Environmental Protection and Guarantee

ENVIRONMENT PROTECTION

Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local Authority or retailer for recycling advice.

For support, call Virginia Abrasives at

800.446.1805

VIRGINIA ABRASIVES®

REAL. RUGGED. READY.

Variable Speed Diamond Core Drill

Model 433-22000

OPERATING MANUAL

800.446.1805

VirginiaAbrasives.com

WARNING – To reduce the risk of injury, user must read instruction manual

General Power Tool Safety Warnings

WARNING: Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your (corded) power tool.

Work area safety

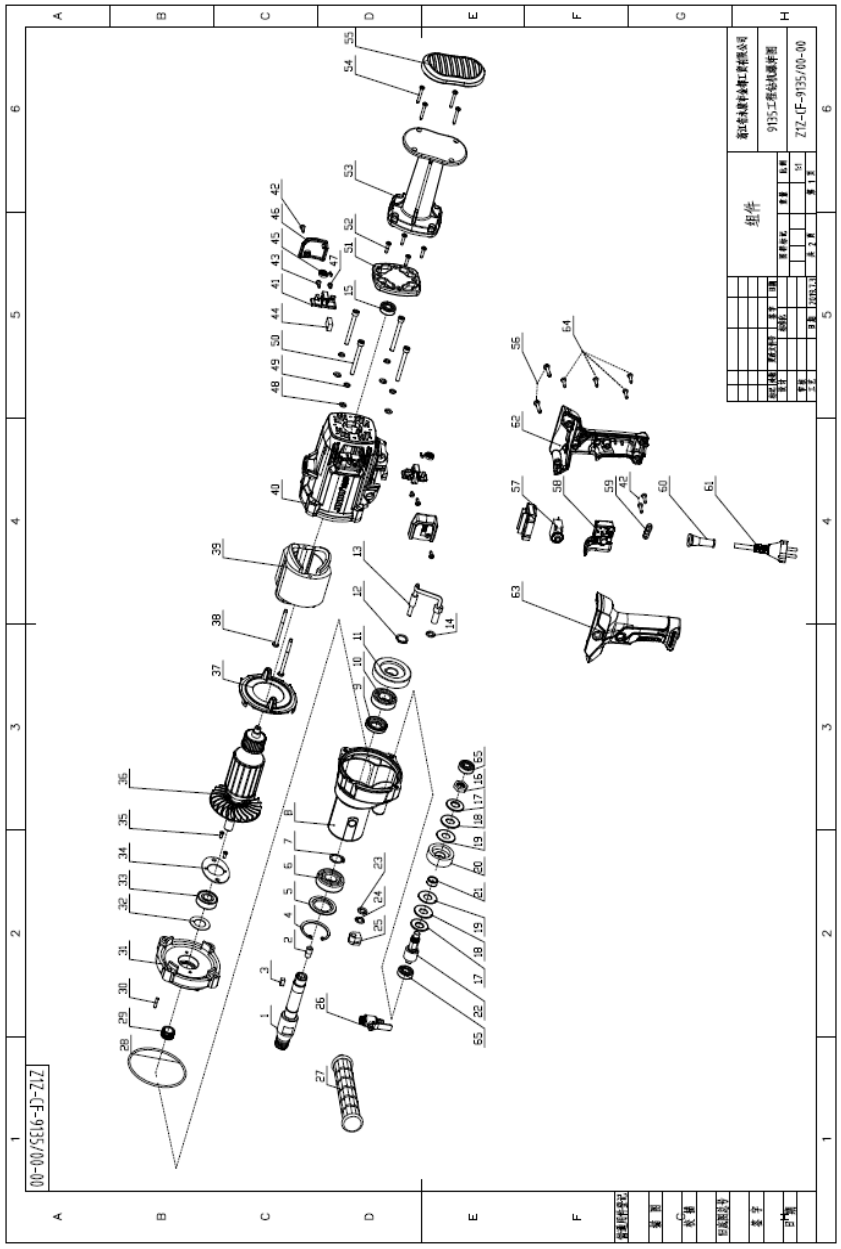
1. **Keep work area clean and well lit**. Cluttered or dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
3. **Keep children and bystanders away while operating the power tool.** Distractions can cause you to lose control.

Electrical safety

Virginia Abrasives Variable Speed Core Drill Parts List

Part #	Description	# Required	Part #	Description	# Required
1	Output Shaft	1	35	Bearing Retaining Plate Screw M4 x 10	2
2	Tube Seal	1	36	Armature	1
3	Flat key A6x12	1	37	Shield Ring	1
4	Retaining Ring 47	1	38	Self Tapping Screw 4.8 x 70	2
5	Dust Cover	1	39	Stator	1
6	6204 Bearing	1	40	Motor Cover	1
7	Shield Ring For Shaft 20	1	41	Brush Holder Assembly	2
8	Gear Box 1	1	42	Self Tapping Screw ST 4.2 x 13	4
9	Rubber Sealing Ring 20×36×7	1	43	Self Tapping Screw ST 4.2 x 13	2
10	6004 Bearing	1	44	Brush (7 x 13 x 19)	2
11	4# Gear	1	45	Coil Spring for Brush	2
12	Shield Ring For Shaft 19	1	46	Brush Cover	2
13	Water Hose Assembly	1	47	Self Tapping Screw M 4 x 6	2
14	Rubber Washer 10 x 16 x 2	1	48	Flat Washer 6	4
15	6000 Bearing (Blue Cover)	1	49	Spring Washer 6	4
16	Locking Nut M 14 x 1.5	1	50	Allen Head Bolt M 6 x 60	4
17	Disc Spring	2	51	Rear Cover	1
18	Pressing Ring	2	52	Self Tapping Screw ST 4.2 x 16	4
19	Friction Shim	2	53	Shoulder Push Support	1
20	#2 Gear	1	54	Self Tapping Screw ST 4.2 x 30	4
21	Copper Cover	1	55	Shoulder Support Cushion	1
22	#3 Gear Shaft	1	56	Self Tapping Screw ST 4.8 x 25	1
23	Rubber Washer #2	1	57	Overload Protector 8A	1
24	Adjusting Washer	1	58	10A Trigger Switch	1
25	Right Angle Connector	1	59	Circuit Board	1
26	Water Switch	1	60	Sleeve for power cord	1
27	Side Handle	1	61	Power Cord	1
28	Rubber O-Ring 94 x 3 x 100	1	62	Right Handle Cover	1
29	Axial Sleeve	1	63	Left Handle Cover	1
30	Locating Pin 4 x 17	1	64	Self Tapping Screw ST 4.2 x 19	4
31	Mid Cover	1	65	6000 Bearing (Black Cover)	2
31	Washer 18 x 0.3 x 34.8	1	66	GFCI	1
33	6202 Bearing	1	67	Capacitor	1
34	Bearing Retaining Plate	1			

Virginia Abrasives Variable Speed Core Drill Parts



1. Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.

2. Avoid body contact with grounded surfaces, such as pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.

3. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

4. Do not abuse the cord. Never use the cord for carrying, pulling, or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Never use a power tool with a damaged cord. Damaged cords increase the risk of electric shock.

5. When operating a power tool outdoors, use an extension cord suitable for outdoor use. (14 gauge minimum)

6. If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected power supply. Use of a GFCI protected circuit reduces the risk of electric shock.

Personal safety

1. Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

2. Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

3. Prevent unintentional starting. Ensure the switch is in the off position before connecting to power source and picking up or carrying the power tool. Never carry power tools with your finger on the switch.

4. Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

5. Do not overreach. Always keep proper footing and balance. This enables better control of the power tool in unexpected situations.

6. Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

7. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.

Power tool use and care

1. Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.

2. Never use a malfunctioning power tool. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

3. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools. Preventative safety measures reduce the risk of starting the power tool accidentally.

4. Store idle power tools out of the reach of children. Do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Proper training is required. Power tools are dangerous in the hands of untrained users.

5. Maintain power tools. Check for misalignment or binding of moving parts, damaged parts, and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.

6. Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

7. Use the power tool, accessories, and tool bits, etc. in accordance with these instructions, accounting for the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.

Troubleshooting

Problem	Possible Reasons	Solution
Motor doesn't run when connected to power supply	1. Power supply disconnected 2. Breaker has tripped 3. Brushes may be worn 4. The winding of stator & rotor circuit open	1. Check and connect power supply 2. Reset breaker. Check and repair or replace switch. 3. Replace electric brush 4. Check or replace stator & rotor open circuit.
Heavy sparks and ring sparks occur on commutator of motor	1. Rotor winding short circuit or open circuit 2. Brush spring positioned improperly, poor contact 3. Commutator worn severely	1. Repair or replace rotor. 2. Adjust the spring pressure 3. Replace with new motor
Drill vibrates (when using core drill stand)	1. The base fixed loosened 2. The gap between elevating body and square rack largened 3. Elevating body and connecting bolts loosened	1. Reassemble and fix the frame 2. Adjust the gap 3. Check bolt
Drill speed is slow	1. Drill bit worn 2. Difficult materials being drilled. Chips or debris in path of core bit 3. Drill vibrates 4. Clutch is slipping	1. Repair or replace drill bit 2. Stop the drill, remove the foreign materials from gap 3. Adjust and tighten fastening bolts. 4. Re-torque the clutch.

Maintenance

If the drill malfunctions, take it to an authorized service center. Do not attempt to repair or replace parts.

Check the electric brush and commutator periodically. When the brushes are worn to the length of about 7mm, they must be changed. Use only original equipment provided by Virginia Abrasives to avoid commutator damage. Both brushes must be changed at the same time. If you find heavy sparking while in use, or the commutator is worn or burned seriously, the commutator may need to be replaced.

The drill should be checked and repaired periodically after continued use. Check for wear on the power cord and that the grounding is reliable. The switch and plug must work properly. Check to confirm exterior bolts and screws are tightened properly.

Replace the rubber sealing washer. After using for a long time, if you find the water is coming in the top of the drill, please check and replace the sealing washer immediately. If you find some lubricating oil leaking into the mid-cover air vent, replace the rubber sealing oil ring on the rotor spindle.

Use only #110 industrial gear oil. Do not use common engine oil.

Store your drill in a dry, clean place. Keep the drill clean and dry when not in use. Remove the drill bit from the main shaft of the drill. Apply a small amount of grease to the threads.

Adjust safety clutch if you experience slipping during use.

Standard Accessories

Electric brush	2 pieces

Service

1. Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

Diamond Core Drill Safety Warnings

1. Use auxiliary handles supplied with the tool to control the power tool during use and to prevent injury. Loss of control can cause personal injury.
2. Consider the work area environment: Don't use the diamond core drill in damp or wet locations. Don't expose the diamond core drill to rain. Keep work area well-lit. Flammable liquids or gases must not be present. The electrical motor produces sparks during normal rotating, the sparks may cause the risk of fire.
3. Grounding of Class I tools is necessary while in use to protect you from electric shock. Class I tools are equipped with an approved three-prong conductor cord and three-prong grounding-type plug. The green/yellow conductor in the cord is the grounding wire, one end of wire is in the grounding side of the tool's outer shell, the other end of wire is connected to the ground wire of the plug. Never connect the green/yellow wire to a live terminal.
4. ⚠ **Warning! The power outlet must be equipped with proper grounding. Do not plug Class I tools into the outlet without grounding.**
5. When using an extension cord, use only three-prong conductor cord and with reliable grounding.
6. Use of personal protective equipment is required.
7. To avoid electric shock, verify proper grounding of the power source before operating. Verify that power lines, plumbing, gas lines or other hazards are not under the surface being drilled.
8. When drilling a ceiling, rope off areas above and below to avoid the danger of falling debris.
9. When connecting the drill to a water source, be sure that there are no water leaks to prevent electrical hazards and damage to the motor.

10. Inspect hoses and other critical parts of the tool for damage before each use.
11. The maximum permitted pressure of the liquid supply is 80 PSI.
12. ⚠ **Never use the core drill without the provided GFCI.**
13. Test the correct operation of the GFCI before each use. The red light will be illuminated after pressing the “RESET” button. The light will be off after pressing the “TEST” button. The tool can only be operated when the GFCI is operating correctly.
14. Replacement of the plug or the supply cord shall always be carried out by the manufacturer of the tool or qualified professional.
15. Keep water away from the tool. Water must not enter the electrical compartment. Use appropriate water collection/control.

Handling Instructions

1. Using the drill in a core rig stand: Before operating, fix the base on the work piece reliably and tightly, fasten it with expansion bolts, then fastening four (4) bolts on the base uniformly, in the end, tightening them with the nuts.
2. Core bit installation: Install the diamond bit carefully. Ensure the end thread matches with the end output shaft. The thread of the drill should be lightly greased.
3. Connect the drill to the water supply and open the valve.
4. Material: When drilling on the reinforced concrete and when encountering steel reinforcement, the load will increase. Vibration may increase. Reduce the working pressure to prevent overloading of the drill. If the gravel or debris falls into the hole, the drill may be caught and cause the clutch to slip. If the thermal overload is tripped, allow up to 3 minutes to reset. When drilling thick asphalt and other materials, the load will be higher, so drill slowly and uniformly. If the clutch slips continuously, stop the drill and re-torque the clutch.
5. Remove drill core: When the drill bit almost drills through the floor or wall materials, be careful to reduce the drill speed to maintain control. Be careful when removing the drill core to avoid damage to the drill and core bit.
6. Keep the motor ventilated and do not block vents. Allow the drill to cool down between uses.

7. Waterless operation is forbidden. During operation, there should be plenty of water flow to cool the core bit and remove slurry from the core.
8. Do not allow the motor to become wet. Keep the enclosure of the motor away from the water to prevent shock and damage.
9. Drill vibration when using the drill in a core drill stand: When drilling, the gap between the elevating body and square pipe and rack may need to be adjusted. It may cause the drill rig to vibrate. Power down the tool and adjust the track lining or idle wheel on elevating body by tightening the bolts to adjust it to the proper gap.

Structure, Features and Usage

This tool is a portable diamond core drill, which can also fit onto a core drill stand. It is also equipped with safety friction clutch. It is easy, safe, and reliable to use. The core drill is designed to drill a bore in all directions on reinforced concrete, brick and stone, etc. Core drills are widely used in the fields of construction, pipe installation, road and bridge construction, and for engineering quality control and sampling, etc.

Main Technical Specifications

Product Number	433-22000
Style	Variable Speed, Portable
Max. Drilling Diameter	159 mm (6 inches)
Rated Voltage	120V
Rated Frequency	50/60Hz
Rated Input Power	2000W
No–load Speed	0-1950 r/min
Net Weight	6.5kg