No Describe: |  |
|  | |

**Tool Box:**

Adequate size tool box to store provided tools with locking latch or latches.

Complies: Yes  No

**Trailer:**

The trailer chassis shall be constructed of approximately 2” X 4” structural tubing main longitudinal members which continue to form a “V” type drawbar (tongue). The drawbar shall allow for mounting an adjustable height, medium duty pintle eye or ball type hitch. A fully retractable pneumatic tire dolly caster wheel shall be mounted on the drawbar. The dolly shall lock in both the up and down position. The dolly wheel and tire shall be rated to support the full drawbar (tongue) weight when unhooked from tow vehicle.

Complies: Yes  No

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| --- | --- | --- |
| Please Describe: |  | |
|  | |

The trailer shall have a minimum of 3 (three) hydraulic leveling jacks with approximately 6” diameter full swivel pads. Jack mounting shall allow for course adjustment. If clamp sleeves are utilized, they shall be permanently attached to the trailer.

Complies: Yes  No

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| If NO, Please Describe: |  |
|  | |

The trailer shall be equipped with safety chains, stop/tail/turn lights, full coverage fenders, and mud flaps meeting all DOT requirements.

Complies: Yes  No

The suspension shall consist of a tubular type straight axle(s) with leaf springs, hubs, spindles, wheels, and electric brakes. The suspension shall be rated for a fully loaded unit including a full water tank.

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| --- | --- | --- |
| G.V.W.R.: |  | |
| Suspension rating: | | |  | |

Complies: Yes  No

**Tires:**

The trailer tires shall be new, first run quality meeting or exceeding total G.V.W. of unit proposed.

|  |  |
| --- | --- |
| Tire size and rating: |  |

Complies: Yes  No

**Spare Tire and Mount:**

A new, first run quality full size spare tire and wheel shall be mounted to trailer in safe location.

Complies: Yes  No

**Safety Lighting Package:**

A four corner AMBER LED warning light package shall be included.

Complies: Yes  No

A LED work light shall be included for night operations. Light shall encompass drill work area.

Complies: Yes  No

**Safety Components:**

The unit shall be furnished complete with all safety components that are required by the current Federal Safety Standards.

Complies: Yes  No

**Delivery:**

It will be the responsibility of the successful vendor to guarantee delivery within the quoted time and to require allied manufacturers or suppliers to complete the installation of auxiliary equipment in accordance with the quoted delivery time. Failure to comply with the quoted delivery time because of delays resulting from the inability of suppliers of allied equipment may be reason to refuse to consider similar items from those suppliers on future bids.

Complies: Yes  No

All equipment provided by the manufacturer and any sub-contractor(s) shall be fully operational when delivery is made.

Complies: Yes  No

**Operator's Books:**

The successful bidder shall furnish operator's instruction and maintenance manuals or electronic versions to the destinations to which units are delivered.

Complies: Yes  No

**Training:**

The successful bidder shall provide training for service personnel and operators at each delivery location including components, their function and required service. The content will be subject to the approval of the Illinois Department of Transportation.

Complies: Yes  No

**Warranties, Coverage and General Bid Information:**

**Complete Equipment Coverage:**

**Warranty:**

Full coverage warranty for a minimum 12 months shall be provided. The warranty shall be the standard maximum coverage warranty offered with no additional charges. The bidder shall attach a copy of warranty with the bid.

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| Describe warranty: |  |
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|  | |

List all locations where this work will be completed:

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**Manufacturer's Warranties:**

List below the duration of *no charge* warranties provided for the major components of the equipment including, but not limited to, the following:

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| --- | --- | --- | --- | --- |
| Engine: | | |  | |
| Transmission: | | |  | |
| Drilling components: | |  |  | |
| Axle: |  | |  | |
| Plumbing: | |  | . | |
| Hydraulics: | |  |  | |
| Other: | | |  | |  | |

**Bid Package:**

Bidders will need to send two copies of each of the following with their bid response.

1. Specification Questionnaire
2. Descriptive Literature