OPERATOR'S MANUAL

Metal Working

GEAR DRIVEN DRILL PRESS

MODEL: DP-1850G

Baileigh Industrial, Inc.
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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without a RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special-order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 30 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTIAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.

Force Majuere. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing, and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorney fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:
Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at sales@baileigh.com

INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.

Note: *This symbol refers to useful information throughout the manual.*

IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.

SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

DANGER: Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

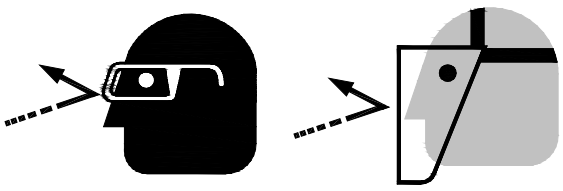
CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage.

SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.

PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.

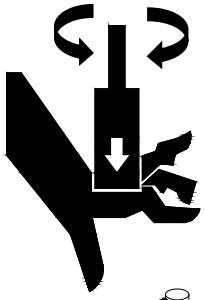


PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.

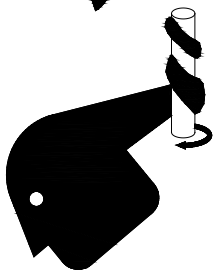
BEWARE OF PIERCING POINTS AND CUTTING HAZARD

NEVER place hands, fingers, or any part of your body on or near rotating tooling. This tooling can be extremely dangerous if you do not follow proper safety procedures. **Keep hand at least 6 inches (150mm) from the tooling while operating.**



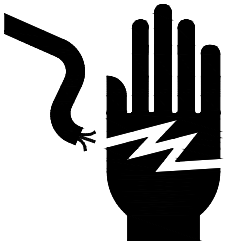
ENTANGLEMENT HAZARD – ROTATING SPINDLE

Contain long hair, **DO NOT** wear jewelry or loose-fitting clothing.



HIGH VOLTAGE

USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.



EMERGENCY STOP BUTTON

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset. Note: Resetting the E-Stop will not start the machine.

SAFETY PRECAUTIONS

Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.
Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.
REMEMBER: Your personal safety is your responsibility.

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

Dear Valued Customer:

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

PLEASE ENJOY YOUR BAILEIGH MACHINE! ....PLEASE ENJOY IT SAFELY!

1. **Only trained and qualified personnel can operate this machine.**
2. **Make sure guards are in place and in proper working order before operating machinery.**

3. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
4. **Never** use the drill press without the swing-away safety guard.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **When the machine** is **NOT** in use, the drill bit or tool should **NOT** be rotating.
8. **Properly** lock the drill bit, cutting tool, or sanding drum in the chuck before operating the machine.
9. **Hold** the piece part firmly against the table. **DO NOT** attempt to drill a piece part that does not have a flat surface against the table, or that is not secured by a vise. Prevent the piece part from rotating by clamping it to the table or by securing it against the drill press column.
10. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machines rated capacity.
11. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
12. **Dress appropriate. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
13. **Use eye and ear protection**. Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.
14. **Do not overreach**. Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
15. **Stay alert**. Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
16. **Check for damaged parts**. Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
17. **Observe work area conditions**. **DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
18. **DO NOT operate machine if under the influence of alcohol or drugs**. Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
19. Wear oil-free protective garments such as leather gloves, heavy shirt, high shoes or boots, cuffless trousers, and a cap.
20. **DO NOT** touch live electrical components or parts.

21. Turn off power before checking, cleaning, or replacing parts.
22. Be sure all equipment is properly installed and grounded according to national, state, and local codes.
23. Keep all cords dry and free from grease and oil.
24. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!**
25. **DO NOT** bypass or defeat any safety interlock systems.
26. Keep visitors a safe distance from the work area.

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileighindustrial.com, Phone: 920.684.4990, or Fax: 920.684.3944.

***Note**: The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*

***Note:** The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*

TECHNICAL SPECIFICATIONS

Maximum Drill Capacity	1.57” (40mm)
Maximum Tapping Capacity	0.875” (22.2mm)
Depth (Spindle center to Column center)	13.375” (339.7mm)
Swing	26.75” (680mm)
Minimum Distance from Spindle to Table	4” (101.6mm)
Maximum Distance from Spindle to Table	24” (609.6mm)
Maximum Distance from Spindle to Base	47” (1194mm)
Quill Diameter	2.75” (70mm)
Spindle Taper	MT4
Spindle Travel	7.5” (190mm)
Spindle Speeds	12 speeds, 90 - 2425 RPM
Power Feed – Travel per revolution	3 Steps, .0047”, .0094”, .0157” (.11, .23, .39mm)
Table Travel	21.656” (550mm)
Table Tilt	±45°
Table Rotation	360°
Table Size	21.25” x 17.323” (540 x 440mm)
Base Size (Working Surface)	16.343” x 15.75” (415 x 400mm)
T-Slot Width	2@ 0.5625” (14.28mm) (X pattern on table)
Column Diameter	5.5” (140mm)
Machine Dimensions (LxWxH)	34.8” x 25.2” x 89.5” (884 x 640 x 2273mm)
Base Footprint	28” x 20” (711 x 508mm)
Oil Capacity, Spindle Gear	2.5qt (2.5L)
Coolant Capacity	2.3gal (8.8L)
Drill Motor	2hp (1.5kw) 220V, 3Ph, 60hz, 7A
Coolant Pump Motor	0.24hp (179W) 220V, 3Ph, 60hz, .75A
Spindle Gear Oil Capacity	2.5qt (2.5L) Circulating Oil (ISO40 to ISO46)
Work Lamp	LED
Power Requirements	220V, 3Ph, 60hz
Shipping Dimensions (L x W x H)	23” x 43” x 89” (1000 x 650 x 2220mm)
Net Weight	1,098lbs. (498kgs.)
Shipping Weight	1,165lbs. (528kgs.)
Based on a material tensile strength of *60000 PSI – mild steel	

UNPACKING AND CHECKING CONTENTS

Your Baileigh machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

WARNING: SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.
If any parts are missing, DO NOT place the machine into service until the missing parts are obtained and installed correctly.

Cleaning

WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

CAUTION: When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

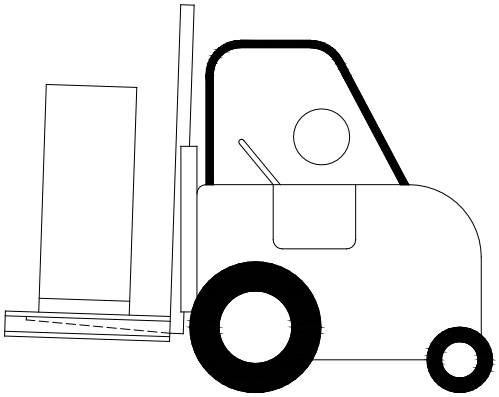
Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.
Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

Important: *This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.*

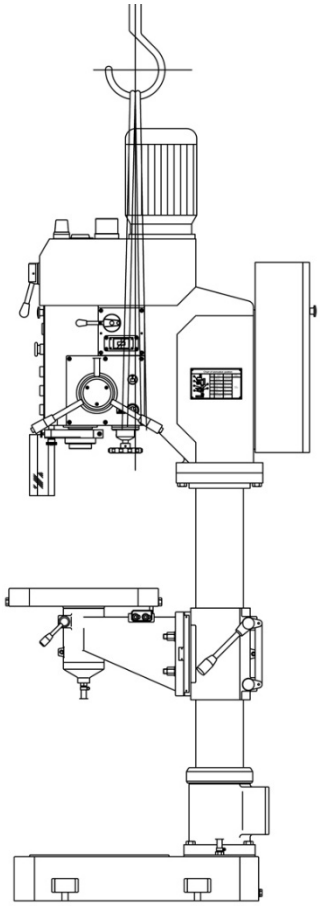
TRANSPORTING AND LIFTING

NOTICE: *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

Follow these guidelines when lifting with truck or trolley:



- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.



Follow these guidelines when lifting crane or hoist:

- Always lift and carry the machine with the lifting holes provided at the top of the machine.
- Use lift equipment such as straps, chains, capable of lifting 1.5 to 2 times the weight of the machine.
- Take proper precautions for handling and lifting.
- Check if the load is properly balanced by lifting it an inch or two.
- Lift the machine, avoiding sudden accelerations or quick changes of direction.
- Locate the machine where it is to be installed, then lower slowly until it touches the floor.

INSTALLATION

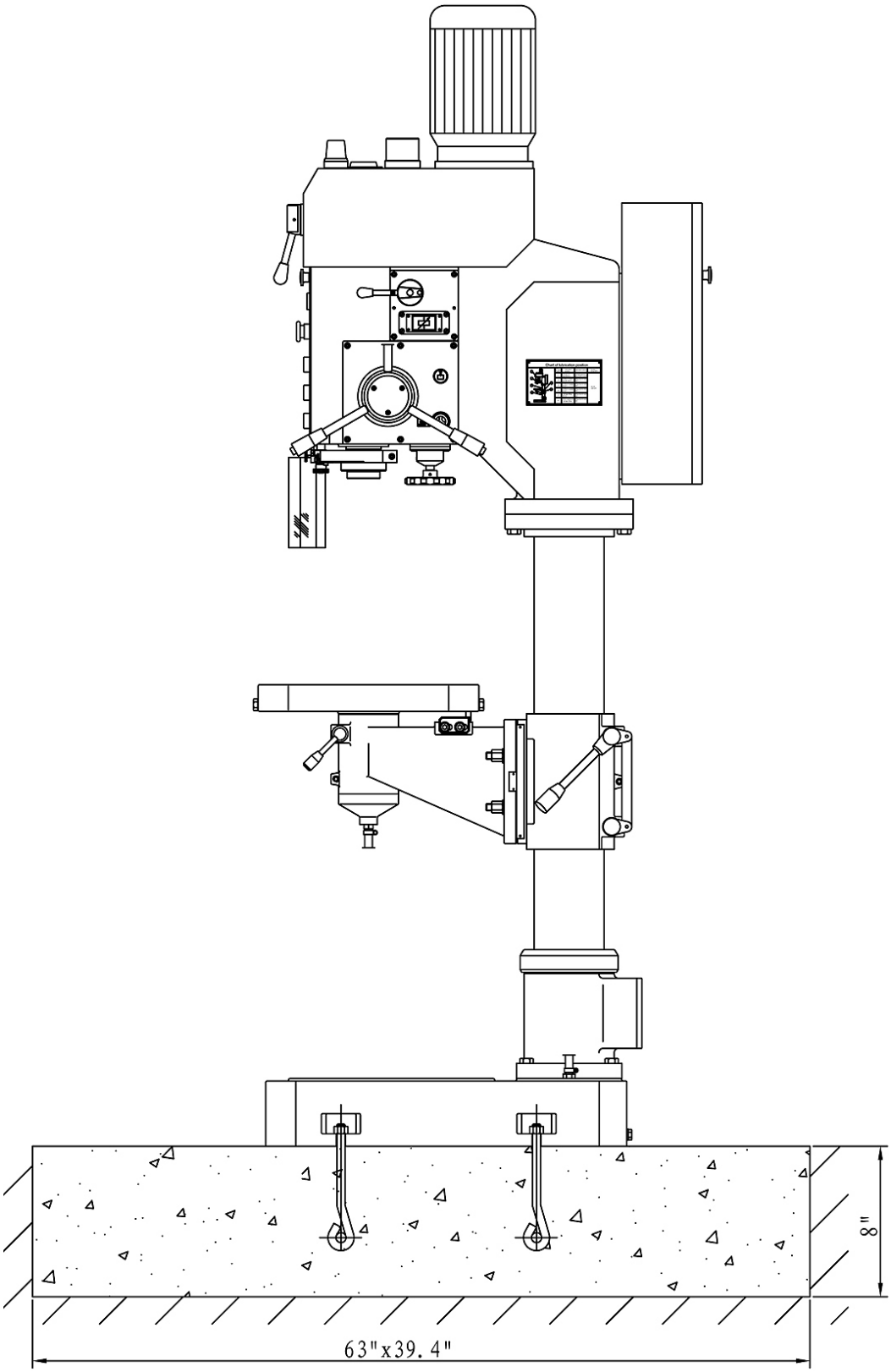
IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This machine distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

Anchoring the Machine

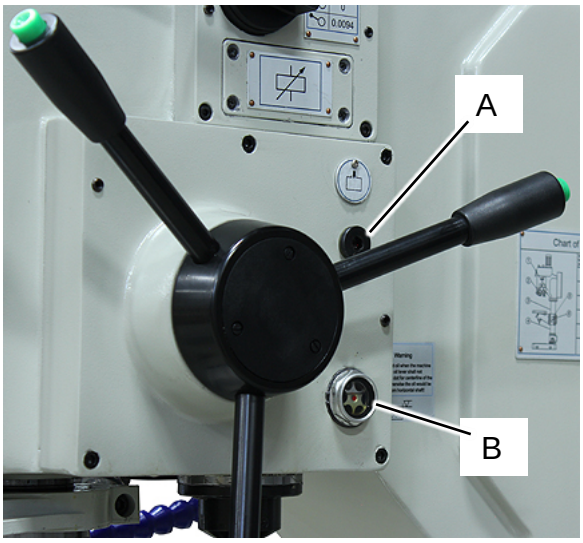
- Once positioned, anchor the machine to the floor, as shown in the diagram. Use sunken tie rods that connect through and are sized for the holes in the base of the stand.
- This machine requires a solid floor such as concrete at a minimum of 6” (153mm) thick. 8” (203mm) minimum is preferred.


8"
63"x39.4"

Oil Filling

The gear box incorporates an oil pump to lubricate the gears.
The machine is supplied without oil for transport reasons.

1. Remove upper plug.
2. Using a funnel, add oil until the oil level is between the red mark (center) and the top of the sight glass. Approximately 2.6qt. (2.5L) of ISO 40 to ISO 46 circulating oil.
3. Install the fill plug.
4. When assembly is complete, and the spindle is clear, start and run the spindle for several minutes to circulate the oil.
5. Stop the spindle and check the oil level.
6. Add oil as needed to bring the level up to the center red mark in the sight glass.



ASSEMBLY AND SET UP

WARNING: For your own safety, DO NOT connect the machine to the power source until the machine is completely assembled and you read and understand the entire instruction manual.

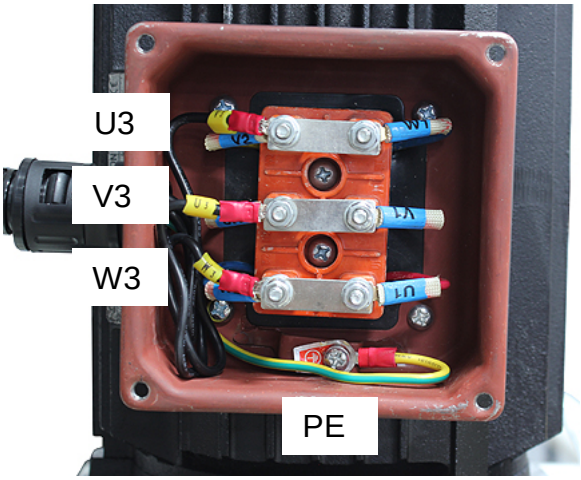
1. Clean the rust protective coating off of the bare metal surfaces.

Important: *This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.*

2. Remove and retain the four cap screws and lock washers from the top of the drill head.
3. Remove and discard the wax paper covering the gear opening.

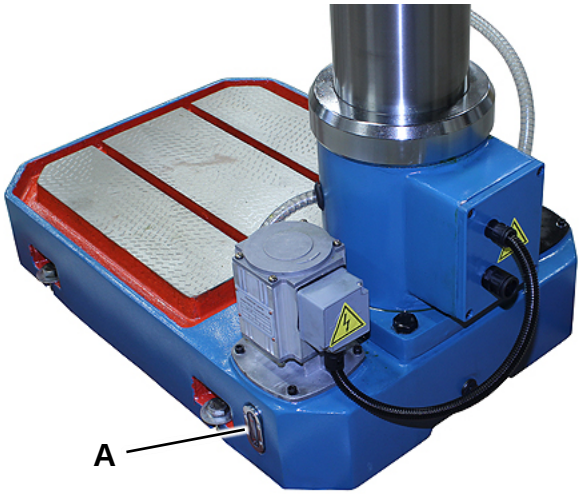
4. Install the motor into the drill head. Align the motor with the flat of the mounting plate toward the front of the drill head and the motor conduit box toward the left side of the drill head.
5. Install the four cap screws and lock washers and tighten the motor into the drill head.

6. Remove the conduit box cover and route the electrical harness from the top of the electrical cabinet into the motor conduit box.
7. Thread the strain relief into the conduit box.
8. Connect the ground wire (PE) to the ground terminal at the bottom of the box.
9. Make the wire connections as follows;
    a. U3 to V2,
    b. V3 to U2, and
    c. W3 to W2.
10. Install the conduit box cover.



Coolant

Fill the coolant water reservoir located in the base of the machine to 80% capacity. The sight glass window (A), at the side of the base, indicates the level. Filling or adding coolant may be done by removing the return cover on the side of the base, or by slowly pouring the coolant into the base table and allowing it to drain into the reservoir.



ELECTRICAL

WARNING: Baileigh Industrial is not responsible for any damage caused by wiring up to an alternative 3-phase power source other than direct 3-phase. If you are using an alternate power source, consult a certified electrician or contact Baileigh Industrial prior to energizing the machine.

CAUTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!
Check if the available power supply is the same as listed on the machine nameplate.

WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

Power Specifications

Your machine is wired for 220 volts, 60hz alternating current. Before connecting the machine to the power source, make sure the power source is OFF.
Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is ±5%, and for the frequency is ±1%.

Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with an amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your machines. Before connecting the motor to the power line, make sure the switch is in the “OFF” position and be sure that the electric current is of the same characteristics as indicated on the machine.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This machine is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

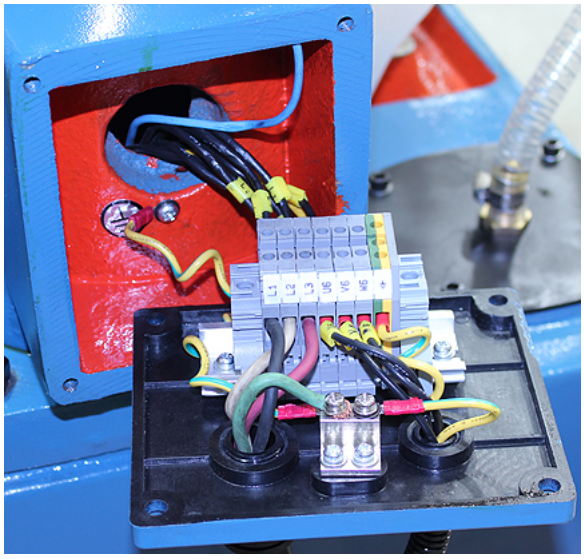
⚠ WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.
- Repair or replace damaged or worn cord immediately.

Power cord connection:

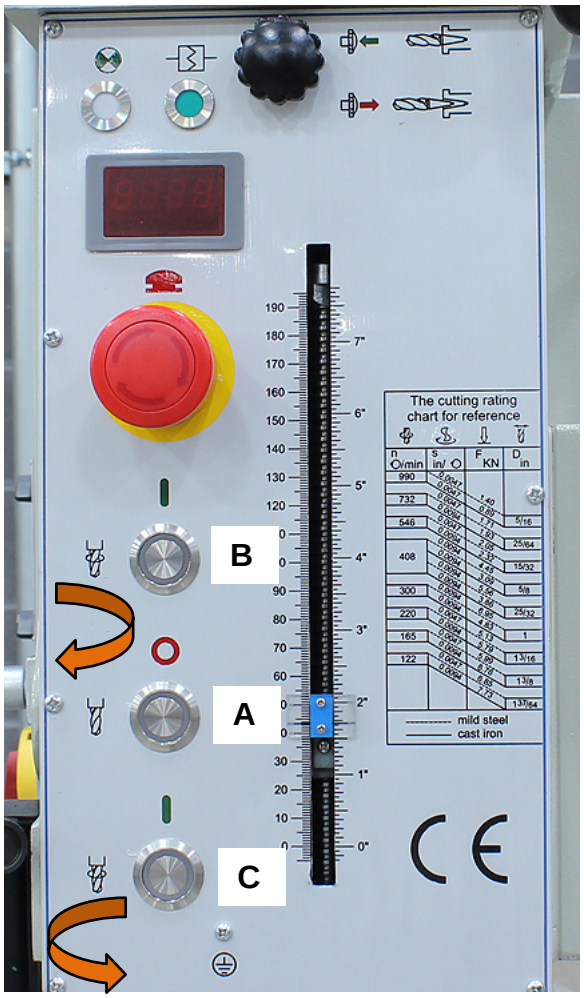
Have a qualified electrician install the power connection.

1. At the bottom back of the column, remove cover for the electrical junction box.
2. Route a power cord (customer supplied) into the box and connect to the terminal strip at locations **PE, L1, L2,** and **L3**.
3. Secure the cover onto the electrical junction box.
4. Route the cord away from the machine toward the power supply.
    a. Route the power cord so that it will NOT become entangled in the machine in any way.
    b. Route the cord to the power supply in a way that does NOT create a trip hazard.

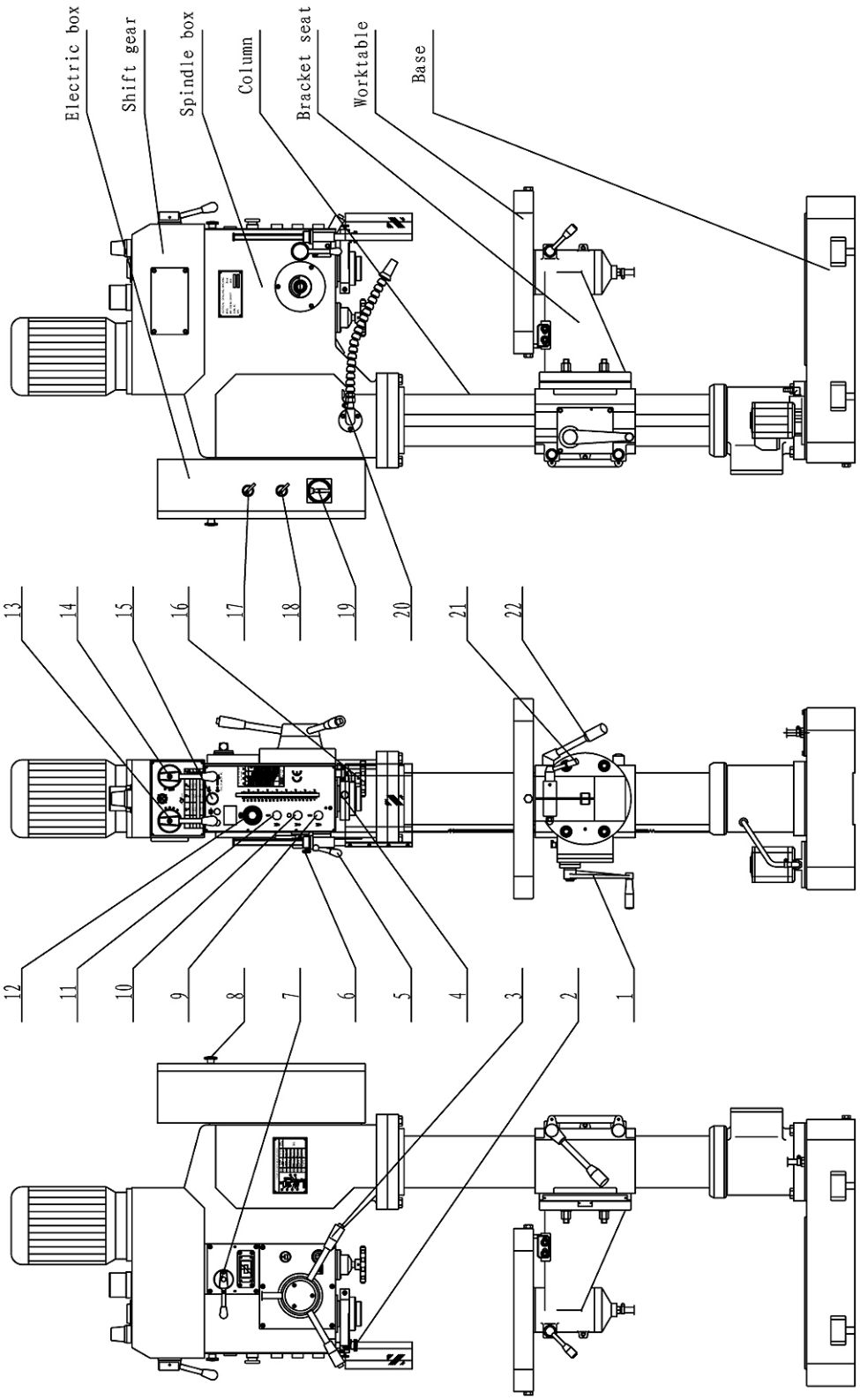


5. Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
6. Check the drill spindle rotation.

7. When the main disconnect is turned on does the Stop button (A) illuminate? Yes, Power is connected. No, Check power connections.
8. Does the rotation of the spindle match the rotation as indicated by the switch?
    a. Press the upper Clockwise rotation switch (B). Does the spindle rotate in a clockwise direction?
    b. Press the lower Counter-Clockwise rotation switch (C). Does the spindle rotate in a counter-clockwise direction?
9. Using an assistant, check the rotation of the coolant pump shaft. Does the coolant pump rotate the correct direction (arrow on top of pump case)?
10. If the main motor and the coolant pump are rotating the correct directions, then the drill press is wired correctly. Safely close any open electrical cover(s).
11. If the main motor and the coolant pump are turning the wrong directions, then change the wiring at the main electrical junction box at the back of the column.
    a. Disconnect the machine from the power supply.
    b. Switch to positions of the L2 and L3 input wires on the terminal block.
    c. Test the machine operation again.
    d. Safely close and open electrical cover(s).
12. If the coolant pump is running the wrong direction and the main motor is running the correct direction, the wiring will need to change at both the electrical junction box and at the main motor conduit box.
    a. Disconnect the machine from the power supply.
    b. At the main electrical junction box, switch to positions of the L2 and L3 input wires on the terminal block.
    c. At the main motor conduit box, switch to positions of the U3 and V3 input wires in the conduit box.
    d. Test the machine operation again.
    e. Safely close and open electrical cover(s).



GETTING TO KNOW YOUR MACHINE



Item	Description
1	Table Elevation Crank Handle, for lifting and lowering the work table.
2	Chuck Guard, To cover the drill area during operation to restrict and prevent chips and material from being ejected toward the operator.
3	Quill Feed Handle, To lower and raise the quill during operation. Includes the clutch engagement switches for power down feed when set and selected.
4	Depth Stop Adjustment Knob, May be set to limit the amount of down travel on the quill. This will allow for repeatable machining depths.
5	Chuck Guard Limit Switch, (inside pivot box) deactivates the machine for operation if the chuck guard is not closed.
6	Chuck Guard Height Adjustment. To raise and lower the chuck guard to cover the machining area.
7	Power Down Feed Selector, Four position shifter to select from neutral to one of three feed rates.
8	Electrical Cabinet Door Latch
9	Counter-Clockwise Power Switch, Power the spindle to rotate counter-clockwise and will illuminate green when active.
10	Stop Switch, Stops the spindle operation. Will illuminate red when power is supplied to the machine and not functions are active.
11	Clockwise Power Switch, Power the spindle to rotate clockwise and will illuminate green when active.
12	Emergency Stop Switch, When needed, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset.
13	Spindle Speed Shifters, used in combination to select the gear to produce the desired spindle rpm.
14	
15	Tooling Removal Knob, During normal operation the knob will be pushed inward toward the gear case. This will limit the quill retract distance. When it is desired to change a tool, lower the quill slightly and pull out on the knob. This will allow for the quill to retract higher and eject the tool from the spindle. NEVER OPERATE THE DRILL WITH THE KNOB PULLED OUT!
16	Micro Feed Hand Wheel, used when the feed selector is in neutral to feed the quill at a very slow feed rate.
17	Coolant On/Off Switch, Turns the coolant on or off. Note that the coolant will only run when the drill motor is engaged.
18	Taping Selector Switch, Turn on for taping and off for drilling.
19	Main Power Disconnect Switch.
20	Coolant Flow Valve, Ball valve used to adjust the amount of coolant flowing the machining area.
21	Table rotation Lock Handle. Allows the table to rotate on the mounting arm.
22	Table Height Locking Handle, Locks the table arm to the column to maintain the desired height setting.

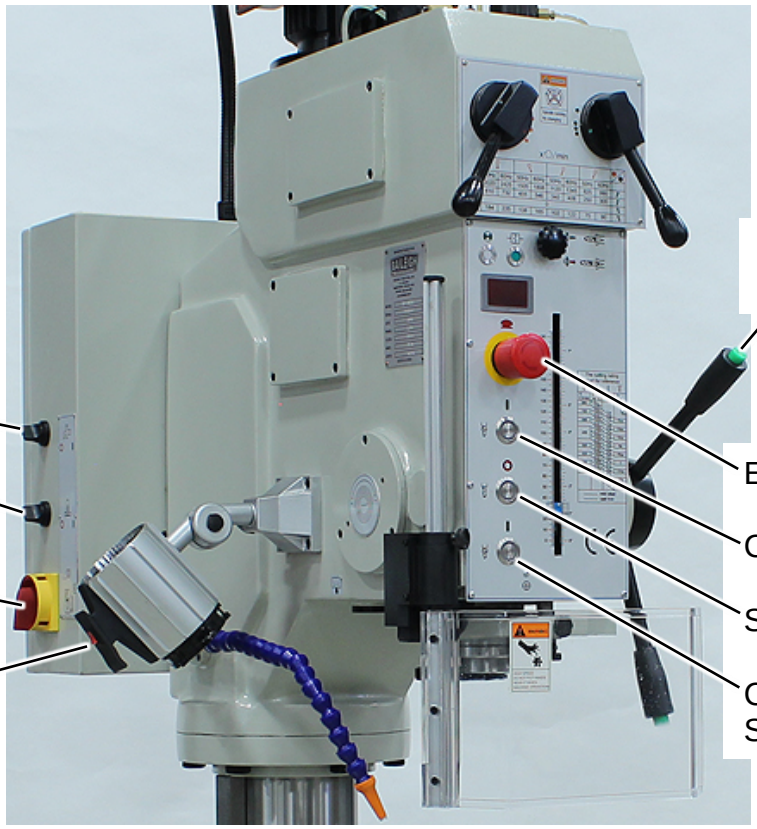
Contents of Tool Box

Item	Description
A	Tool Box
B	Drill Chuck
C	Chuck Key
D	Drill Chuck Adaptor
E	Drill Shank Adaptors
F	Taper Wedges
G	Open End Wrench (21x24mm)
H	Fuse (10A, 5A, 3A, 1A)

SETUP and OPERATION

⚠ CAUTION: Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.

Operation Panel

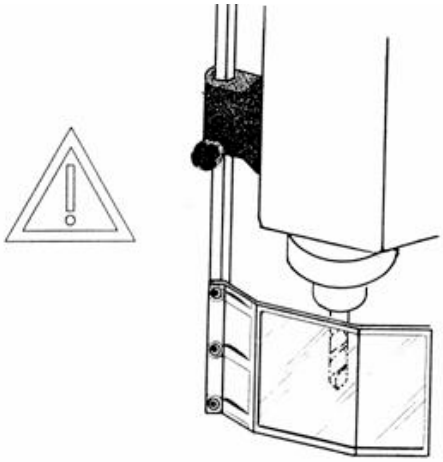


Machine Usage

The drilling machine was designed to be used with specific tools and for certain machining operations.
The most common machining operation is the drilling of holes with helicoidal drills. The drilling of hole is carried out by the combination of a drill turning movement and a feed movement in the turning spindle direction.
Besides the helicoidally drill, other tools can be used to drill holes. There is a great variety of drill types and shapes in the market which can be used on this machine, provided that they are designed for such a purpose and that can be fixed in the spindle taper. They will usually be the Morse taper or ISO type. The drill shanks should have the corresponding taper to the spindle in which they are to be fitted or parallel shank if they are going to be fitted by means of a tool holder.

Do not ever use tools which were not designed to be used in a drilling machine and that have been adapted.
A drilling machine can also perform other machining operations a part from the drilling, such as tapping, reaming, chamfering, punch marking, countersinking, spot facing, to perform such operations, it is necessary to have appropriate tools, specially designed for this sort of jobs. In the tapping case, besides using correct tool, the machine has to be provided with such a device that reverses the turning direction of the tool when it reaches the depth previously fixed.

Drill Protection Guard



The machine is provided with a security drill guard.
Before pressing the starting push button, set the drill guard in the working position, otherwise the machine controls will not start.

***Important**: If the guard is opened when operating the machine, the machine will stop. **DO NOT** REMOVE THE GUARD UNDER ANY CIRCUMSTANCES.*

Speed Range and Speed Change

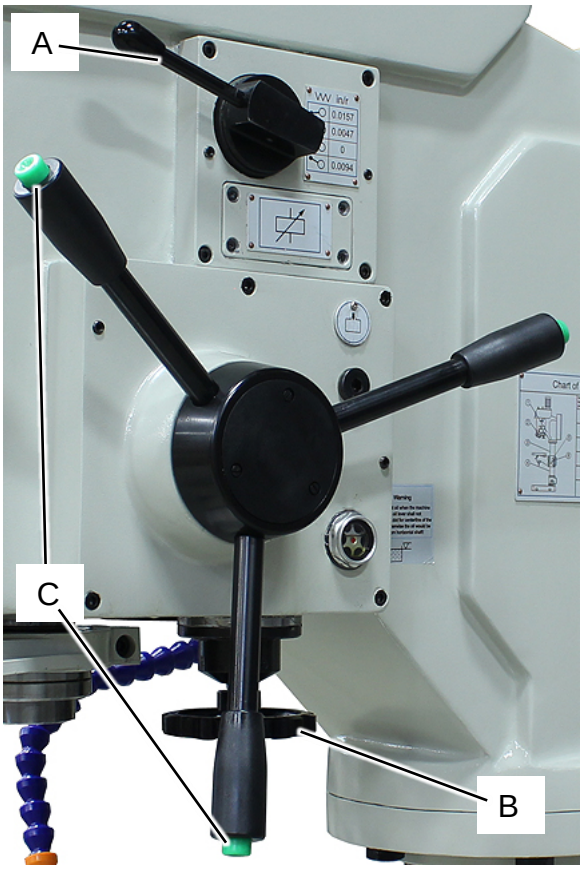
By means of levers, the spindle speeds are selected.
In various combinations, a total of 12 different spindle speeds (rpm) may be selected. Follow the chart on the face of the drill head to set the shift levers to the desired speed.

***Important**: **DO NOT** change spindle RPM until the spindle has stopped completely.*

Match the shift lever position to the picture on the chart. The left shift lever is pictured along the top of the chart.
The right shift lever is pictured along the right edge of the chart.
The chart is also divided into additional columns to show the rpm if the machine is wired to 50hz or 60hz power supply. Stop the machine when changing the speed gears.
The actual spindle speed will be shown on the digital display.
If spindle speed change is difficult, use the micro feed handle to align the gears for engagement.

Feeds Selector

This gear (A) and switch(es) (C) combination is used to select the desired amount of feed per revolution of the spindle and then when to engage or disengage the function.



***Important*: DO NOT** change spindle direction until the spindle has stopped completely.

Select the feed rate with the feed rate handle (A), matching the shift lever position to the picture on the feed rate chart to set the desired feed rate.
There are three (3) feed rates .0047", .0094", .0157" (.11, .23, .39mm) of travel per spindle revolution.

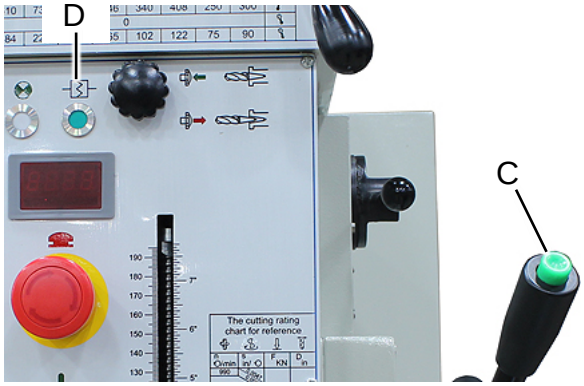
Stop the machine when changing the feed rate. If feed rate change is difficult, manually rotate the handwheel (B) at the same time.

***Note**: The maximum spindle torque is 78lbf/ft (105Nm) and the maximum feed resistance of the spindle is 1574lbf (7000N). Actual cutting torque and feed resistance cannot be over these maximum values.*
The hardness of the workpiece material, cutting performance, and sharpness of the cutting tool will influence cutting force.

***Note**: The work table must be clamped securely to the column when machining.*

- Securely clamp the work piece to the work table.
- Install the desired tooling into the spindle.
- Raise or lower the work table to suitable height and lock the column clamp. A suitable table height will typically have the tip of the tool approximately .5" – .75" (12 – 19mm) above the highest point of the work piece when the quill is fully retracted. This provides a reasonably safe clearance between the tool and the workpiece while providing the almost full quill travel.
- Set the depth stop to the desired depth.
- Start the drill motor and coolant.
- Press and hold one of the three feed clutch switches (C) and pull the quill feed handle to lower the quill approximately .25" – .375" (6.3 – 9.5mm).

- When the feed clutch engages, the green indicator light (D) above the tachometer will turn on and the clutch will start to pull the feed handle.
- Release the handle and the switch and allow the clutch to provide the down force.
- At any time the feed may be stopped by:
    - Pressing any one of the feed buttons (C)
    - Pressing the Drill Stop button.
    - Pressing the E-Stop.

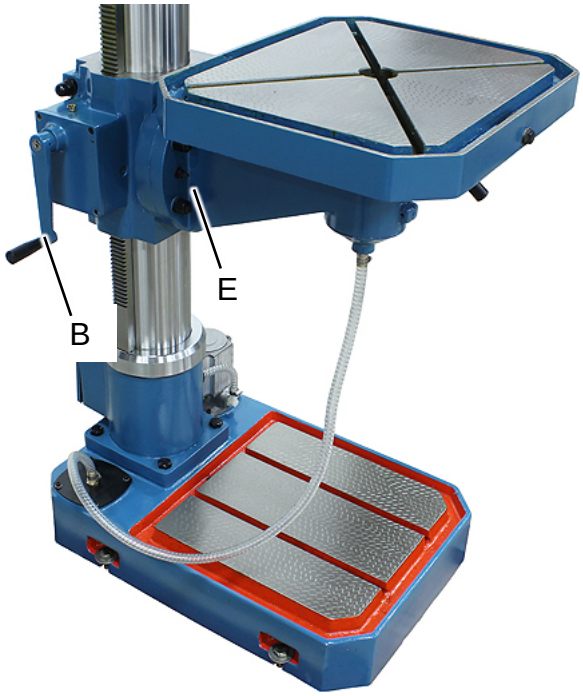


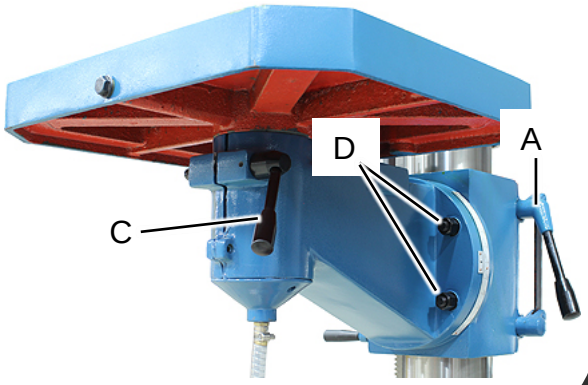
- The down feed will stop when it reaches the end of its travel as set by the depth stop.

Table Adjustment

The drill press has two work table. The base table which is a fixed position table which does allow for larger size material and the movable table which has several ways to be positioned and adjusted. Both tables have T-slots to be used to secure the material and or vise to clamp and hold the work piece from moving during the machining process.
The movable work table may be positioned by;

- Lift the column clamp (A) to unlock the table arm from the column.
- Rotate the table and arm as an assembly around the column or use the hand crank (B) to raise or lower the table and arm assembly.
- Always lock the column clamp before machining any material.
- To swivel the table on the center post, unlock the center clamp (C) and rotate the table as desired and then lock the clamp
- To rotate the table horizontally on the arm, Support the table to prevent unintended movement.
- Loosen the four clamping nuts (D), pull the lock pin (E, opposite side) and tilt the table ±45° as desired.
- Be sure to tighten the clamping nuts before machining.





Tool Attaching

The tools generally used in this machine will have parallel or taper shanks. Drill holders are normally used to fix to the main spindle of the machine the parallel shank tools. This fixing device is used for small drill diameters (maximum up to diameter 5/8" [16mm]). Bigger diameter drills, usually have taper shank of Morse taper (the ones of smaller diameters to 5/8" [16mm] can have taper shanks).
The housing in the main spindle to insert the tool is of Morse taper type. It is very important to insert the tool taper correctly in the main spindle taper to avoid the tool falling from its housing when turning and provoke and accident. The coupling system itself of the tool male taper in the female taper of the main spindle is auto-locking, but for it the surfaces of the tool taper and spindle taper must be in contact. To get the best possible contact, the surfaces of the tool taper as well as the spindle taper should be in good conditions. Therefore, it is advisable to handle the tool as well as the spindle of the machine carefully.

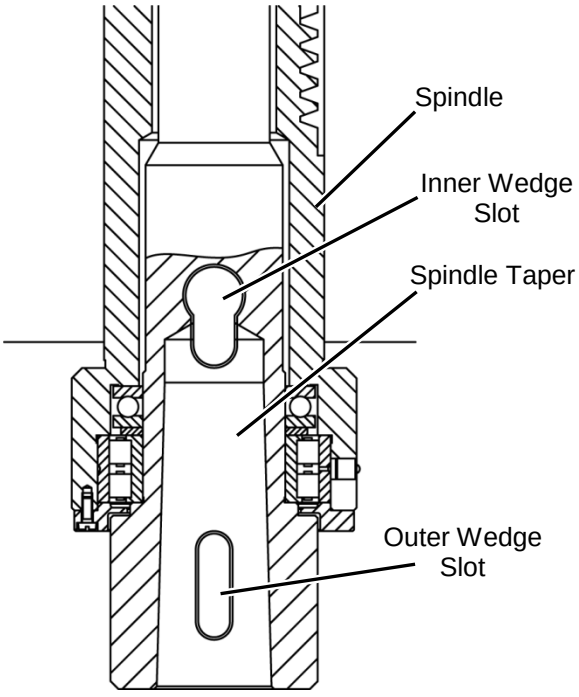
Tool Use Preparation

CAUTION: Turn the main power to the machine OFF before inserting or removing any tools.
Be sure that the spindle taper and mating tools are in good condition, clean, and dry before use to prevent the tapered fit from falling loose during machining.

Turn the main power to the machine **OFF.**

1. To create a secure fit, thoroughly clean the spindle taper and any tools that are being put into use.
2. Check that the tools are in good condition, without nicks or burrs. Do not use substandard connecting pieces, which can damage the spindle taper hole.
3. Securely attach the chuck to a tool holder, such as an arbor, taper sleeve, or the quick-connecting rod. Once an arbor or taper sleeve is joined together with a chuck, they should remain as an assembly. Use a new arbor or taper sleeve to mount a different chuck. The quick connecting rod can easily accept chuck tool changes.

***Note**:* A taper adapter sleeve wedge is supplied for tool removal.



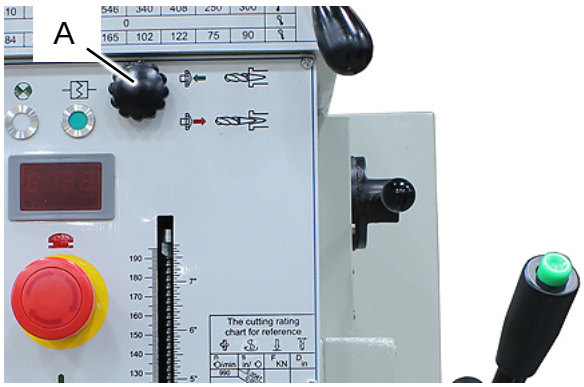
Spindle Section View

Automatic Tool Ejector

NOTICE: DO NOT leave the removal knob engaged during normal operation. Doing so will cause the tool to become dislodged from the spindle!
Normal operation the knob will be pressed in. It will be out only for tool removal!

To remove tool from the spindle, perform the following operations:

1. Lower the spindle from the top position about 1” (25mm) and pull the removal knob outward.
2. Hold the tool with the one hand while allowing the spindle to spring back upward.
3. Repeat as needed to unseat and remove the tool.
4. Lower the spindle enough to allow the knob to be pressed in to the normal operating position.



Piece Clamping

Tangential cutting forces and axial forces in the feed direction of the tool are mainly produced during the drilling process. The tangential forces produce a moment of forces which make the piece being drilled want to turn. Therefore, the pieces to be drilled (or tapped) must be clamped in an appropriate device such as a machine vise and the vise must be securely clamped to the machine table.
It is the operator’s responsibility to obtain and use proper vise and mounting hardware to secure the vise to the work table and the work piece into the vise.

Chips During Machining

The machining process removes material from the piece. This material is released in chips, which can be of different shapes depending on the material itself. The most common ones are of three types: fragmented chips in small bits, short helicoidal chips and long helicoidal chips. The chips fragmented in small bits can be rejected from the machining area and can be dangerous if they reach the eyes of the operator. To avoid this, it is advisable to wear safety glasses.
The long helicoidal chips tend to roll up the tool and gain considerable volume before breaking, which is dangerous if they reach the operator as they may produce injuries.
The reached volume may also displace the dill protector from its security position, increasing the risk of an accident. It is advisable to use chip breaking tools to machine materials which produce such chips. For further information contact the tool manufacturer.

Tapping

NOTICE: *This is a conventional drill, not a special purpose machine, therefore frequent tapping jobs will wear the motor and gears.* Temperature of motor will be increased quickly when tapping due to low motor RPM and frequently motor direction be changed. Therefore, rapid and continuous tapping shall be avoided. Maximum of eight times per minutes of tapping is recommended. The machine shall be stopped for cooling if the motor is too hot.

In general, speeds for tapping require low transmission mode with speeds lower than 150 RPM.

Important: *Chamfer the holes before tapping. A tapping rate of eight times per minute or less is recommended. All tapping must be done while in manual mode.*

1. Set the down-feed rate to “0” using the down-feed handle.
2. Turn the selector switch on the electrical cabinet to tapping mode.
3. Lock the down-feed handles in position for manual down-feed with handle. The down-feed must be locked to avoid accidentally changing to auto down-feed.
4. Release the unused depth stop by loosening handle.
5. Start the machine by pushing button.
6. Turn on the coolant selector switch.
7. Begin tapping. Use the down-feed handles to enter the tapping bit into the piece part. Release hold of the handles. The bit will automatically reverse upon reaching the depth stop.

Micro-Feed Hand Wheel

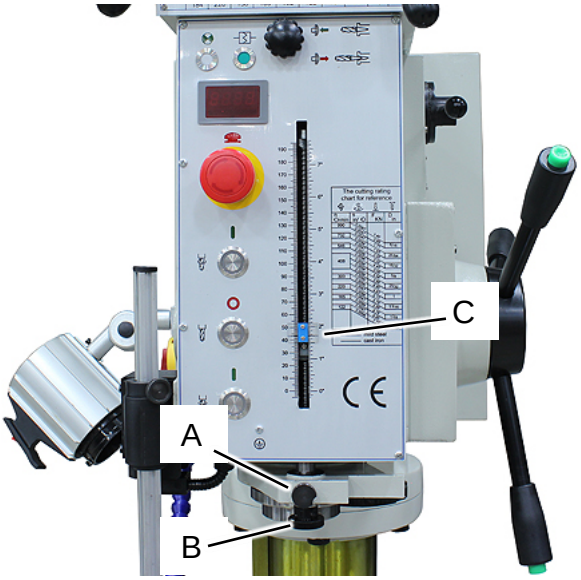
The micro-feed handwheel allows for slow and accurate movement of the drilling tool. It also has an anti-spin feature when the hand wheel will not be used. Pull downward on the knob to disengage the micro-feed hand wheel during auto down-feed and non-use.

1. Adjust the rate of spindle down-feed to “0” using feed rate handle.
2. Set the tool depth to a zero position by lowering the tip of the bit to the top of the piece part.
3. Push up on the micro-feed handle to engage the hand wheel.
4. Set the scale to zero by rotating the depth ring (P).
5. Lock the depth ring by tightening the thumbscrew (AL).
6. Turn the micro-feed hand wheel clockwise (cw) to lower the spindle.

Setting the Depth Stop

This machine has some built-in control stops that activate when either the bottom or top quill travel limits are reached. Their functions include stop drilling, reverse tapping, or return the drill bit to the start height.

1. Turn power off at the main disconnect.
2. Install the desired drill of tap.
3. Set up the work piece as if it was ready to be machines. This means fully clamped and positioned under the tool for the first machining step.
4. Set the table height to minimize quill travel.
5. Set the tool depth to zero position by lowering a drill bit or tapping tool to the surface of the piece part.
6. Hold in position.
7. Loosen the depth stop lock screw (A) to allow the depth stop to be set.
8. Turn the depth stop adjustment screw (B) until the indicator (C) is pointing to the line which matches the desire depth drill or tapping depth.
9. Tighten the stop lock screw and the handle may be released to allow the quill to fully retract.
10. The depth stop will now limit down travel of the quill for manual, power feed, and tapping operations.



(Front depth scale is calibrated in both inches and millimeters.)

LUBRICATION AND MAINTENANCE

WARNING: Make sure the electrical disconnect is OFF before working on the machine.
Maintenance should be performed on a regular basis by qualified personnel.
Always follow proper safety precautions when working on or around any machinery.

***Note**: Proper maintenance and lubrication can increase the life expectancy of your machine. Refer to the Lubrication Chart on the right side of the drill head for specifications.*

Daily Maintenance

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- Do a general cleaning by removing dust and metal chips from the machine.
- Top off the coolant reservoir (80% capacity), the full capacity is 8.5 gallons (8.8 liters).
- Clean filter screens located on the work tables of the machine.
- Sharpen or replace any worn or damaged tooling.
- Clean the spindle taper hole and tool taper.

Weekly Maintenance

- Clean the machine and the area around it.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Thoroughly clean the machine including the coolant reservoir.

Monthly Maintenance

- Check that all screws and bolts are tight and secure.
- Wipe built-up grime from the machine with a rag and a mild solvent.
- Check for worn or damaged electrical cables.

***Note**: When cleaning chips and debris from the machine, use a brush and a shop vacuum. **DO NOT** blow off the machine with compressed air. The force of the compressed air may force chips into critical mechanisms or may inflict injury to yourself or others.*

Oil System

The oil system is the primary medium for transmitting pressure and must lubricate the running parts of the gear train.

1. Use medium gear oil #40-46.
2. Keep oil reservoir filled to center line of the sight gauge.
3. A shortage of oil will cause system breakdown to major mechanical components due to overheating.
4. Change the oil every 12 months.
5. The fill port and sight glass are on the right side of the drill head.
6. The drain plug is on the bottom of the drill head toward the left side.

Oil Disposal

Used oil products must be disposed of in a proper manner following your local regulations.

Accessing and Cleaning the Coolant System

- Clean the drain screens located on the work tables of the machine.
- Drain and wash out the dirt and debris from the reservoir. Drain plug is located at the rear of the base. Remove the pump and the return drain adaptor to gain more access to the reservoir.
- Thoroughly clean the pump and pump inlet.
- Fill the tank with coolant solution.

Oils for Lubricating Coolant

Any 10:1 (water to coolant) solution will work, however we recommend Baileigh Coolant 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons of coolant.

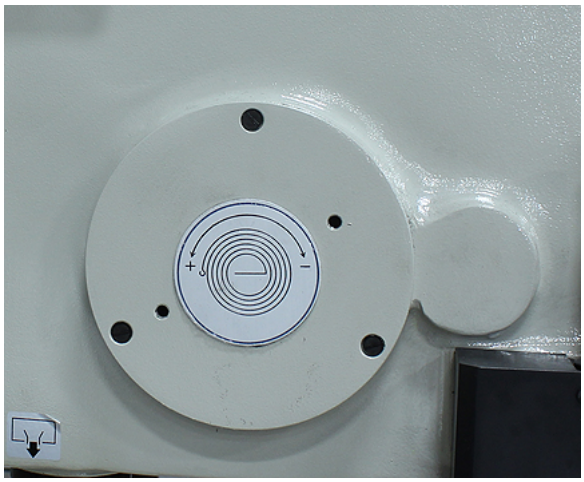
Storing Machine for Extended Period of Time

If this machine is to be inactive for a long period of time, prepare the machine as follows:

- Disconnect the electrical supply from the power panel.
- Empty and clean the coolant reservoir.
- Clean and grease the machine.
- Cover the machine.

Return Spring

The return spring should provide enough tension to fully lift the spindle and any tooling easily and without slamming up to a stop.



1. Turn the main disconnect Off.
2. Allow the quill to be fully retracted.
3. Do not remove the spring cover.
4. Remove the three cover screws, but do not remove the cover.
5. Rotate the cover as indicated by the arrow to either increase or decrease the spring tension.
6. When the spring tension is just enough to fully retract the quill and its tooling, turn the cover 1/3 of a turn more and install and tighten the cover screws.
7. If the retract spring requires replacement, follow the diagram on the cover to set the correct winding directions.

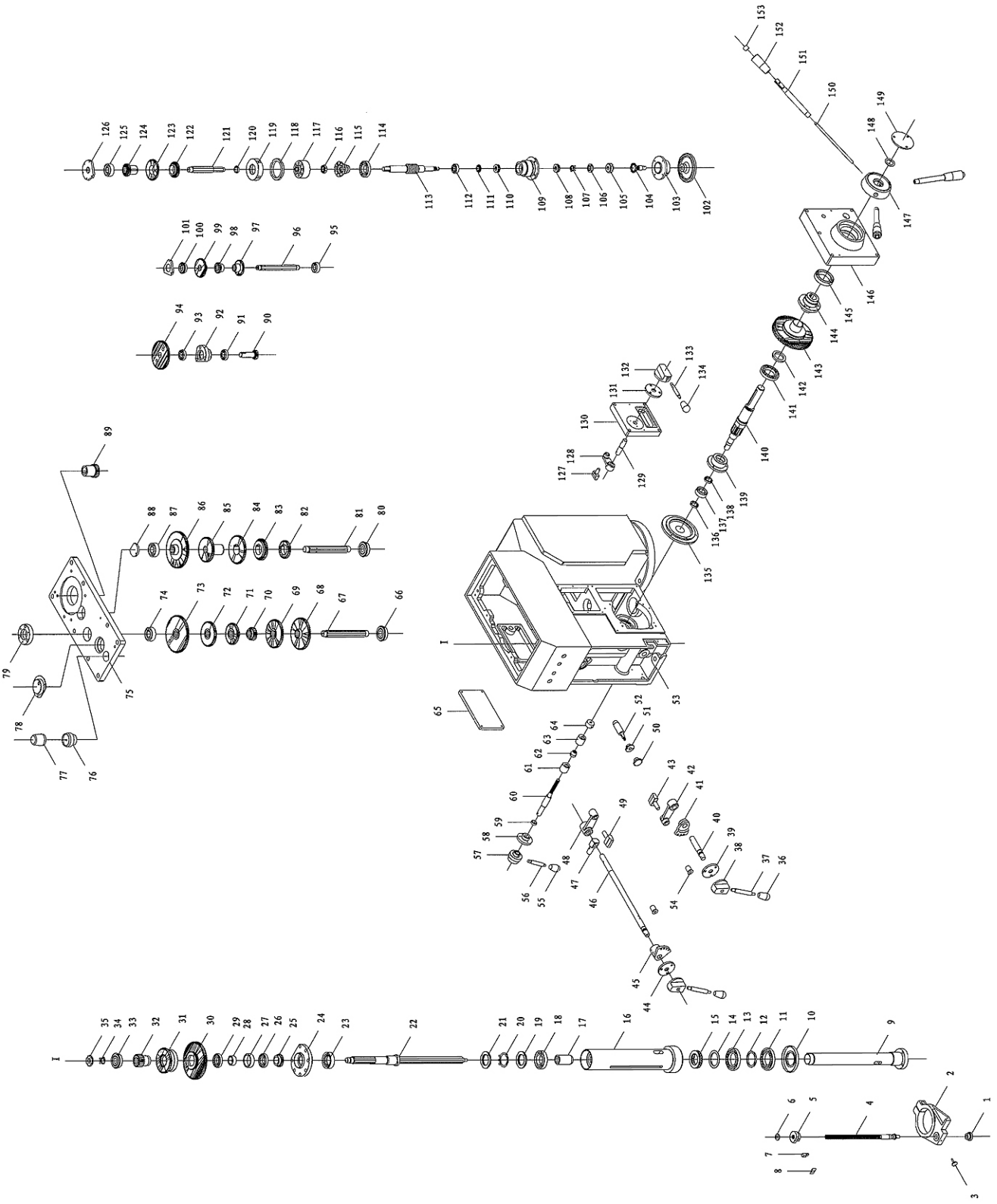
MATERIAL SELECTION

⚠ CAUTION: It must be determined by the customer that materials being processed through the machine are NOT potentially hazardous to operator or personnel working nearby.

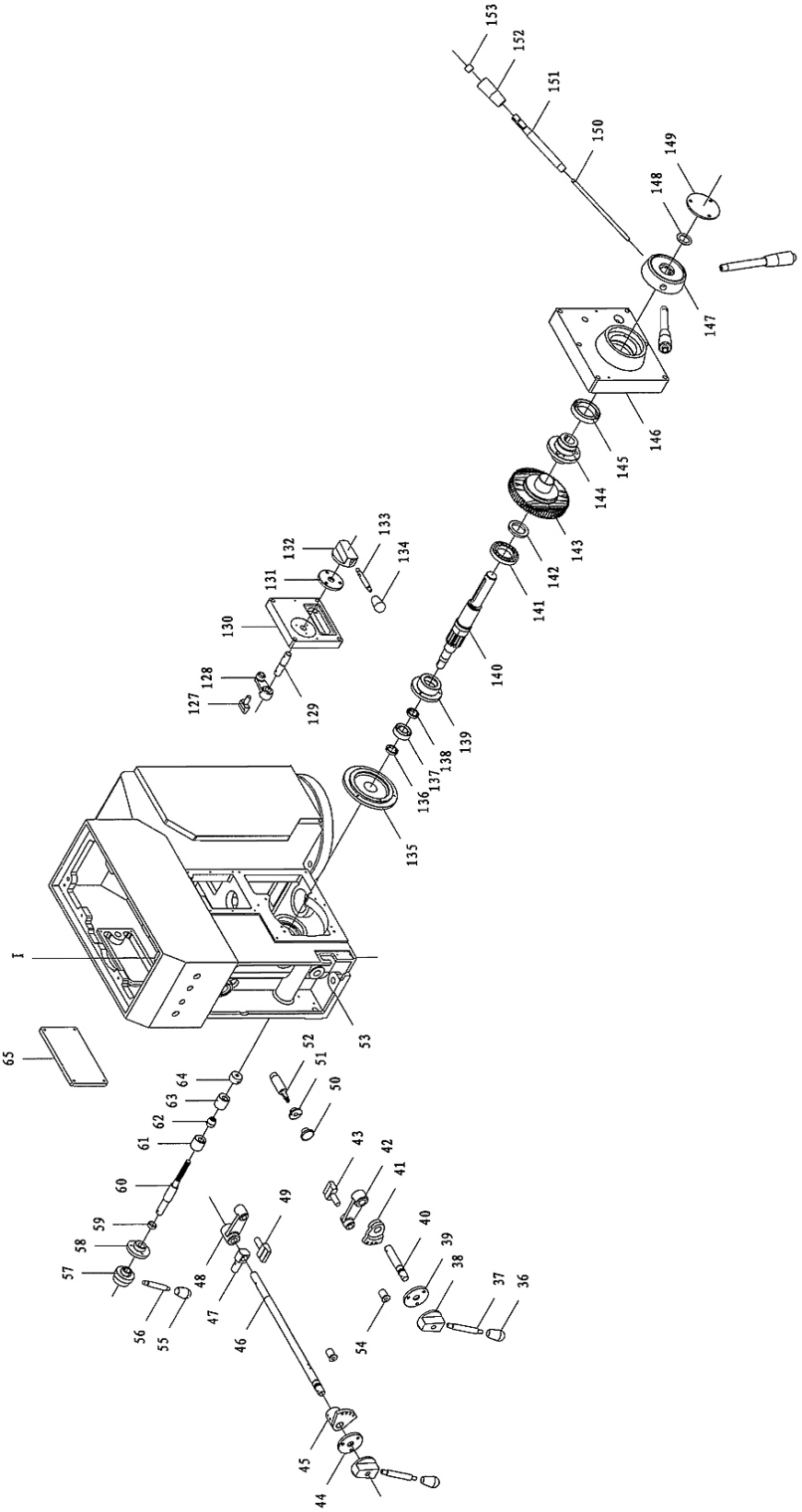
When selecting materials keep these instructions in mind:

- Material must be clean and dry. (without oil)
- Material should have a smooth surface so it processes easily.
- Dimensional properties of material must be consistent and not exceed the machine capacity values.
- Chemical structure of material must be consistent.
- Buy certificated steel from the same vendor when possible.

DRILL HEAD PARTS DIAGRAM



Detail 1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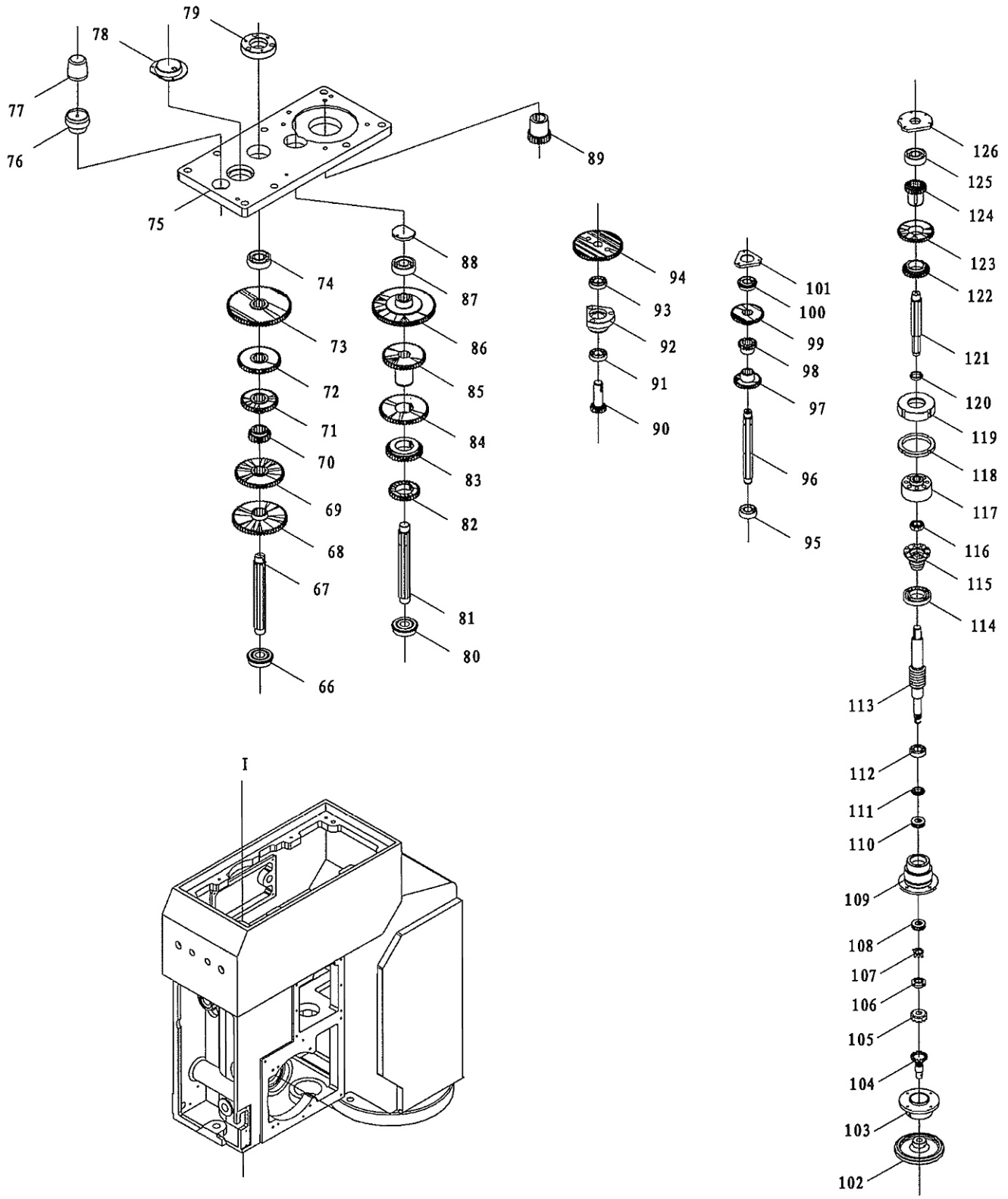
Detail 2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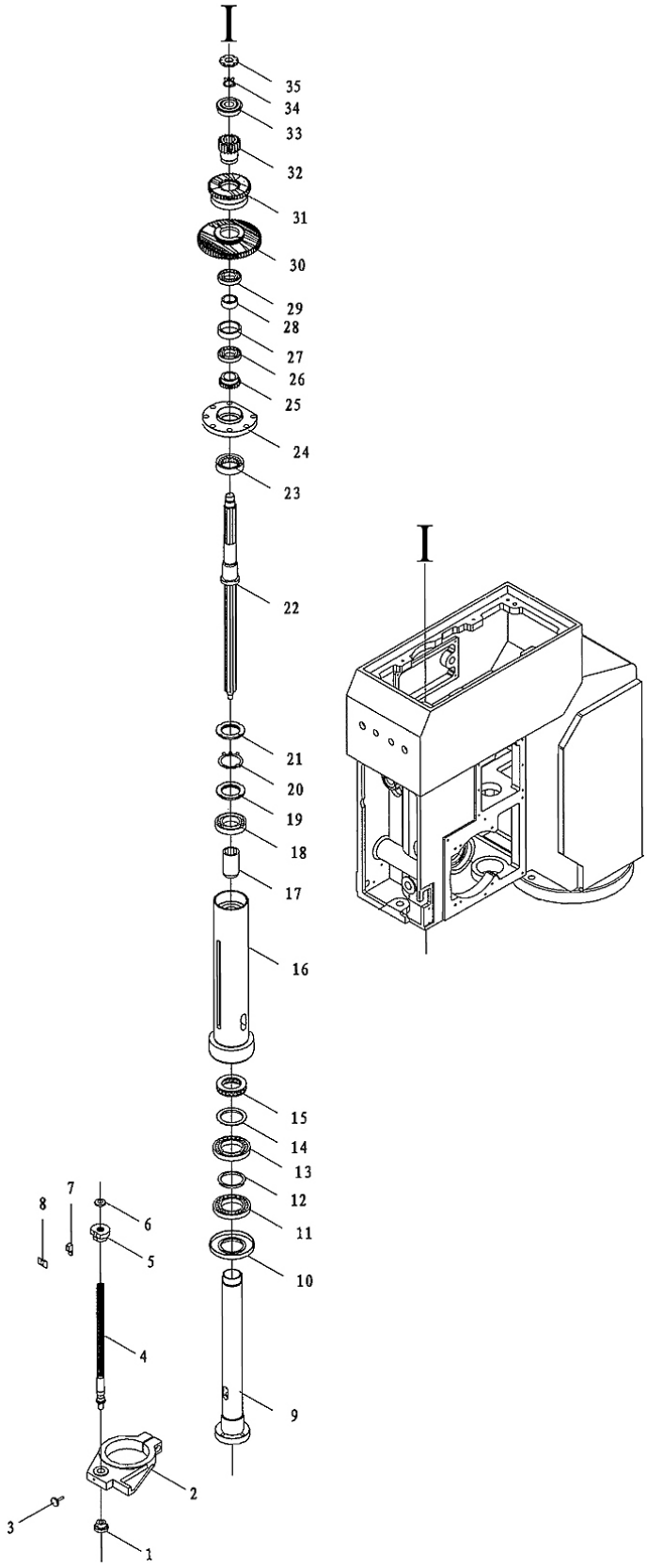
Detail 3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Drill Head Parts List

Item	Part No.	Description	Qty.
1	32001/ZS5030	Knurled knob	1
2	31002/ZY5035	Scale clamper	1
3	32002/ZS5030	Knurled screw bolt	1
4	32001/ZY5035A	Scaled bolt	1
5	31001/ZY5035A	Scaled nut	1
6	32005/ZS5030	Position block	1
7	32004/ZS5030	Support for the indicator	1
8	35001/ZS5030	Scaled indicator sheet	1
9	32030/ZY5035	Main spindle	1
10	32003/ZY5035	Bearing cover	1
11	D16009;GB/T276	Bearing	1
12	32002/ZY5035	Washer	1
13	D16009;GB/T276	Bearing	1
14	32001/ZY5035	Washer	1
15	8108;GB/T301	Bearing	1
16	32031/ZY5035	Spindle quill	1
17	32005/ZY5035	Spline quill	1
18	D61908;GB/T276	Bearing	1
19	32006/ZY5035	Nut	1
20	32007/ZY5035	Washer	1
21	32006/ZY5035	Nut	1
22	32032/ZY5035	Transmission shaft	1
23	32006;GB/T297	Bearing	1
24	32039/ZY5035	Bearing cover	1
25	32041/ZY5035	Feed gear	1
26	16005;GB/T276	Bearing	1
27	32010/ZY5035	Ring separate outside	1
28	32009/ZY5035	Ring separate inside	1
29	16005;GB/T276	Bearing	1
30	32011/ZY5035	Gear	1
31	32012/ZY5035	Gear	1
32	32013/ZY5035	Gear	1
33	6204N;GB/T276	Bearing	1

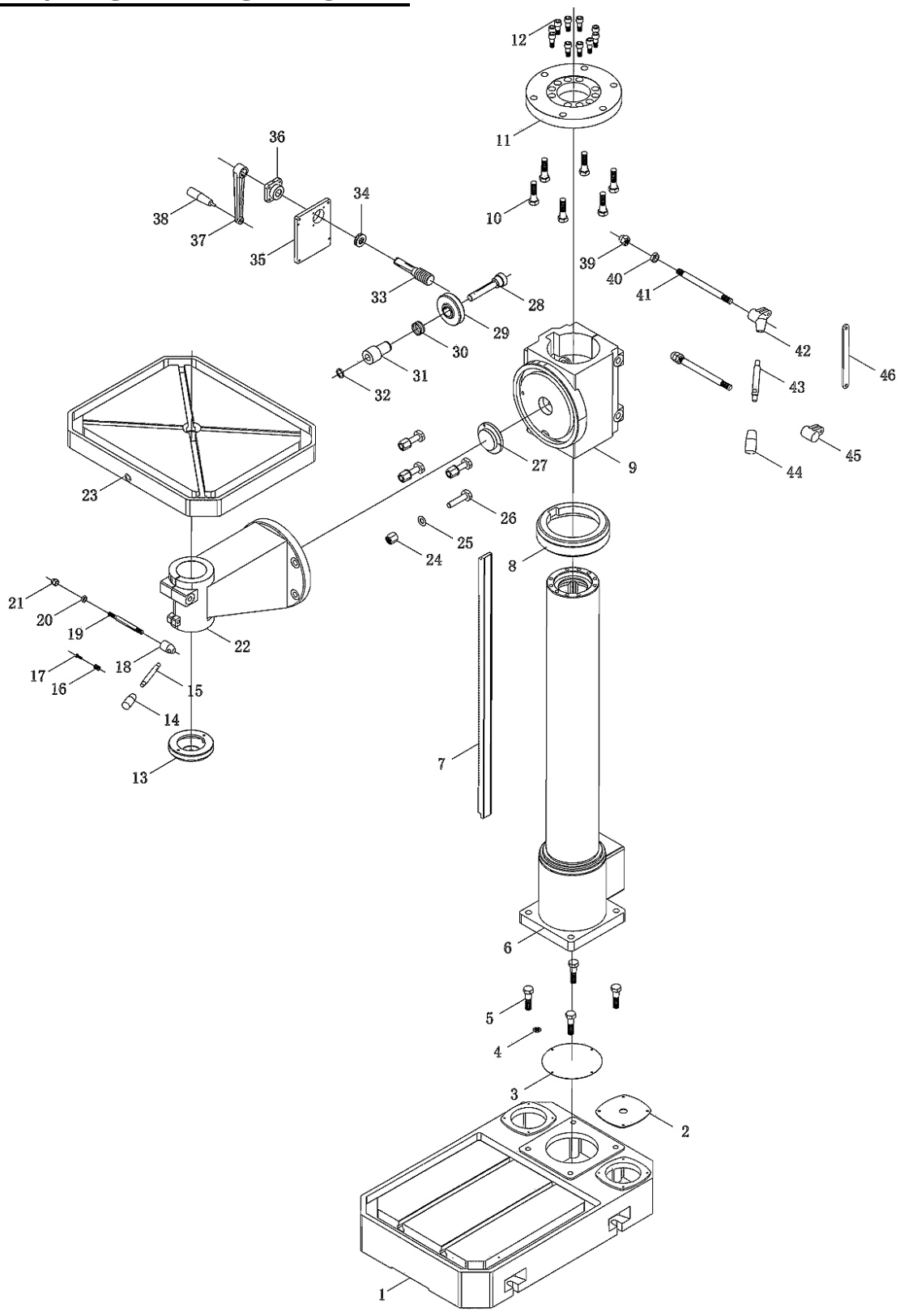
Item	Part No.	Description	Qty.
34	18;GB858	Washer	1
35	32011/ZY5050	Nut	1
36	1.222/40-M8/21101	Oval knob	2
37	32032/ZS5030	Hand lever	2
38	32031/ZS5030	Hand lever seat	2
39	32028/ZS5030	Washer	1
40	32068/ZY5035	Shaft	1
41	32069/ZY5035	Position tray	1
42	32012/ZY5035	Lever	1
43	34008/ZY5035	Block	1
44	32028/ZS5030	Washer	1
45	32067/ZY5035	Position tray	1
46	32066/ZY5035	Shaft	1
47	32065/ZY5035	Support block	1
48	31011/ ZY5035	Lever	1
49	34007/ZY5035	Block	1
50	BM8×32;GB4141.27	Knurled handle	1
51	32045/ZS5030	Bushing	1
52	32040/ZY5035	Position shaft	1
53	31001/ZY5035	Spindle box	1
54	32089/ZY5050	Position sleeve	2
55	1.222/30-M8/21101	Knob	1
56	32075/ZY5050	Handle	1
57	32076/ZY5050	Hand seat	1
58	32056/ZY5035	Cover	1
59	32055/ZY5035	Adjusting washer	1
60	32054/ZY5035	Locked screw	1
61	32053/ZY5035	Locked sleeve (one)	1
62	32052/ZY5035	Quill	1
63	32051/ZY5035	Locked sleeve(two)	1
64	32064/ZY5035	Stop ring	1
65	31012/ZY5050	Cover	1
66	6204N;GB/T276	Bearing	1
67	32028/ZY5035	Spline shaft	1
68	32008/ZY5035	Gear	1

Item	Part No.	Description	Qty.
69	32027/ZY5035	Gear	1
70	32025/ZY5035	Gear	1
71	32021/ZY5035	Gear	1
72	32019/ZY5035	Gear	1
73	32017/ZY5035	Gear	1
74	6204;GB/T276	Bearing	1
75	31004/ZY5035	Spindle cover	1
76	32030/ZY5050	Oil device seat	1
77	35001/ZY5050	Oil device	1
78	32012/ZY5050	Cover	1
79	31004/ZY5050	Bearing cover	1
80	6204N;GB/T276	Bearing	1
81	32026/ZY5035	Spline shaft	1
82	32023/ZY5035	Gear	1
83	32022/ZY5035	Gear	1
84	32020/ZY5035	Gear	1
85	32018/ZY5035	Gear	1
86	32016/ZY5035	Gear	1
87	6204;GB/T276	Bearing	1
88	32014/ZY5035	Cover	1
89	32015/ZY5035	Gear	1
90	32037/ZY5035	Feed gear	1
91	16003;GB/T276	Bearing	1
92	32038/ZY5035	Bearing seat	1
93	16003/GB/T276	Bearing	1
94	32042/ZY5035	Feed gear	1
95	6202;GB/T276	Bearing	1
96	32033/ZY5035	Spline shaft (III)	1
97	32034/ZY5035	Feed gear	1
98	32035/ZY5035	Feed gear	1
99	32036/ZY5035	Feed gear	1
100	62002N;GB/T276	Bearing	1
101	32044/ZY5035	Bearing cover	1
102	B12×100;GB41414.20	Hand wheel	1
103	32067/ZY5050	Cover	1

Item	Part No.	Description	Qty.
104	32068/ZY5050	Shaft	1
105	32069/ZY5050	Clutch	1
106	M14×1.5;GB812	Round nut	1
107	14;GB858	Washer	1
108	8102;GB301	Bearing	1
109	31007/ZY5050	Bearing seat	1
110	8102;GB301	Bearing	1
111	32066/ZY5050	Washer	1
112	102;GB276	Bearing	1
113	32064/ZY5050	Worm shaft	1
114	16006;GB/T276	Bearing	1
115	32050/ZY5035	Clutch seat(below)	1
116	61902;GB/T276	Bearing	1
117	32018/ZS5030A	Overload protection sleeve	1
118	32021/ZS5030A	Round nut	1
119	32020/ZS5030A	Round nut	1
120	32049/ZY5035	Washer	1
121	32045/ZY5035	Spline shaft(IV)	1
122	32048/ZY5035	Feed gear	1
123	32047/ZY5035	Feed gear	1
124	32046/ZY5035	Feed gear	1
125	6303;GB/T276	Bearing	1
126	32044/ZY5035	Bearing cover	1
127	34015/ZY5035	Lever bolck	1
128	31012/ZY5035	Fork lever	1
129	32070/ZY5035	Shaft	1
130	31013/ZY5035	Side cover	1
131	32071/ZY5035	Position block	1
132	32093/ZY5050	Handle seat	1
133	32038/ZS5030A	Hand lever	1
134	1.222/30-M8/21001	Handle	1
135	31007/ZY5035	Cover	1
136	32024/ZS5030	Washer for adjusting	1
137	6004;GB/T276	Bearing	1
138	32024/ZS5030	Washer for adjusting	1

Item	Part No.	Description	Qty.
139	32027/ZS5030	Bearing cover	1
140	32002/ZY5035A	Cross shaft	1
141	16008;GB/T276	Bearing	1
142	32004/ZY5035A	Washer for adjusting	1
143	31002/ZY5035A	Worm wheel	1
144	32003/ZY5035A	Sleeve	1
145	61909;GB/T276	Bearing	1
146	31003/ZY5035A	Feed side cover	1
147	32029/ZS5030A	Handle seat	1
148	32030/ZS5030A	Washer for adjusting	1
149	32031/ZS5030A	Pressed cover	1
150	32033/ZS5030A	Lever	3
151	32032/ZS5030A	Hand lever	3
152	35002/ZS5030A	Knob	3
153	35001/ZS5030A	Lever	3

COLUMN / BASE PARTS DIAGRAM

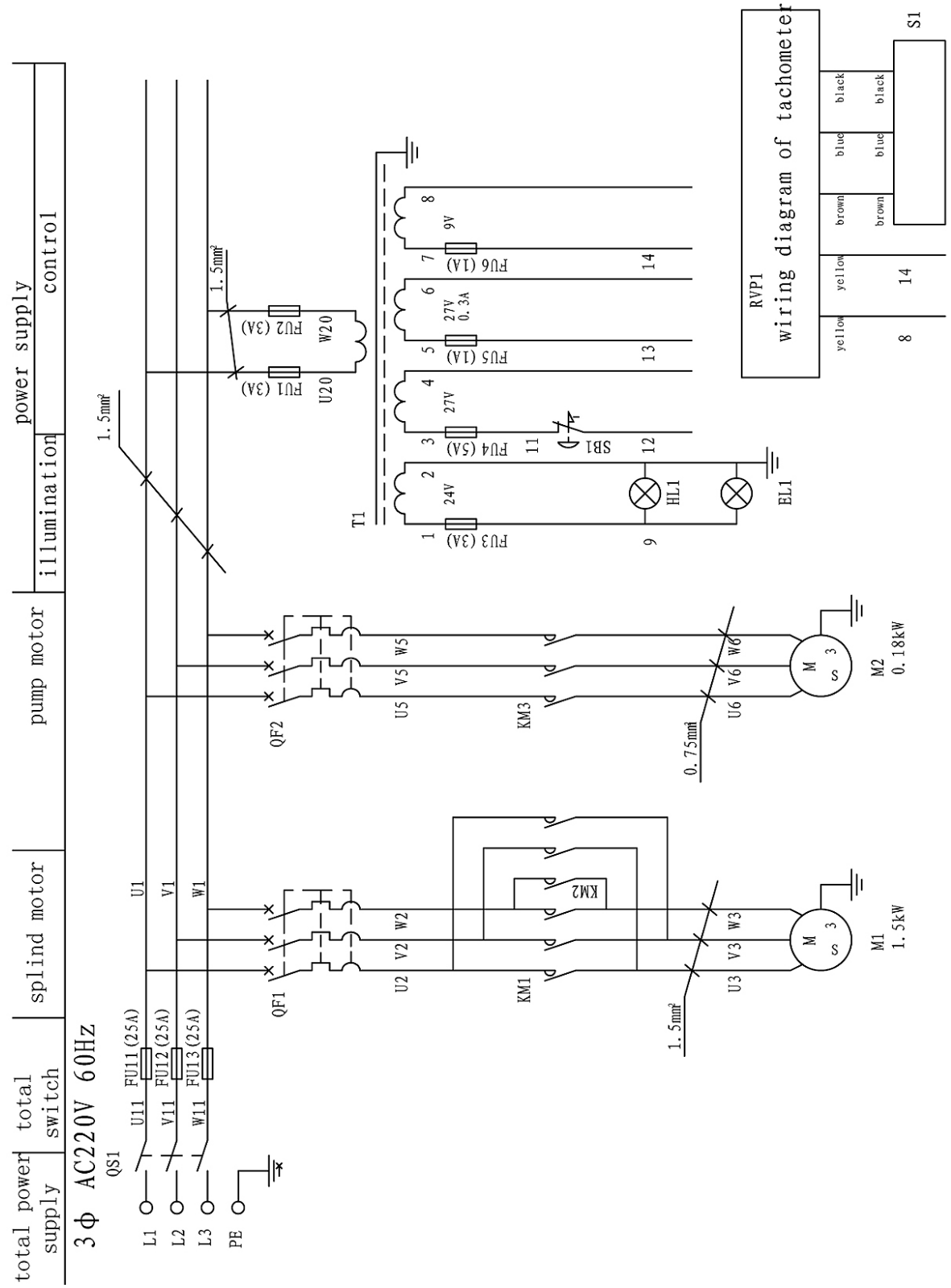


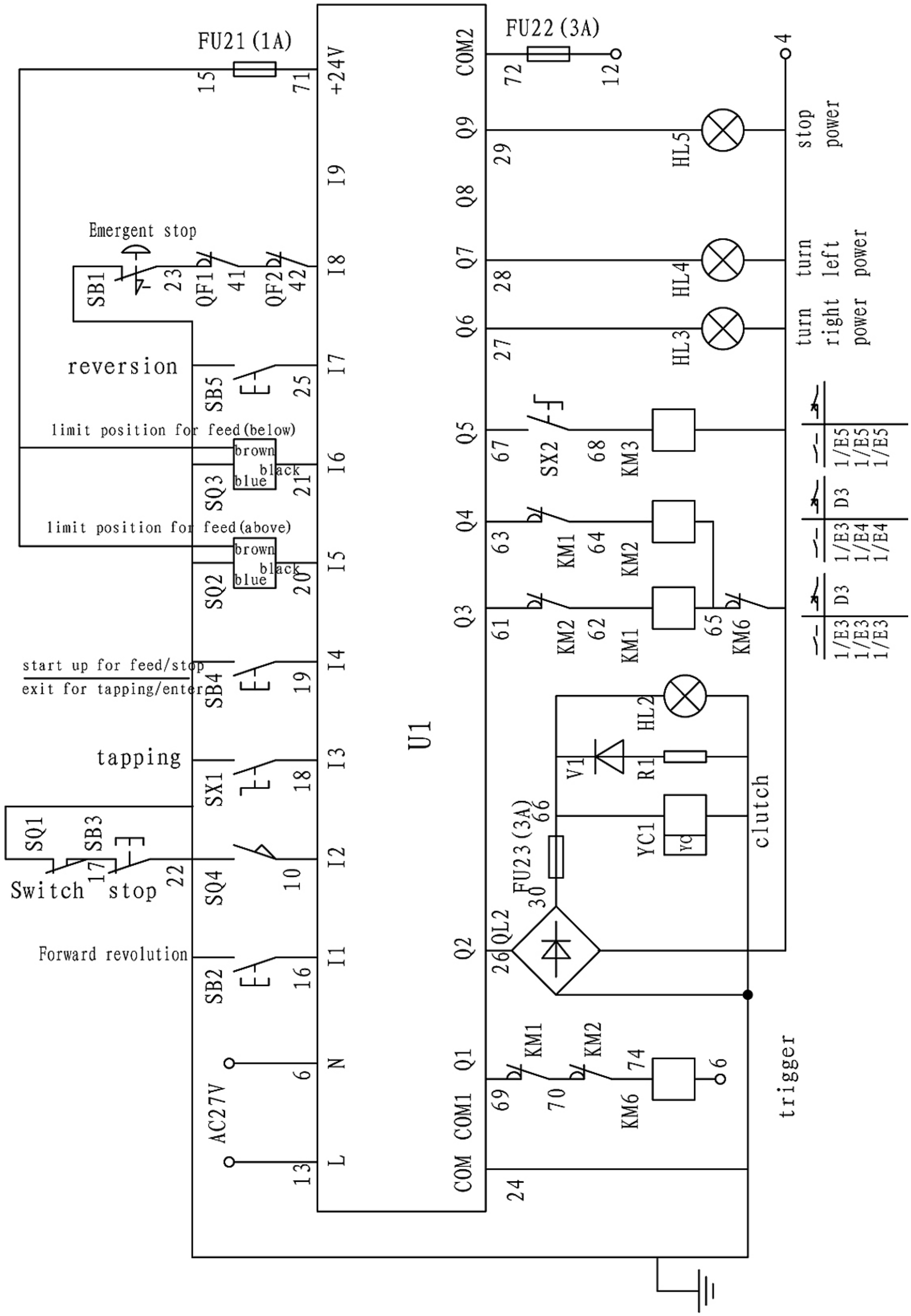
Column / Base Parts List

Item	Parts number	Description	Qty.
1	11002/ZY5035A-1	Base	1
2	12008/ZS5030	Cover board	1
3	12002/ZY5035	Cover	1
4	12001/ZS5030	Water strainer	1
5	M16*55;GB5782	Hexagon bolt	4
6	11004/ZY5035A-1	Column	1
7	12001/ZY5035	Rack	1
8	11003/ZY5035	Stop ring	1
9	11004/ZY5035	Up and down device	1
10	M16*55;GB5782	Hexagon bolt	6
11	11007/ZY5035	Connecting seat (above)	1
12	M12*30;GB70	Inner hexagon bolt	10
13	11001/ZY5050	Rind	1
14	M10x50;GB4141.14	Long hand quill	1
15	B-(D.L3.Cr)M10*80 GB4141.14	Long hand quill	1
16	12001/ZY5050	Hand lever	2
17	M6*25;GB5782	Hexagon bolt	2
18	B-(D.L3.Cr)M12*30 GB4141.16	Handle seat	1
19	12005/ZY5050	Double end bolt	1
20	M10;GB6172	Hexagon bolt	1
21	M10;GB923	Cover type nut	1
22	11003/ZY5035A-1	Bracket seat	1
23	11001/ZY5035A-1	Worktable	1
24	M14;GB56	Hexagon bolt	4
25	14;GB97.2	Washer	4
26	12005/ ZS5030	T type screw bolt	4
27	12010/ ZS5030	Positioning shaft	1
28	12016/ZY5050	Shaft	1
29	12017/ZY5050	Worm wheel	1
30	11015/ZY5050	Sleeve	1
31	12015/ZY5050	Gear	1
32	12014/ZY5050	Washer	1
33	12006/ZY5035	Up and down worm lever	1

Item	Parts number	Description	Qty.
34	8104;GB301	Bearing	1
35	11008/ZY5035	Up and down side cover	1
36	11009/ZY5035	Bushing	1
37	11010/ZY5035	Up and down hand lever	1
38	(D.Cr)M10*80;GB4141.5	Lever for turning	1
39	M16; GB923	Cover type nut	2
40	M16; GB6172	Hexagon bolt	2
41	12004/ZY5035	Double end bolt	2
42	11005/ ZY5050	Clamping main nut	1
43	B-(D.Cr)M12x100; GB4141.15	Hand lever	1
44	M12x60; GB4141.14	Long lever quill	1
45	11004/ZY5050	Clamping nut	1
46	12003/ZS5035	Connecting board for bracket	1

ELECTRICAL SCHEMATIC




FU21 (1A)
15
71
+24V
FU22 (3A)
COM2
72
12
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Q9
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HL5
stop power
I9
Emergent stop
SB1
23
QF1
41
QF2
42
I8
Q8
Q7
28
HL4
turn left power
Q6
27
HL3
turn right power
reversion
SB5
25
I7
limit position for feed (below)
brown
black
blue
SQ3
21
I6
Q5
67
SX2
68
KM3
1/E5
D3
1/E3
1/E4
limit position for feed (above)
SQ2
20
I5
Q4
63
KM1
64
KM2
Q3
61
KM2
62
KM1
65
KM6
start up for feed/stop
exit for tapping/enter
SB4
19
I4
U1
HL2
V1
R1
tapping
SX1
18
I3
FU23 (3A)
66
YC1
YC
clutch
SQ1
SB3
17
Switch
stop
22
SQ4
10
I2
30
QL2
26
Q2
Forward revolution
SB2
16
I1
AC27V
6
N
Q1
KM1
KM2
69
70
74
KM6
9
trigger
13
L
COM
COM1
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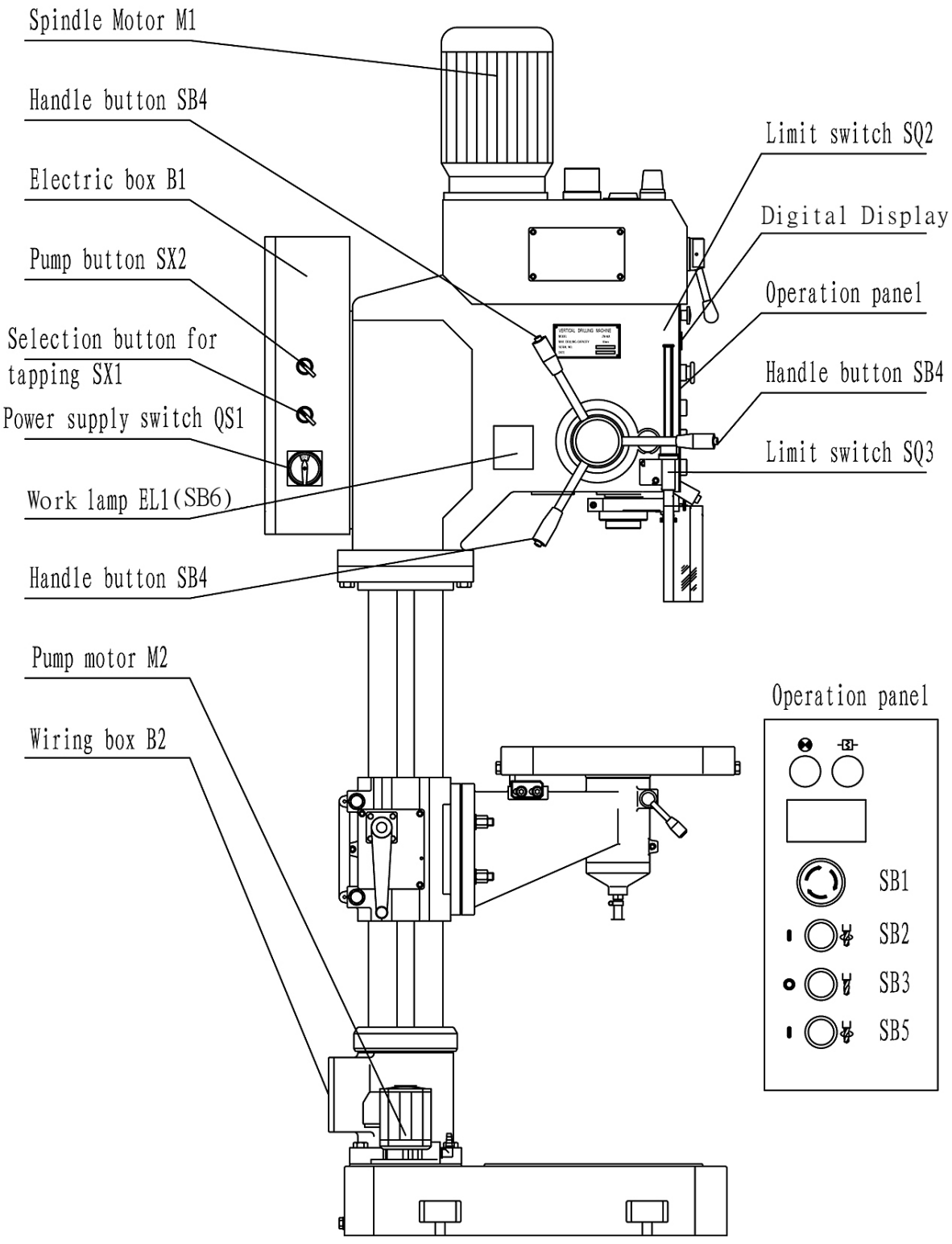
ELECTRICAL COMPONENTS

Item	Description	Specification	Qty.
QF1	Breaker	MS116-6.3	1
QF2	Breaker	MS116-1.0, MS116-0.63/1A	1
QS1	Instruction switch	JCH13-20	1
SX1, 2	Selection switch	C2SS2-10B-10	2
SB1	Emergency stop button	MPMT3-10R, MCBH-00, MCB-01	1, 1, 2
SB2, SB5	Push button	GQ22-11E/G/24V/S	2
SB3	Push button	GQ22-11E/R/24V/S	1
SB4	Push button		1
SQ1	Micro switch	LXP1-020-0A	1
SQ2, SQ3	Proximity Switch	TL-Q5MC1	2
SQ4	Door switch	JWM6-11A	1
KM1-5	Contactor	A12-30-01 (AC24V)	5
HL1	Single for power	GQ16T-D/L/W/24V/S	1
HL2	Single for clutch	GQ16T-D/L/G/24V/S	1
EL1	Illuminating light	AC24 V,25W	1
T1	Transformer	JBK5-160TH 220/24,27,27,9	1
R1	Resistor	RT 2W62Ω	1
V1	Diode	IN5404	1
U1	Micro-electronic Multifunctional Relay	WJ1-9/ 9FA	1
RVP1	Tachometer	RSD-28	1
FU11-FU13	Fuse	25A	3

ELECTRICAL COMPONENT LOCATION



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