

Core Bore Drilling Machine

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Core Bore Drilling Machine

Figure 2. Vacuum Motor and Base.

Vacuum Anchor Method-to-Floor

Warning: DO NOT use the Vacuum Anchor Method- to-Wall.

The Vacuum Anchor Method is recommended for 8-inch diameter holes or less. The Anchor Vacuum Method is NOT recommended on rough or cracked floor conditions, holes deeper than one bit length, steel concentration greater than standard rebar

1. Turn Machine on its back and insert Vacuum Seal (Fig. 3) under Machine Base, inspecting first to ensure Seal is in good condition and sealing groove is clean.
2. Turn Drilling Machine up-right and loosen 4 Base Leveling Screws.
3. Plug Service Cord into a properly grounded receptacle and turn Vacuum Pump ON/OFF Switch to the ON position.
4. Insert Vacuum Slot Cap into Anchor Bolt Slot (Fig 2) and check vacuum and hose connections. Vacuum Gauge (Fig. 2) must read a minimum of 20 inches of mercury.
5. The Drilling Machine should now be vacuum anchored. If Machine does not anchor, add weight by standing on Vacuum Base. It should now anchor with Vacuum Gauge reading 20 inches of mercury minimum. If not, check the floor and Vacuum Seal (Fig. 3) for leaks.
6. Adjust 4 Leveling Screws to eliminate rocking and to stabilize Machine and plumb Mast. The Machine is now ready to drill.

? Frequently check the water level in the Vacuum Water Trap. When Water Trap becomes half full, stop drilling and empty water.

8 After using, turn Drill Motor ON/OFF Switch to the OFF position, then turn Vacuum Motor ON/OFF Switch to the OFF position, unplug Power Cord and remove. Clean and store Vacuum Seal.

Note: Vacuum can be released by turning Vacuum Release Valve (Fig. 2).

Ceiling Jack Anchor Method

1. Cut pipe or wood to the required length to fit between ceiling and Ceiling Jack Screw (Fig. 4) on top of Mast.
2. Tighten Ceiling Jack Screw to force Machine against floor.
3. Stabilize and plumb Machine by adjusting 4 Leveling Screws on Base.

Operating Instructions

Warning: 1. For your own safety, read the Safety and Operating Instructions completely before plugging in Drilling Machine.

2. If Drilling Machine is not securely anchored, it may result in injury to operator.

3. DO NOT plug Machine into power source until set-up is ready to drill.

1. Thread the Drilling Bit (Fig. 5) onto Drill Spindle (Fig. 4) and tighten securely with Bit Wrench.

Caution: Never turn Drill on with Bit resting on the concrete.

--ceiling

2. Check hole alignment by lowering Drill until it is about 1/2 inch from concrete.

3. Position 2-Speed Selector Knob on Drill (Fig. 5) to desired speed. Move Selector down towards Spindle to select high speed for up to 4" Bits. Move Selector up away from Spindle to select low speed for Bits over 4". Make certain speed is proper for Bit diameter being used.

Caution: DO NOT move Speed Selector while Drill Spindle is rotating.

Note: If a Water Collector Ring and Pump (Fig. 5) is used, plug Pump into a properly grounded 115V receptacle. Have suitable container for draining.

4. With Water Control Valve shut off, connect Water Inlet Hose to Drill (Fig. 5) and water source.

Description and Specifications

The Core Bore Drilling Rig is a heavy duty core drilling machine. This machine has a combination anchor/ vacuum base which provides additional flexibility by incorporating both bases in one unit. The Diamond Core bits are capable of drilling through granite, masonry, and steel reinforced concrete, leaving a perfectly formed hole.

Model M-1

Drilling capacity 1 1/2" through 1 3/4" w/spacer

Base-Anchor/vacuum (14" X 16") Mast-2 1/2" sq. X 42" high

Model M-2

Drilling capacity 1 1/2" through 3/4" w/spacers

Base-Anchor Vacuum (14" X 17") Mast- 2 7/8" sq. X 42" high

Model M-3

Drilling capacity 1 1/2" through 6" Applications and limitations, as well as the specific potential hazards peculiar to this equipment.

2. Ground Machine (Fig. 1). This Drilling Machine should be grounded while in use to protect the operator from electric shock. The Machine is equipped with a three-conductor cord and three prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal.



A.W.G.

Cord Length

Wire Size

Base-Anchor/vacuum (8 1/2" X 11") Mast- 1 1/2" sq. X 34"

Specifications common to all three: Power Source-30 amp, 115 vac., 60HZ Drill

Motors:-All motors are 115 volt, 60HZ

Single phase

CB-1-2 speed, 450/1200 rpm, 20 amp

Black & Decker- 2 speed, 375/900 rpm, 15 amp, model 758

Black & Decker-2 speed, 375/900 rpm 18 amp, model 748

Milwaukee-2 speed, 20 amp model 4039, 1200-600 rpm model

4034, 900-450 rpm model 4029, 300-600 rpm

Milwaukee- 2 speed, 15 amp

model 4035, 500-1000 rpm model 4030, 375-750 rpm

Drill Feeding- rack & pinion

Control Panel-Heavy duty box w/amp-meter, 2 switches, 2 outlets

Vacuum System-Diaphragm pump w/vacuum gauge

Wheels (2)-Large diameter for easy movement.

Safety Instructions

Warning: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

1. Know your Core Bore Drilling Machine. Read Operator's Manual carefully. Learn the operation, ap-

6'.50'	12 GA.
51'.100'	8GA.

Figure 1. Grounding Machine

3. **Extension Cords.** Use only three-wire grounded extension cords suitable for use outdoors and of sufficient gage to accommodate power requirements. Replace or repair damaged cords.
4. **Servicing.** Other than routine, maintenance should be performed by an authorized service representative.
5. **Accessories; replacement parts.** When servicing use only identical replacement parts. Use recommended accessories.
6. **Keep work area clean.** Avoid cluttered work areas.
7. **Consider work area environment.**
 - Don't expose power tools to rain.
 - Wear rubber boots to further insulate yourself from your Machine.
 - Mop up all excessive water around the work area before proceeding.
 - Keep work areas well lit.
8. **Use extreme caution when drilling through floors.** Provide for protection of all personnel and material below the area. Cores generally drop from drill at completion of the hole.
9. **Keep visitors away.**
 - Do not let visitors contact tool or extension cord.
 - All visitors should be kept at a safe distance from work area.
10. **Don't force tool.** Drill should be used at a speed and feed rate that does not overload the motor. When starting Bits, do not use more than two 12" extensions.
11. **Dress properly.**
 - Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outside
 - Wear protective hair covering to contain long hair.
12. **Use safety glasses.**
13. **Don't abuse cord.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
14. **Secure Drill Stand.** Use bolts, ceiling jack, or vacuum hold-down. Do not secure Drill Stand with a vacuum hold-down when drilling on vertical surfaces such as walls.
15. **Don't overreach.** Keep proper footing and balance at all times.
16. **Maintain tools with care.**
 - Keep tools clean for optimum performance.
 - Follow instructions for lubricating and changing accessories.
 - Inspect Machine Cord periodically and if damaged, have repaired by authorized service facility.
 - Inspect extension cords periodically and replace if damaged.
 - Keep handles dry, clean and free from oil and grease.

17. **Disconnect power.** When not in use, before servicing, and when changing accessories or Bits.

18. **Form a habit of checking** to see if wrenches are removed from tool before turning it on.

19. **Avoid accidental starting.** Make sure ON/OFF Switches are in OFF position before plugging in Power Cord.

20. **Check for damaged parts.**

- Check for alignment of moving parts, binding of moving parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.
- Have defective Switches replaced by an authorized service center.
- Do not use tool if Switch does not turn it on or off.

21. **When releasing Carriage Locking Handle, maintain a firm grip on Feed Handle** to prevent Feed Handle from revolving due to weight of Drill.

Note: "Save these instructions."

Set-Up Instructions for Securing Machine

Caution: It is very important that the Drilling Machine is properly secured to the work surface. Movement during drilling will cause chatter of Bit against the work surface, fracturing diamonds. Bit may also bind in hole, causing damage to the Bit. The methods for anchoring are as follows: follows:

Bolt Anchor Method-to-Floor

1. Measure distance from center of Anchor Bolt slot in Base (Fig. 2) to center of Drill Spindle (Fig. 4).
2. Mark and measure from center of hole on floor to be drilled, to spot where Anchor Bolt hole will be drilled.
3. Drill and set 1/2 inch Anchor Bolt. Place Drilling Machine over anchor hole and hand tighten bolt.
4. When anchoring to brick or block walls, you MUST drill thru the brick or block and use all thread to secure the machine to the wall.
5. Adjust 4 Leveling Screws (Fig. 4) to stabilize Base and plumb Mast. Secure Machine by tightening Anchor Bolt.

Bolt Anchor Method-to-Wall

Use the same Bolt Anchor Method procedure to anchor as above.

Warning: You must use additional precautionary procedures to assure safety of operator. This involves fastening a chain to Machine and securing chain to avoid falling. DO NOT use the Vacuum to secure the machine to the wall or ceiling, as serious injury could result.

Note: Water can be supplied by a standard garden hose or by a Pressure Tank. Water is fed through Inlet Hose, down inside of Bit, washing cuttings from under Bit

crown, up and outside of hole. Be sure that any method used has adequate water pressure to supply a flow of 1-2 gallons per minute. Lack of water can cause diamonds to polish or burn the Bit, causing Bit end to turn blue.

5. With Drill Motor ON/OFF Switch in OFF position, plug Power Cord into a properly grounded 3-prong receptacle.
6. Open Water Control Valve (Fig. 5) allowing water to flow at 1-2 gallons per minutes.

Caution: Before turning Drill Motor on, be certain that Machine is securely anchored by a method described on Pages 3 or 4.

7. Turn Drill Motor ON/OFF Switch to ON position.

Caution: DO NOT apply full load until entire Bit Crown has penetrated the material.

8. Turn Feed Handle to apply load on Bit. To prevent Bit from wandering, apply light pressure on Feed Handle while starting to drill.

Note: The Amp-meter has a green and red area to indicate proper pressure and drilling speed, preventing Motor overload and providing longer Bit life. The green area is the working range; the red area indicates too much pressure being applied. Keep Amp-meter needle in the green area. Too little pressure can polish Bit and too much can cause undue wear.

9. Drill Bit feed should be uniform without excessive force. Drilling penetration of 1 to 4 inches per minute may be achieved in concrete depending on material and Bit diameter. Proper feed pressure is determined by load on motor and reading on Amp meter. To maximize life of Drill Bit, regulate feedrate so that needle on Amp-meter is in upper green area of 20 amp range (15 amp range on 15 amp motors; 18 amp range on 18 amp motor). If needle goes into red area decrease feed rate as undue Bit wear will result.

Note: When water turns clear, you are drilling through rebar.

10. Your Control Panel amp-meter will go into the red area when you hit steel. When you encounter rebar, lessen feed rate to allow needle to return to the green area.

Note: It is recommended that after cutting steel, you stop and break out core and any loose pieces of steel, then proceed.

Caution: When drilling steel embedded in concrete, never switch to high speed if you are drilling in low speed. These Bits are not designed to drill through solid steel.

Warning: Use extreme care when drilling through floors. Provide for protection of all personnel and material below the area. Cores generally drop from Drill Bit at completion of the hole.

Removing Cores

Breaking a Core

1. If you are not drilling completely through, the core can be easily broken by inserting a screwdriver into the drilled groove and prying the core to the opposite side.
2. Use a second screwdriver to lift core out.

Removing Broken Core Below the Surface

1. Use a 1/8-inch diameter steel rod.

2. Make a 1/4-inch long 90 degree bend at one end.
3. Insert rod down side of broken core to depth of break, twist 90 degrees and lift core out.

Removing Broken Core Stuck in Bit

Warning: Unplug Machine Cord from power source.

1. Increase water pressure and try to tree core with your hands.
2. If unable to tree core, remove Bit from Drill.
3. Push core gently through from top of Bit with a rod when using a Capped Bit.

Removing a Lodged Bit from Hole

Warning: Unplug Machine Cord from power source.

1. Turn water on.
2. Using Bit Wrench, try to rotate Bit in both directions and lift out using Feed Handle.
3. If unable to tree Bit, turn water off and disconnect Bit from Drill Spindle. Use Bit Wrench again, rotating back and forth and rocking until tree the surface being drilled, do not use more than two 12-inch Bit Extension Rods.

1. Drill to full depth of Bit.
2. Back Drill out and remove Bit and core.
3. Put Drill Bit back into hole and connect a 4-, 6- or 12-inch Bit Extension Rod to Bit and secure with Bit Wrench.
4. Screw Bit Extension Rod onto Drill Spindle and secure with Spindle Wrench.
5. Proceed with drilling.

Water Removal Pump

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Water Inlet Hose

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Capped or Open End Drilling Bit Selection Capped Bit-Has Adaptor welded onto Bit as one solid piece. The advantages of this type of Bit are as follows:

1. Simple installation and easy alignment.
2. No Expansion Adaptors to lose or forget.

Open End Bit-Requires a three-piece Expansion Adaptor. Top of Bit tube is machined to accept Adap tor which expands, locking itself firmly against the wall of the Bit. The advantages are as follows:

1. Reusable: Several Bits of the same size can be used with the same Adaptor offering a

savings in cost on each Bit after initial cost.

2. If core becomes lodged in the Bit, removing the Expansion Adaptor makes core removal easier.

Installing Open End Bit Expansion Adaptors

1. Screw 3-piece Expansion Adaptor 2 full turns onto Drill Spindle.
2. Slide Open End Bit up to the top shoulder of the Expansion Adaptor and turn with hands until snug.
3. Tighten in place with a strap wrench.

Installing Bit Extension Rods

In order to drill deeper than the 13 inch long Bit will allow, Bit Extension Rods must be used. Drilling rate will be slower because of the extra amount of drag on the Bit walls.

Note: When it is necessary to raise the Drill Bit above

Maintenance Instructions

Warning: Make sure Machine is unplugged from power source before making any adjustment.

Note: If any maintenance is required other than that listed below, take Core Bore Drilling Machine to a Service Center or return it to factory.

Lubrication

Keep a light coating of oil on rack and pinion and Drill Spindle.

Ventilation

Keep Drill Motor inlet and air passage clear to assure proper Motor ventilation.

Motor Brush Replacement

Check Motor Brushes every 200 hours and replace when Brushes become 1/4 inch or less in length.

Wiring Diagram {115V, 60 Hz}

Machine Storage

Motor driven equipment must be stored indoors or well covered in rainy weather. Always remove Vacuum Seal from Base of Machine.

Bit Replacement

Bit is considered worn when the crown shows excessive wear and has become flush with tube.

Shims

Carriage Head will become loose due to vibrations. Tighten Shim Adjusting Screws (Fig. 4) to remove "play."

Vacuum Seal

Replace Vacuum Seal if it becomes mushroomed on bottom edge, cracked, pitted, or worn.

EQUIPMENT AND PARTS WARRANTY

Diamond Products warrants all equipment manufactured by it against defects in workmanship or materials for a period of one (1) year from the date of shipment to Customer.

The responsibility of Diamond Products under this Warranty is limited to replacement or repair of defective parts at Diamond Products' Elyria, Ohio factory, or at a point designated by it, of such parts as shall appear to us upon inspection at such point, to have been defective in material or workmanship, with expense for transportation and labor borne by Customer.

In no event shall Diamond Products be liable for consequential or incidental damages arising out of the failure of any Product to operate properly.

Integral units such as engines, electric motors, batteries, transmissions, etc., are excluded from this Warranty and are subject to the prime manufacturer's warranty.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND ALL SUCH OTHER WARRANTIES ARE HEREBY DISCLAIMED.