

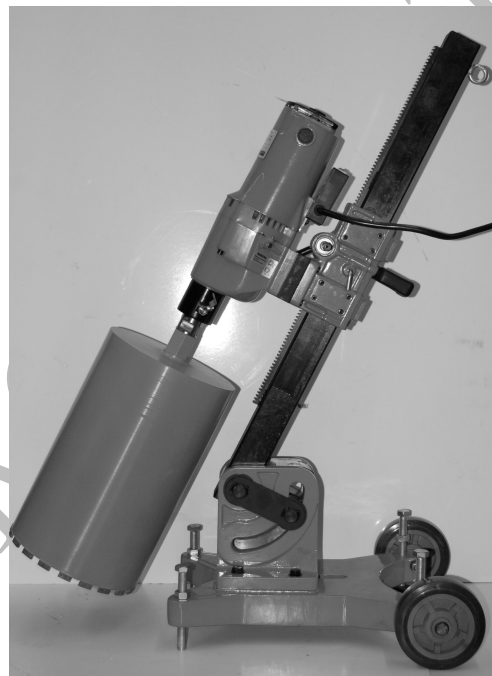
**Volume**

**1.3**

## **OPERATIONAL MANUAL**

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**MODEL: 12"Z1/LRB/TS CORE DRILLING MACHINE  
WITH TILTING STAND / LARGE ROLLING BASE**



**by BLUEROCK® Tools**



### UNPACKING THE ITEM

**CAUTION:** This machine is packed together with items that may be sharp, oily and overly heavy objects. Remove the machine from the packaging in a safe manner. Check to ensure all accessories are included with the item while unpacking. If any parts are found to be missing, contact the retailer as soon as possible. Do not throw away the packaging until the item is out of the guarantee period. Dispose of the packaging in an environmentally responsible manner. Recycle if possible. Keep all plastic bags away from children due to risk of suffocation.



WEEE - Waste Electrical & Electronic Equipment. Note this machine should be disposed of as electrical & electronic waste.

### SLURRY DISPOSAL

**NOTE:** It is recommended to dispose of the drilling slurry (the muddy/dusty water material) in an environmentally responsible manner. The disposal of slurry directly into sewage systems, sewers, lakes, rivers, or direct earth without treatment can be environmentally harmful and possibly illegal. Ask your local public authorities about current regulations in your area.

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## Safety

**DO NOT USE THIS MACHINE UNLESS YOU HAVE READ THE OPERATING INSTRUCTIONS!**



**Safety glasses must be worn at all times in work areas.**



**Long and loose hair must be contained.**



**Appropriate footwear must be worn.**



**Close fitting/protective clothing must be worn.**



**Safety gloves should be worn at all times and jewelry must not be worn.**



**Hearing protection should be worn when using this machine.**



**Hard-hat must be worn while using machine.**



**Dust mask must be worn while using this machine.**



**Read operational manual prior to use.**

### PRE-OPERATIONAL SAFETY CHECKS

- Examine the power cord and plug for damage. This tool is supplied with a ground plug and must always be used with a properly grounded circuit.
- Examine the body of the machine and inspect for damage or defects.

### OPERATIONAL SAFETY CHECKS

- ONLY to be operated by qualified personal who have read instructions.
  - NOTE: Failure to read and follow instructions could result in electrical shock, fire, property damage and/or serious injury!
- DO ensure all non-essential people are clear of the immediate work area.
- DO be attentive at all times. Keep your eye on the work piece. Always be in a sensible state of mind and do not use the machine if you cannot fully concentrate.
- DO keep body parts, clothing & power cords clear of turning/cutting pieces. Stay alert and use common sense when using this tool.
- DO allow machine to reach operating speed before starting a hole.

## 12" Z1LRB/TS CORE DRILL

➤	DO unplug machine while changing or adjusting cutting bits so as not to accidentally turn machine on.
➤	DO remove adjusting wrenches prior to turning the machine on.
➤	DO guard against electric shock by only operating this tool on a properly functioning GFCI (Ground Fault Circuit Interrupt) circuit.
➤	DO be mindful that power tools can expose an operator to vibrations transmitted through contact with the machine. Prolonged exposure can lead to medical issues which should be discussed with a medical professional.
➤	DO tie in a drip loop in the power cord to prevent water from running into the power receptacle.
➤	DO use a dust extraction system for cutting materials that create dust. The operator should also wear a protective respiratory device.
➤	DO NOT make adjustments to machine while the machine is running.
➤	DO NOT switch off the machine when it is under load, except in an emergency.
➤	DO NOT remove or modify grounding plug. Only to be used on a properly grounded GFCI circuit.
➤	DO NOT leave the machine running when not in use.
➤	DO NOT hold the work piece by hand or using body. Always mechanically clamp or secure work piece.
➤	DO NOT allow operator to make contact with grounded surfaces such as metal objects.
➤	DO NOT allow liquids to enter the machine's ventilation system.
➤	DO NOT operate machine outside of machine specifications.
➤	DO NOT touch moving parts while the machine is running as death or dismemberment could occur.
➤	DO NOT operate machine overhead (Inverted) when drilling "wet" type cores.
➤	DO NOT remove machines electrical components while connected to a power source. Only to be removed for service by qualified personal and put back on the machine after service is complete.
➤	DO NOT allow children or untrained personal to operate machine.
➤	DO NOT use this machine in the rain or a wet environment.
➤	DO NOT operate in the presence of explosive materials as power tools create sparks which may ignite dust or fumes.
➤	DO NOT drill into an area that may contain a live electrical wire/circuit.
➤	DO NOT use this machine without safely securing to the work piece being drilled.
➤	DO NOT use full water pressure when drilling with "wet" type bits! You only need minimal water to drill with these machines. Extreme water pressure can cause water to enter the gearbox!
➤	DO NOT operate this machine on a lower voltage as it may result in reduced power level and the machine could become unstable while cutting. This could also limit the motor life.
○	<b>NOTE:</b> Use of long small gauge power extension cords can result in decreased voltage. As local voltages can vary, it may be a good idea to test the voltage at the end of the extension cord to ensure proper voltage requirements are met. You might also consult an electrician to make sure the length of cord matches up with the proper wire gauge for this size motor. Make sure to use outdoor cords when operating outdoors.

### HEALTH WARNINGS

- Certain dust created by drilling contains chemicals known to cause cancer, birth defects or other reproductive harm. The examples of these chemicals are below:
  - Lead from lead based paint.

## 12" Z1LRB/TS CORE DRILL

- Crystalline silica from bricks, cement and assorted masonry products.

- TO REDUCE RISK OF EXPOSURE TO THESE CHEMICALS, WORK IN A WELL VENTILATED AREA WITH VACUUM SYSTEMS, RESPIRATORS AND WITH ALL SUITABLE SAFETY EQUIPMENT.

BLUEROCK® TOOLS

## Specifications

<b>ELECTRICAL DATA</b>	
Voltage	110V, 50-60Hz, Single Phase
Current	21.6 Amps (30A Circuit Use Recommended)
Motor Size	2600W
Power Connection	US Standard 3 Prong Type B Plug

<b>MECHANICAL DATA</b>	
Cutter Range	1" to 12" Max Diameter (300mm)
Cutting Speed	460/900 RPM Two Speed Gearbox 1) Gear 2 (900 rpm) for 1"-4" Holes 2) Gear 1 (460 rpm) for 4"-12" Holes
Tool Holder	Direct Arbor 1-1/4" 7 UNC Spindle
Safety Clutch	Yes
Water hose and Valve	Yes
Rolling/Vacuum/Tilting Base	Yes
Travel	21"

<b>SHIPPING DATA</b>	
Shipping Weight	78 Lbs
Shipping Carton	40" x 20" x 17"

## Included Accessories

<b>DESCRIPTION</b>	<b>QTY</b>
Instruction Manual	1
Wrenches	2
Feed Handle	1
Water Hose and Valve	1
Top Bolt for Binding in Ceilings	1
Hex Wrench	3
Spare Brushes (set)	1
Vacuum Base Accessories	1

**Note**

**UPON RECEIPT, CHECK CAREFULLY TO ENSURE THAT THE MACHINE IS IN GOOD CONDITION AND HAS ALL ACCESSORIES LISTED ABOVE.**

### **Additional Available Accessories**

Additional accessories for this machine can be found in BLUEROCK® Tools online shop at [www.bluerocktools.com](http://www.bluerocktools.com) or from your local retailer.

<b>DESCRIPTION</b>
120V Vacuum Pump 1 L/S Displacement
1" Wet Coring Bit
1.25" Wet Coring Bit
1.5" Wet Coring Bit
1.75" Wet Coring Bit
2" Wet Coring Bit
2.5" Wet Coring Bit
3" Wet Coring Bit
3.5" Wet Coring Bit
4" Wet Coring Bit
4.5" Wet Coring Bit
5" Wet Coring Bit
6" Wet Coring Bit
7" Wet Coring Bit
8" Wet Coring Bit
9" Wet Coring Bit
10" Wet Coring Bit
11" Wet Coring Bit
12" Wet Coring Bit
1" Dry Coring Bit
1.25" Dry Coring Bit
1.5" Dry Coring Bit
1.75" Dry Coring Bit
2" Dry Coring Bit
2.5" Dry Coring Bit
2.75" Dry Coring Bit
3" Dry Coring Bit
3.5" Dry Coring Bit
4" Dry Coring Bit
5" Dry Coring Bit
1-1/4" 7 UNC to 5/8" 11 UNC Core Bit Adapter
10" Extension Rod
18" Extension Rod



## Operations

### Note

**THOROUGHLY READ THROUGH THE ENTIRE MANUAL BEFORE OPERATING THIS MACHINE!**

#### PURPOSE

- The purpose of the 12"Z1 LRB/TS Core Drill is to drill through masonry, concrete or other mineral rock types using annular coring bits.
- These drills are designed to be bolted to the drilling surface through their base.
  - NOTE: Make sure the base fits completely on the surface and the base is securely fastened using wedge anchors to bolt to the surface.
- These machines can be used vertically, horizontally or overhead (inverted) provided an acceptable work environment. NOTE: For safety, when drilling horizontally or overhead a safety chain/strap should always be used.
  - CAUTION: If drilling overhead you are only permitted to use dry type core bits with a dust collection system. "Wet" type holes overhead would allow water into the motor and create an extremely dangerous situation.

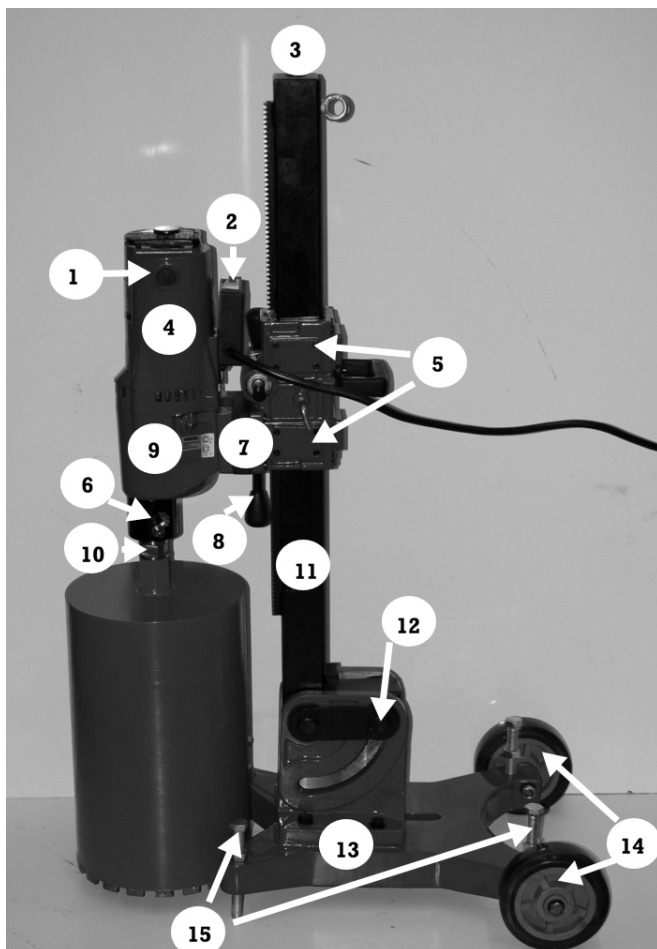
#### OPERATIONAL PRINCIPLES

- The main drilling shaft rotates in a forward clockwise direction. The main drilling motor connects to the tool spindle to make contact with a surface and slowly bore a hole. Using the feed handles on the side of the drill, the user can raise or lower the drilling motor.
- These drills are ONLY to be used with diamond impregnated coring bits.
  - When drilling with "wet" type bits, the bit ends pulverizes the material and the water brings the material out of the cut.
  - When drilling with "dry" type bits, the bit end pulverizes the material and dust brings the material out of the cut.

#### MACHINE COMPONENTS

- The main components of the 12"Z1 LRB/TS are the spindle, gearbox, motor, carriage, drill stand and wheeled base. The spindle is driven by the transfer case and the motor.
  - These components must not be removed except by a qualified technician. Power must be disconnected prior to any service.

- This machine has one primary adjusting point for the angle between the drill stand and the drill motor. The angle Adjusting bolt (12 below) can be loosened to adjust the angle and retightened when desired angle is achieved. NOTE: The drill carriage can also be locked in place by twisting until the locking bolt engages towards the carriage. To unlock the carriage pull out the bolt and turn.



1) Motor Brush Holder
2) Motor On/Off Switch
3) Top Bolt for Binding in Ceilings
4) Drill Motor
5) Carriage Adjusting Bolts
6) Water Hose and Valve
7) Drill Carriage
8) Feed Handle
9) Gearbox
10) Spindle
11) Drill Stand
12) Angle Adjusting Bolt
13) Stand Base
14) Base Wheels
15) Leveling Bolts

#### TRANSPORTING THE MACHINE

- When transporting the machine, always lock the carriage bolt.
- Always carry the machine with both hands.
- DO NOT transport the machine with bits in the spindle.
- When using the wheels, tilt the machine back towards the operator and once the wheels are engaged with the ground pull or push the machine on the ground.
  - Avoid dragging the vacuum rubber. You can take the rubber out if not using.
- If transporting inside a vehicle, it is recommended to transport it on its side so as to avoid the item falling over.
- DO NOT carry/pull the machine by the cord.
- DO NOT allow the cord or plug to drag along the floor when transporting.

**RUNNING THE MACHINE**

- Do all pre-operational and operational safety checks from Chapter 1.
- Consider your security and stability as well as the orientation of the machine in the work area.
  - Consider the work surface material, condition, strength, density and rigidity. These factors directly affect the tools efficiency.
- Secure the machine base to the work surface by using a wedge anchor, vacuum system or other method to ensure the base does not move.
- Use the four leveling bolts on the corners of the base to level the machine if needed.
  - If not using the vacuum base, you can either take out the vacuum foam or adjust the leveling bolts down 1/8" past the foam. It is generally recommended to take the foam out when not using as it can cause tears in the foam material transporting and moving the machine.
- After placing the machine in work area, connect a safety chain or strap if necessary.
  - A safety chain should attach to the machine (preferably through the carrying handle or O bolt) as well as attached to the work area in such a manner that prevents the machine from detaching or falling from the work area.
- If necessary, adjust drilling angle.
  - Loosen the lower side bottom bolt on the base as necessary.
  - Adjust the angle and tighten the side bolt
- Ensure the feed handles are securely attached to the feed spindle.
- Ensure the work surface is free of debris, oil, etc.
- Select and set up fluid delivery method or dust system.
- Select the gear you will be using.
  - Do not force the gear shifter when changing between gears. There is a neutral position between gear 1 and gear 2.
  - Change gears when the machine is stopped or almost stopped.
- If using the machine horizontally with the water system, connect hose to the side of the machine using the connector.
  - This connector takes standard 3/4" US garden hose hookup.
  - Make sure the water valve is in the off position.
    - This is generally at a 90 degree angle from the valve hose.
  - Partially turn the water spigot on (usually half a turn).
    - CAUTION: DO NOT turn the hose on fully! You need sufficient water when using wet type bits. Using too much water pressure can cause the bits to not cut properly as well as water entering the gearbox.
- Select appropriate size cutting bit. See section below for details on securing bit.
- Check that the machine is firmly attached to the work area.
- Plug the machine into power source.
  - Form a loose knot in the power cord close to the plug connection to prevent fluid from running down the cord and into the power receptacle.
- Turn feed handle raising the cutter until the bit is above the work surface.

➤	Open the water valve to allow water to come out to the work surface.
➤	<b>ATTENTION: BE AWARE THESE MACHINES ARE EXTREMELY POWERFUL. THEY HAVE A TREMENDOUS AMOUNT OF TORQUE, WHICH MIGHT NOT BE SUITABLE FOR ALL POTENTIAL USERS. ESPECIALLY IN LOW GEAR AND WITH LARGER BITS. DESPITE THE SAFETY CLUTCH, THESE DRILLS CAN STILL INJURE THE USER. IF IN DOUBT, CONTACT A PROFESSIONAL FOR ADVICE.</b>
➤	Turn the machine on by flipping the breaker switch to the "on" position.
➤	Very slowly engage the cutting bit with the material surface by lightly engaging the hand crank down towards the material.
○	<b>NOTE:</b> During the initial stages of contact the bit may wander.
➤	After about 1/8" of cutting has been achieved in the work surface, slightly more force can be applied. This will be the normal amount of force the rest of the hole.
○	<b>NOTE:</b> Do not force the hole. Let the machine do most of the work. Excessive physical effort should be avoided as it can cause damage to the machine or the user.
○	If the unit jams in a hole, stop the drill immediately to prevent injury. Disconnect the drill from the power supply and loosen the cutter by turning drill spindle counterclockwise. Never attempt to free bit by starting motor!
▪	After an interruption in drilling, make sure the drill bit is free and turns before restarting the hole. Be very careful at this point to make certain the drill does not bind when restarting.
➤	Make sure to keep the cutting material lubricated.
➤	Ease up on feed pressure as the cutter starts breaking through the backside of the material.
○	Be certain all is clear on the output side of this core to prevent injury to persons or property.
➤	Finish drilling the hole.
➤	Turn the motor off and disconnect power once the drill is safely back up in the non-drilling position.
➤	Turn water valve off.
➤	Unbolt the wedge anchor.
➤	Disconnect safety chain/strap and move the drill to a new drilling location.

#### INSTALLING CORING BITS

➤	<b>WARNING:</b> Core bits can be sharp and should only be handled with gloves so as not to cut the user during installation or removal.
➤	Check that the bits are not damaged.
○	Coring bits that are damaged should not be used.
➤	Make certain the machine is unplugged from power.
➤	Raise the drill motor to ensure ample room to install the bit.
○	Apply grease to the spindle thread to prevent corrosion and allow easier core bit removal.
➤	Insert the coring bit and screw it onto the drill spindle.
➤	Tighten the bit until fully tightened.
○	Use wrenches that fit the spindle and coring bit to fully tighten.

## Troubleshooting

### Note

**SERVICING SHOULD ONLY BE DONE BY A QUALIFIED TECHNICIAN.**

**DON'T FORGET TO UNPLUG POWER TO UNIT PRIOR TO SERVICE!**

PROBLEM	SOLUTION
Motor does not turn on.	<ol style="list-style-type: none"> <li>1) Check external power source (extension cord, breaker, etc).</li> <li>2) Loose internal wire. Check and secure if necessary.</li> <li>3) Motor brushes defective. Replace if necessary.</li> <li>4) Check to ensure the motor on/off switch is operable. Replace if necessary.</li> </ol>
Excessive sparking when motor is running.	<ol style="list-style-type: none"> <li>1) This may indicate the presence of debris in the motor or worn out carbon brushes. Check the brushes for unusual wear and replace if necessary. Clean out the internal motor armature if necessary.</li> <li>2) Armature has a rough edge. Inspect and replace if necessary.</li> </ol>
Hole is not cutting.	<ol style="list-style-type: none"> <li>1) Cutting bit is dull. Replace bit.</li> <li>2) Work area material is not appropriate for bit type.</li> </ol>
Bit is jammed while coring.	<ol style="list-style-type: none"> <li>1) Debris is lodged between core hole and bit. Rotate bit in both directions to and inspect bit for debris.</li> <li>2) Make sure stand is secured to work surface.</li> </ol>
Coring speed has reduced.	<ol style="list-style-type: none"> <li>1) Bit has hit rebar. Adjust feed control to prevent motor overload while cutting through rebar.</li> <li>2) Diamonds on bit have glazed over. Deglaze bit or dress diamond rim on bit and check water flow rate.</li> <li>3) Diamonds on bit have worn away. Replace core bit.</li> <li>4) New core bit. Core at slow rate with new bits for 2-3 coring cycles.</li> <li>5) The safety clutch is slipping. Tighten clutch.</li> <li>6) Drilling progress is prevented by an accumulation of dust. Use suitable vacuum cleaner.</li> <li>7) Water flow rate is too low. Increase water flow.</li> <li>8) Core is stuck in the core bit. Remove core.</li> </ol>
Core bit appears to wobble.	<ol style="list-style-type: none"> <li>1) Spindle is damaged. Replace spindle and check bearings.</li> <li>2) Bit is bent or damaged. Replace bit.</li> <li>3) The core bit is not screwed securely onto the spindle.</li> <li>4) Coring material is attaching to the bit. Inspect bit and increase water flow rate.</li> </ol>
Water escapes at the water swivel or gear housing.	<ol style="list-style-type: none"> <li>1) The water pressure is too high. Turn down water flow.</li> <li>2) The shaft seal is defective. Replace seal</li> <li>3) The water hose is damaged. Replace hose.</li> </ol>

## General Maintenance

- Inspect electrical cords and electrical connections.
- Keep machine clean and free of debris.
- Check for misalignment, binding and breakage of all moving parts. If damaged, repair tool before use.
- Keep cutting tools sharp and clean. Sharp bits are less likely to bind and are easier to control.

## Occasional Maintenance

- Have the power tool serviced by a qualified service technician using identical replacement parts.

- Change motor brushes:

- 1) Disconnect drill from power.
- 2) Unscrew left and right side brush holder caps using a flathead screw driver.
- 3) Take out old brushes.

- If you need to, use the screw driver to nudge them out.

- 4) Replace with exact same size new brushes.
- 5) Screw in brush holder caps tightly.

- Adjusting Carriage:

- 1) Periodically check and adjust slides as necessary.
- 2) Use hex wrench to loosen the hex bolts on the carriage. There are four hex bolts on each adjusting slide. Backing out the bolts will loosen feed tension, while tightening the bolts will increase feed tension.
- 3) Adjust the bolts evenly while moving the handle up and down so that there's no free play yet not binding anywhere through its range of travel.

- Change Gear Oil:

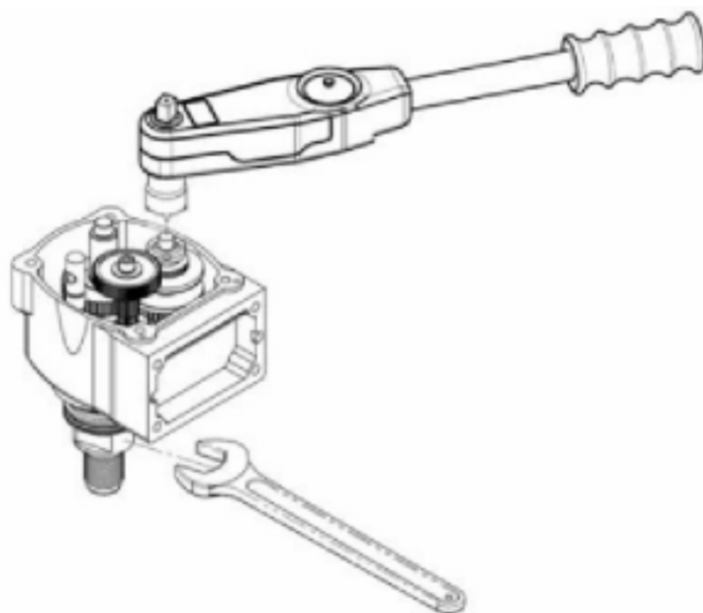
- 1) Change if necessary using NLGL-2 grade grease. This service is generally done around the 50 hour service mark.

- Adjust Safety Clutch:

- 1) Adjust clutch as necessary.

- NOTE: A torque wrench is necessary for this service.

- |  |
|--|
| <ul style="list-style-type: none"><li>○ Make certain the spindle is facing the ground so as not to get oil/grease everywhere. Locate the hex screws holding the gear housing together and remove them.</li></ul> |
| <ul style="list-style-type: none"><li>○ Gently pull the gear housing apart. You may use a couple flat screwdrivers to gently apply pressure to separate the housings.</li></ul>                                  |
| <ul style="list-style-type: none"><li>○ Take the main clutch nut off of the clutch. Apply some Loctite type of thread glue on the clutch threads.</li></ul>  |
| <ul style="list-style-type: none"><li>○ Reapply the nut to the thread.</li></ul>   |
| <ul style="list-style-type: none"><li>○ Hold the spindle in place using the box wrench. See diagram below.</li></ul>   |
| <ul style="list-style-type: none"><li>○ Use the torque wrench to tighten the clutch nut.</li></ul>   |
| <ul style="list-style-type: none"><li>○ Torque the tensioning nut to 40 NM (354 inch/lbs, 29.5 ft/lbs).</li></ul>  |
| <ul style="list-style-type: none"><li>○ With the clutch nut tightened, reassemble the housings. Make sure the orientation of the internal gears is correct and the housings mate correctly.</li></ul>            |
| <ul style="list-style-type: none"><li>○ Reattach the bolts that hold the housing together.</li></ul>   |

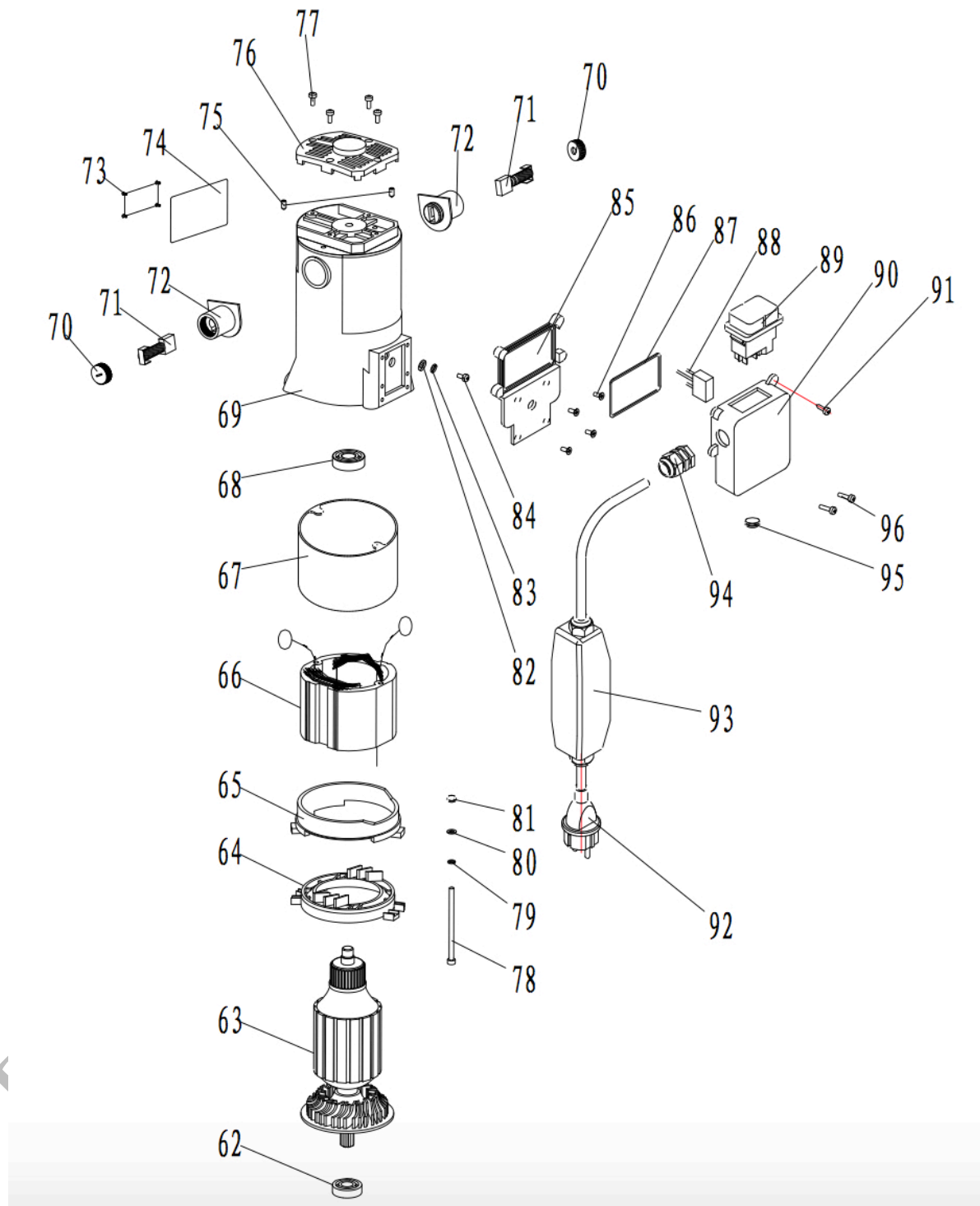


**Parts List – Motor and Gearbox**

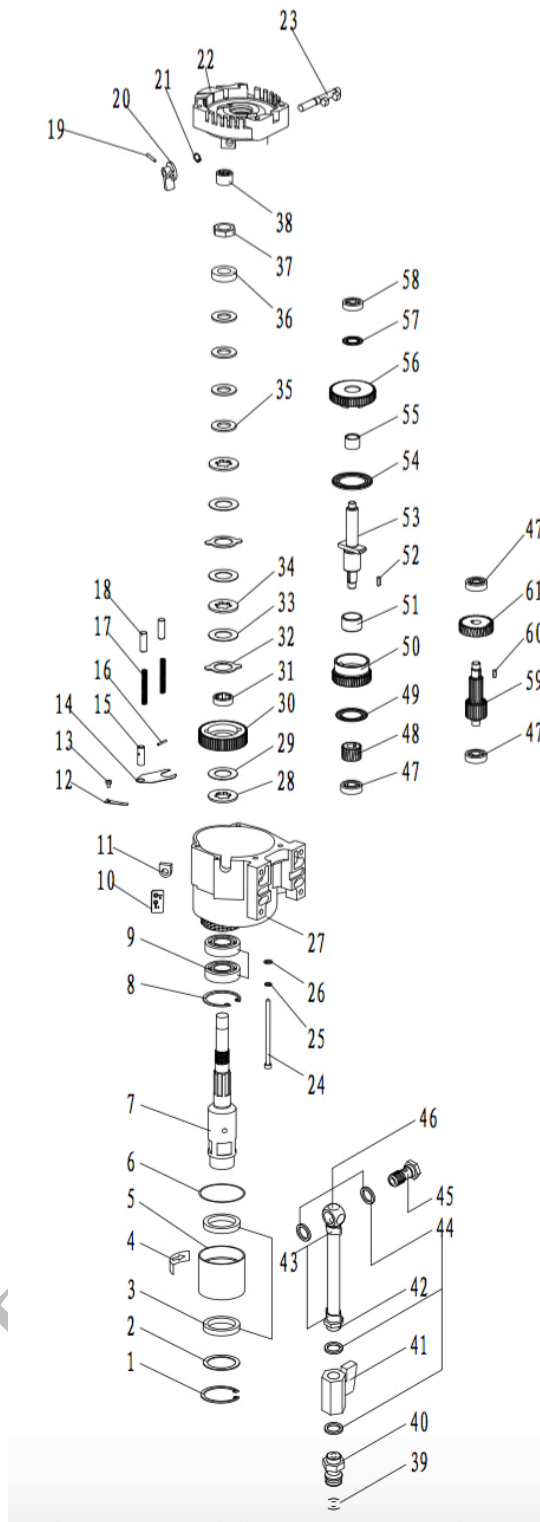
NO	Name	NO	Name	NO	Name
1	Spring ring for holes	36	Shaft sleeve	71	Brush assembly
2	Washer	37	Hex nut	72	Brush holder
3	Rubber sealing 42x55x8	38	Needle bearing BK1816	73	Rivet of label
4	Label	39	Seal ring	74	Label
5	Water sealer	40	Adapter of water switch	75	M5x10 socket head cap screw
6	Adjust shim	41	Water switch	76	Rear cover of shell
7	Main spindle	42	Ball valve	77	M4x14 nut bolt
8	Spring ring for holes 52	43	Binding ring	78	Socket head cap screw M4x90
9	6205 bearing	44	Shim	79	Spring washer
10	Label	45	Binding bolt	80	Plain washer
11	Seal gland	46	Water adapter with machine	81	Nut
12	Small cover plate	47	6201 bearing	82	Washer
13	M4x6 nut bolt	48	No7 gear spindle	83	Spring washer
14	Spring plate	49	Ball thrust bearing AXK3047	84	M5x6 nut bolt
15	Pin 10x30	50	No6 gear	85	Cover of switch box
16	Spring column pin	51	Copper tube	86	M4x10 nut bolt
17	Spring	52	Flat key C4x12	87	Seal of switch box
18	Spring plate	53	Change speed spindle	88	Electric capacity
19	Column pin A3x25	54	Ball thrust bearing AXK4060	89	Switch
20	Button	55	Copper tube	90	Switch box
21	Spring for shaft	56	No4 gear	91	ST4.2x13 nut bolt
22	Middle cover	57	Ball thrust bearing AXK1730	92	Wire with plug
23	Mechanic stick	58	6200 bearing	93	PRCD switch (Optional)
24	Inner hexagonal screw M6x105	59	Gear spindle	94	Protecting jacket
25	Spring washer	60	Flat key C4x16	95	Ring of wire
26	Plain washer	61	No2 gear	96	M4x16 nut bolt
27	Gear box	62	6202 35mm bearing		
28	Pressing ring	63	Armature		
29	Small friction disk	64	Draught ring		
30	No8 gear	65	Bead flange		
31	Spline tube	66	Stator		
32	Outer friction disk	67	Cover of stator		
33	Friction disk	68	6201 32mm bearing		
34	Inner spline friction disk	69	Shell		
35	Disk spring	70	Brush cap cover		



## Breakdown View – Motor



## Breakdown View – Gearbox



## Parts List – Tilting Stand

1	Handle ball	26	Hexagonal bolt
2	Operating stick for machine	27	Clamping washer
3	Lengthen sleeve	28	Supporting board
4	Clutch pin	29	Inner hexagonal oval screw
5	Ring for spindle	30	Elevating body cover
6	Ball-bearing	31	Inner hexagonal oval screw
7	Operating gear spindle	32	Handle
8	Pin	33	Inner hexagonal oval screw
9	Elevating body	34	Pin
10	Spring washer	35	Sliding wheel
11	Screw	36	Supporting case for sliding wheel
12	Square pipe assembly	37	Adjust bit
13	Position pipe assembly	38	Stop screw
14	Hexagonal bolt	39	Screw
15	Spring washer	40	Screw
16	Supporting board	41	Screw
17	Clamping washer	42	Track strip
18	Position screw assembly	43	Pin
19	Spring	44	Board for add thickness
20	Nut		
21	Slurry Catcher Holder (slurry catcher not included)		
22	A type base		
23	Hexagonal bolt		
24	Wheel		
25	Nut		

## Breakdown View – Drilling Stand

