



# OPERATOR'S MANUAL

Metal Working



## MAGNETIC DRILL PRESS MODEL: MD-5015

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## THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial Holdings LLC. 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 an 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 10 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, (e) 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 INCIDENTAL, 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 Majeure.** 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 Holdings LLC 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 Holdings LLC 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](mailto:sales@baileigh.com)



## **INTRODUCTION**

*The quality and reliability of the components assembled on a Baileigh Industrial Holdings LLC 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 Holdings LLC 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.



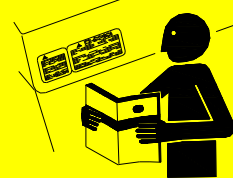
**Note:** This symbol refers to useful information throughout the manual.



## 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.

**DANGER**

**WARNING**

**CAUTION**

**NOTICE**

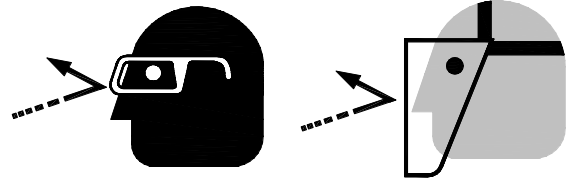


**SAVE THESE INSTRUCTIONS.**  
**Refer to them often and use them to instruct others.**



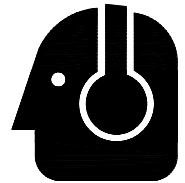
**PROTECT EYES**

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



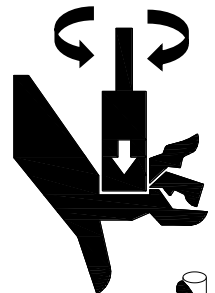
**PROTECT AGAINST NOISE**

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**

**NEVER** place Keep hands, fingers, or any part of your body away from rotating tooling bit.



**ENTANGLEMENT HAZARD – ROTATING SPINDLE**

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



Wear Eye Protection



Read Manual



Wear Ear Protection



Wear Respiratory Protection



## **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!**

**FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.

**Only trained and qualified personnel can operate this machine.**

**Make sure guards are in place and in proper working order before operating machinery.**

**Turn off** main power to the machine and wait for the drill bit, or cutting tool to stop turning before removing debris, removing or securing the piece part, or changing the position of the work table.

**Avoid accidental starts!** Be sure switch is off before plugging in. Unplug the drill and keep finger **OFF** the switch when moving and positioning.

**Properly lock** the drill bit or cutting tool in the chuck before operating the machine.





**DO NOT** use electrically powered tools in the presence of flammable gases or liquids. Power tools create sparks that may ignite flammable materials or gases.

**Tooling adjustments and maintenance.** Always keep tooling sharp and properly adjusted for optimum performance.

**Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.

**Keep work area clean.** Cluttered areas invite injuries.

**Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.

**Dressing material edges.** Always chamfer and deburr all sharp edges.

**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.

**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.

**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.

**Use eye and ear protection.** Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.

**Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.

**Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.

**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.

**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.

**Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.

**Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.

**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.

**Turn off** power before checking, cleaning, or replacing any parts.



Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.

Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!** **DO NOT** touch live electrical components or parts.

**DO NOT** bypass or defeat any safety interlock systems.

Keep visitors a safe distance from the work area.

## **TECHNICAL SPECIFICATIONS**

Drill Capacity	1.25" (32mm)
Maximum Stroke	6.69" (170mm)
Cutter Depth	3" (75mm)
Annular Cutter Capacity	1.97" (50mm)
Tool Holder	MT3
Material Thickness	0.39" – 2.95" (10 – 75mm)
Magnet Footprint	8.26" x 3.93" x 1.77" (210 x 100 x 45mm)
Magnetic Adhesion	15000N
No Load RPM	250/450
Power Requirements	110V 60hz 1500W (17A)
Weight	64lbs (19kgs)

## **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@baileigh.com](mailto:sales@baileigh.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.*



## 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.


### Packing list

1 each of:

Plastic Packing Case, Coolant Bottle and Hose, Safety Strap, 2.5mm, 5.0mm, and 6.0mm Allen wrenches, Arbor, and Drill

### 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.



## INSTALLATION

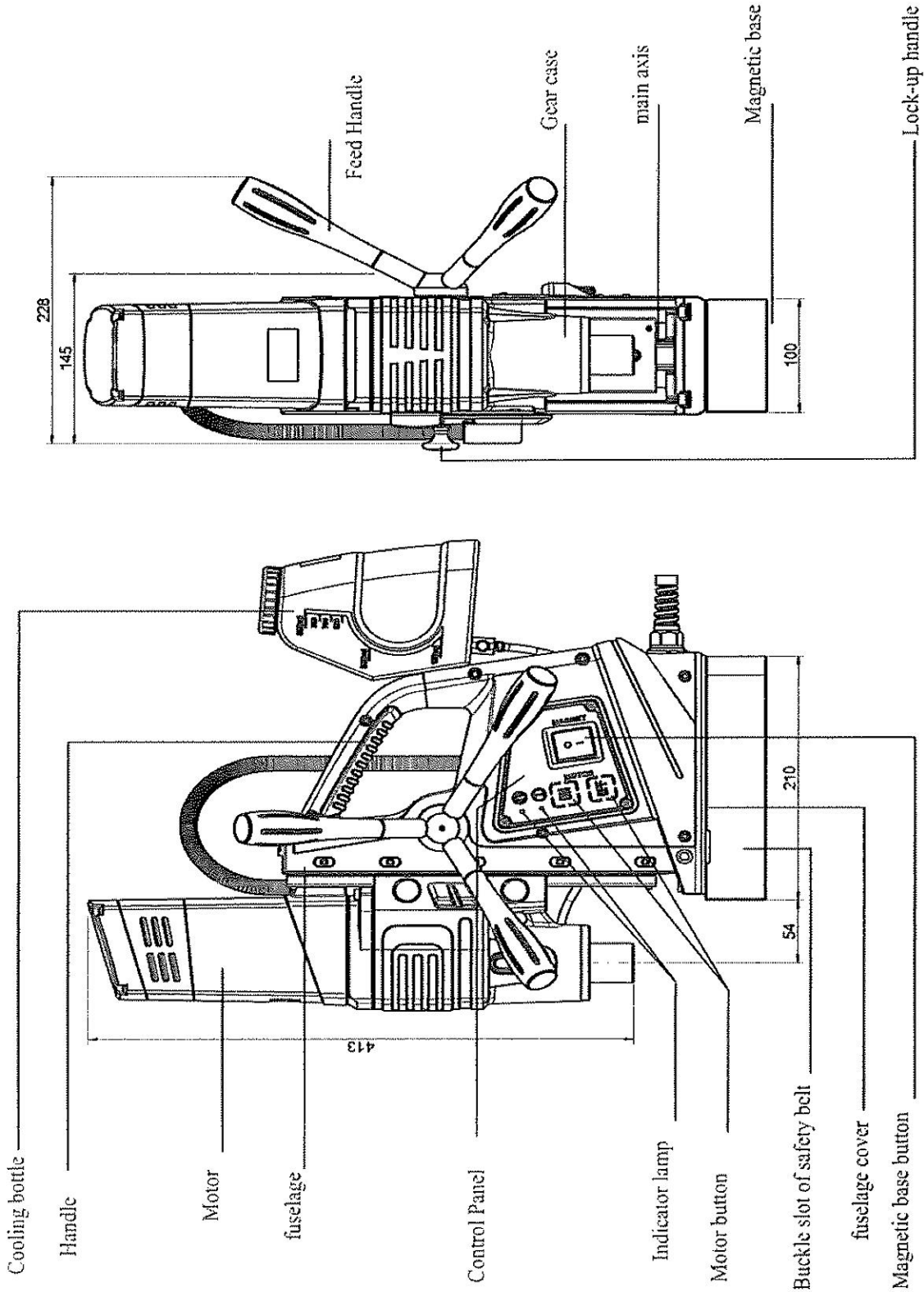
### **IMPORTANT:**

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, worktables, 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.



## GETTING TO KNOW YOUR MACHINE





## ELECTRICAL

**⚠ 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 tool is wired for 110 volts, 60Hz alternating current. Before connecting the tool to the power source, make sure the machine is cut off from power source.

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  $\pm 5\%$ , and for the frequency is  $\pm 1\%$ .

### Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with a amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your tools. 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 tool.
- 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 tool 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 tool is properly grounded.
- Repair or replace damaged or worn cord immediately.

### **Extension Cord Safety**

Extension cord should be in good condition and meet the minimum wire gauge requirements listed below:

AMP RATING	LENGTH		
	25ft	50ft	100ft
1-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No
WIRE GAUGE			

An undersized cord decreases line voltage, causing loss of power and overheating. All cords should use a ground wire and plug pin. Replace any damaged cords immediately.

### **Power cord connection:**

- Unwrap the power cord and 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 is a way that does NOT create a trip hazard.
- Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
- When the machine is clear of any obstruction. The main power switch may be turn ON to test the operation. Turn the switch OFF when the machine is not in operation.



## DAILY TOOL USE AND CARE REQUIREMENTS

- **DO NOT** touch the cutter while it is in motion. Always follow the personal protection equipment recommendations while operating this tool.
- Always use both hands to operate the tool.
- Always ensure that the material you are working on is securely clamped.
- Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
- When the cut is complete or when stopping the cut for any reason, always turn power OFF to the drill first. Do not turn power off to the magnet until the drill is secured.
- Do not use tool if switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.
- Use only accessories that are recommended by the manufacturer for your model. Accessories suitable for one tool may become hazardous when used on another tool.
- Always use safety strap as magnetic mounting can release. Magnetic force will weaken with usage and increased heat. Allow to cool to regain magnetic force.
- This tool is equipped with an approved cord and plug for its intended use. The green conductor in the cord is the grounding wire. Never connect this to a live terminal.
- Remove plug from power supply before replacement of the cutter, making adjustments or other maintenance work.
- We recommend the use of sharp high quality cutters with no visible defects.
- Inspect the machine and cutter before each use and do not use deformed, cracked, worn or otherwise damaged cutter.
- Ensure the cutter is correctly mounted and do not stop by hand.
- Do not use cutter that do not comply with the characteristics specified in these instructions.
- Ensure that the slides are correctly adjusted before each use. This is essential for proper and safe operation of the machine.
- Always keep the power cord away from moving parts of the tool.





- When you put the tool away, switch off the motor and ensure that all moving parts have come to a complete stop.
- DO NOT weld on any material that the drill is clamped to or drilling on.
- Watch for hidden items behind the area to be machines. Hidden items such as wiring, pipes, or other loose materials. Until you can verify that there is nothing hidden, always proceed as if there are hidden objects.
- When turned ON, the magnetic will produce magnetic fields, affecting some devices, such as watches, mobile phones, pacemakers, etc.
- NEVER turn the magnet OFF when the drill is running. The drill may twist and spin causing damage to the drill and the material and possible injury to the operator and bystanders.

## MACHINE 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.

### Feed Handles

The handles are installed and removed whenever using the case to store and carry the drill.

- Install the handle extension bushing (A) onto each handle (B) and thread the handle into the feed hub (C).
- Hand tighten each handle.





## Tool Attaching

The spindle is of Morse taper MT3 type. It is very important to insert the tool taper correctly in the spindle taper to avoid the tool falling from its housing when turning and cause damage or injury. The coupling system itself of the tool male taper in the female taper of the spindle is auto-locking, but for this to happen correctly, the surfaces of the tool taper and spindle taper must be in direct, full, clean 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.

The arbor included with this drill is an MT3 taper with an adaptor end intended for use with annular cutters. Other drilling devices such as drill chucks are available and may be installed starting with an MT3 taper arbor and the related adaptors as long as the assembly does not exceed the capacity of the drill.

## Tool Use Preparation



**CAUTION:** Turn the main power to the machine **OFF** before inserting or removing any tools.

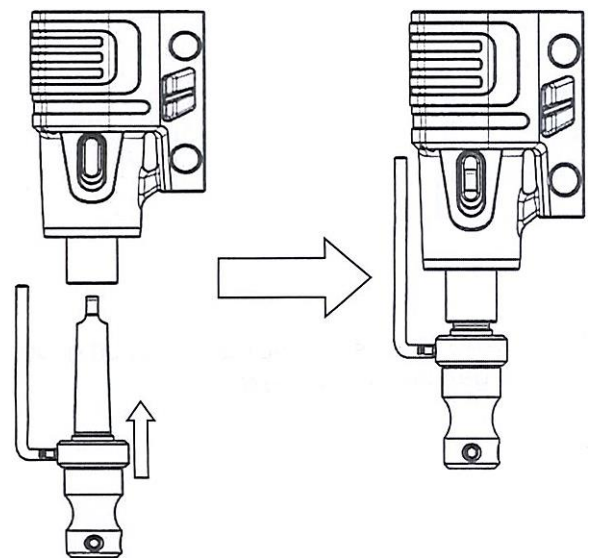
Be sure that the spindle taper and mating tools are in good condition, clean, and dry before use to prevent the tapered fit from falling loose during machining.

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

- To create a secure fit, thoroughly clean the spindle taper and any tools that are being put into use.
- 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.
- Install the arbor into the spindle taking care to align the tang of the arbor into the slot inside of the spindle.
- Use a soft mallet to carefully tap the arbor up into the spindle to secure the tapers for a solid friction fit.



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

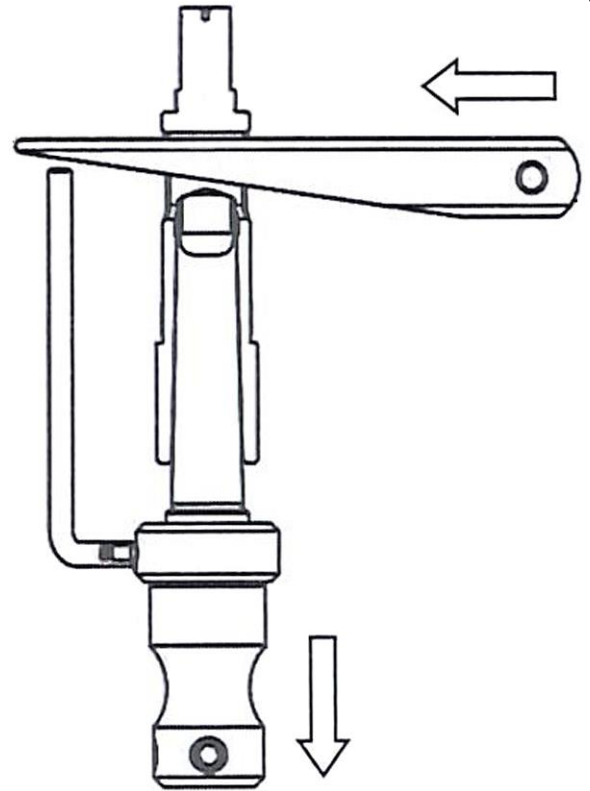




### Arbor Disassemble

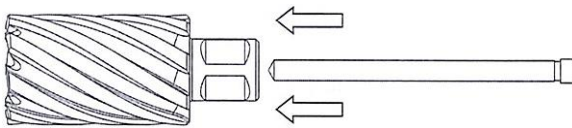
Turn the main power to the machine **OFF**.

- Place a piece of wood on the table for protection.
- Position the drill with the arbor over a soft yet sturdy surface such as wood or similar. This will be to catch the arbor and prevent damage to the taper.
- Rotate the spindle by hand to align the drift key slot.
- Place the drift key into the slot of the spindle and tap the end of the drift key with a hammer until the bit or arbor falls out.



### Installing Annular Cutters

- Insert the pilot pin into the shank bore of annular cutter as shown.



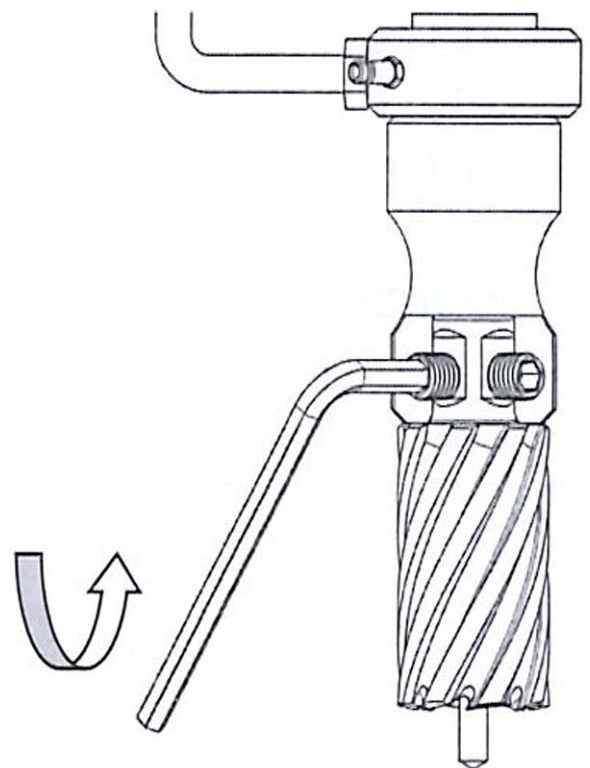
- Slide the cutter into the adaptor. Align the proper flat with the locking screw and tighten securely with the supplied hex wrench.



**IMPORTANT:** Ensure that the locking screw is on a flat of the cutter and not just against the rounded shank.

To remove cutter, reverse the procedure.

Ensure that the coolant feed tap is on and coolant feeds properly by pushing the pilot pin. If it feeds too quickly or slowly, adjust the tap accordingly. Keep the tap closed when not in use.





## **Drilling Operation Guide**

### **Drilling hints**

- Position the drill with the pilot pin at the center point of the hole.
- Securely clamp the drill.
- Drilling the hole typically has a three-step feed rate. Slow, Normal, Slow. Start drilling slowly until the hole is formed and about 1/32" to 1/16" deep. Increase the feed pressure watching the chips for good crisp shape and size. Just before the drill breaks through the material, about 1/16" to 1/32" from completion, slow the feed again to reduce the chance for tear out and jamming.
- Annular cutter should always be used with coolant. This may be flood or mist coolant depending upon the application and position of the hole.
- The best cooling method is with flood cooling from the onboard container. The flow of coolant should be not less than 40 cc/min.
- For those materials which create a large amount of fine powder, such as cast iron, cast copper, coolant may not be used. Instead, compressed air can be used for chip removal.
- In the process of drilling, use the cutting fluid to act as a coolant to ensure that the processing is cooled fully. Without the cutting fluid, it will seriously affect the life of the drill.
- Pay attention whether chips removal is smooth during drilling process. In case of chips stuck or excessive chips winding, withdraw the cutter and remove chip to avoid cutter damage due to squeezing.
- In case of slug sticking in the inner bore of cutter, to avoid bit blade tap the cutter body with a metalloid bar till the slug drop off. Never use hard objects to tap the edges of teeth which will damage the sharpening edges.

Slug sticking occurs due to the following:

No.	Trouble spots	Solution
1	Edges of teeth dull or damage	Replace a new cutter
2	Gap of slideway is too large	Reduce gap of slideway
3	Cooling is not sufficient	Increase the flow of coolant
4	Feeding too large or too hard when drilling through steel plate	Slow down
5	Spring of arbor breaks	Replace new spring

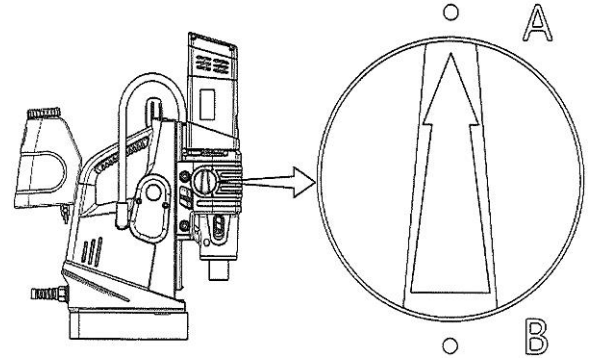
- Always clean and remove iron filing and chips from the magnet to avoid reducing the magnetic adhesion force.
- When filled with coolant container, remove the container and fill away from the drill to prevent coolant from spilling into the and damaging the drill.



## Gear Selection

Gear box gear shift rotary knob has two positions. In the up “A” position, the speed is 450rpm. In the down “B” position, the speed is 250rpm.

When using annular cutter to drill steel, refer to the recommended speeds from the following tables.



Recommended cutting parameters table of HSS annular cutter

Gear selection		Material	Feed mm/r	Cooling cc/min
A	B			
Suitable diameter Ø12 - Ø20mm	Suitable diameter Ø20 - Ø 50mm	Low carbon steel	0.1-0.15	40-60
		Medium carbon steel	0.09-0.13	40-60
		High carbon steel	0.08-0.13	80-100
		Alloy structural steel	0.08-0.13	80-100
		Carbon Tool steel	0.08-0.13	80-100
		Cast iron	0.16	No need
		Bronze	0.18	No need
		Titanium alloy	0.08-0.13	Need

Recommended cutting parameters table of TCT annular cutter

Gear selection		Material	Feed mm/r	Cooling
A	B			
Suitable diameter Ø12 – Ø30mm	Suitable diameter Ø30 – Ø50mm	Low carbon steel	0.06-0.1	40-70
		Medium carbon steel	0.06-0.1	40-70
		High carbon steel	0.04-0.08	80-100
		Alloy structural steel	0.06-0.08	80-100
		Carbon Tool steel	0.08-0.12	80-100
		Cast iron	0.06-0.12	No need
		Bronze	0.06-0.12	No need
		Titanium alloy	0.04-0.07	Need



**Note:** The data in the above table just for reference and should be adjusted according to the specific operation.



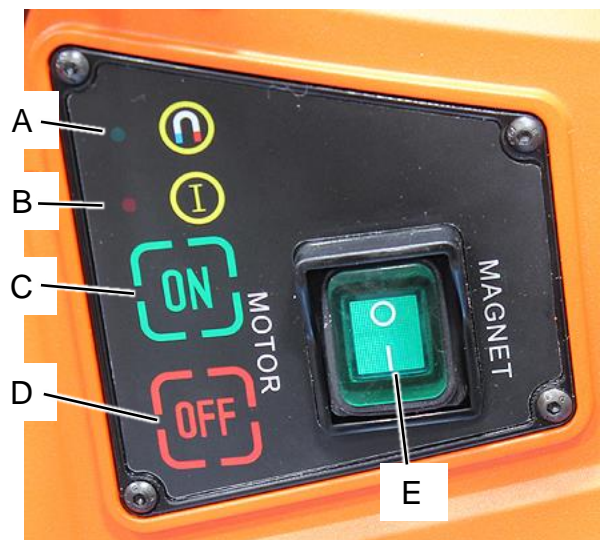
## OPERATION

**⚠ CAUTION:** Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy material make sure they are properly supported.

### Switching On and Off

A	Magnetic Adhesion Light
B	Overcurrent alarm indicator light
C	Motor control button (green "turn on")
D	Motor control button (red "turn off")
E	Magnetic base control button (with light)

- Checking that the power cord is undamaged and then connect to the rated power source.
- Press the Magnet Rocker Switch to the On position. The switch will illuminate green indicating that the magnet is energized.
- Verify that the spindle is clear and press the green Motor "On" button to start and run the drill motor. Notice that the drill motor has a built in 1 – 2 second time delay until the drill reaches full rpm. At this time the drill motor is running and the magnetic reaches the maximum adhesion.
- The sequence for turning off the drill is the opposite from starting up. First press the red motor "OFF " button to turn off the motor, then only when the drill is secured and supported by the operator, turn off the magnet rocker switch.



### Magnetic Base Adhesion

When only the magnet rocker switch is turned On, the magnetic force (adhesion) is limited to about 70% of the normal working state. This is called half adhesion and is used to limit the heat buildup in the magnet which will weaken the magnet.

When the drill is started and running, the magnetic force will increase to 100% or full adhesion. If the magnetic base is damaged, the motor will not start.

The advantage of half suction and full suction function is to lengthen the service life of magnetic and improve the safety.



## Drilling

This machine is designed specifically for drilling holes in mild steel using the appropriate cutters and accessories. It should not be modified or used for any application other than for which it was intended, including powering other equipment.

Ensure that the total work area can be viewed from the operating position. Use barriers to keep people away.

- Check that the coolant level and the feed rate are sufficient to complete the hole to be drilled.
  - a. It is recommended to always use coolant. However;
  - b. Coolant from the feed bottle should not be used if the drill is being used on any application where the drill chuck is horizontal or in any upward angle. The coolant will drain back into the drill body and damage the drill. This is not covered under warranty. In these applications it is recommended to use a separated spray mist coolant rather than a flood coolant.

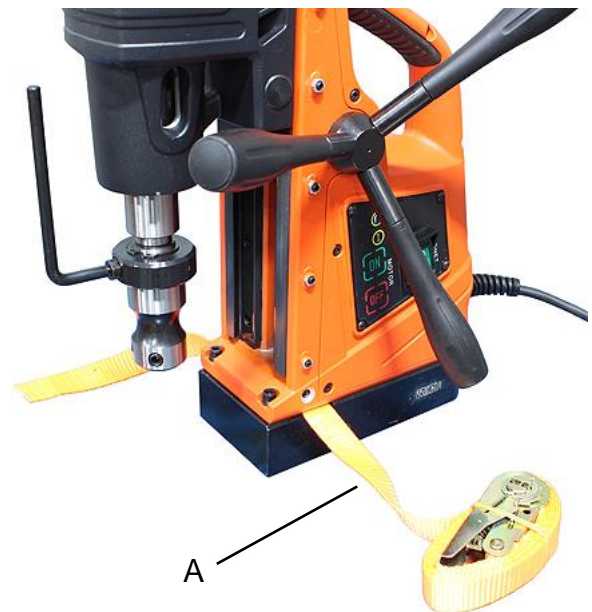
Install the desired bit or cutter for the operation.

Verify that the magnet is clean and free of metal chips and other dirt and debris. These will seriously reduce the magnetic adhesion.



**IMPORTANT:** *The drill's magnetic adhesion depends on the thickness of the work piece. 0.39" – 2.95" (10 – 75mm) is optimum thickness for safe operation. If the material is less than 0.39" (10mm) thick, the material may not produce enough magnetic adhesion. In some cases adding a backer plate under the magnet on the back side of the work piece may*

- Position the drill to center the tool over the cut location.
- Secure the drill from falling by using the safety strap (A). **ALWAYS!**





- Switch on the magnet and check that the cutter is still in the correct position and the machine is securely held to the work piece.

Ensure that the magnet has adhered to the work piece firmly before switch on the drill.  
Always use the supply safety strap.

- With the motor head in the raised position, switch on the motor and allow it to come up to full speed.
- Turn the crank handle to begin cutting use light pressure at first to keep bit from wandering, and then continue with normal pressure.

Do not force the tool. Let the speed of the cutter do the work. Cutting performance will not improve by applying more pressure on tool and cutter and motor life will be reduced.

- When the cut is complete, turn off the drill and allow the tool to come to complete stop.
- Secure the drill and then remove the safety strap and turn off the magnet.
- Place the drill in a safe location to prevent dropping or falling.

### **Slide Plate Lock**

The slide plate lock pin is located on the opposite side of the case from the control panel.

Pull the lock pin out to lock the slide plate in the current position. If needed move the feed handle slightly to align the lock pin to a lock position.

When the lock is not longed needed, push the pin in and the feed handle will again move the drill up or down.







## **MAINTENANCE AND LUBRICATION**

When servicing a tool, use only identical replacement parts. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.



**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.

### **Daily Maintenance**

- Inspect the power plug and cord.
- Keep area around machine clear of debris.
- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.

### **Regular Maintenance (Weekly – Monthly)**

- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Clean the machine and accessories.

### **Semi-Annually Maintenance**

- Check that all fasteners on the machine are tight and secure.
- Lubricate the gear rack and the slide ways so the drill moves up and down smoothly.
- Check the brushes for wear and replace when they reach 1/4" (6.3mm).

### **Troubleshooting**

In case of electrical or mechanical malfunction, immediately switch off the tool and disconnect the plug. Excessive sparking may indicate the presence of dirt in the stator or worn out carbon brushes.



**Note:** *Proper maintenance can increase the life expectancy of your machine.*



### **Issue and Items Not covered by warranty:**

- Opening of the drill case.
- Normal wear items, and abnormal wear caused by overuse of parts.
- Damaged caused by the use of unstable voltage, or rated voltage doesn't meet to the requirement of equipment.
- Customer disassembly and work on the circuit board. Damage to the magnetic drill caused by the wrong connection(s).
- Carbon brush(s) not changed in time thus damaging the commutator.
- Spare part from other source.
- Physical damage from dropping, or malfunction caused by improper use.

### **Adjusting Slides Free Play**

Periodically check, lubricate, and adjust the gibs as necessary.

- To adjust, use a wrench to loosen the lock nuts (A).
- Using the supplied hex key, adjust the screws evenly while moving the handle up and down so that there is no free play, yet no blinding anywhere through its range of travel.
- Tighten the lock nuts.

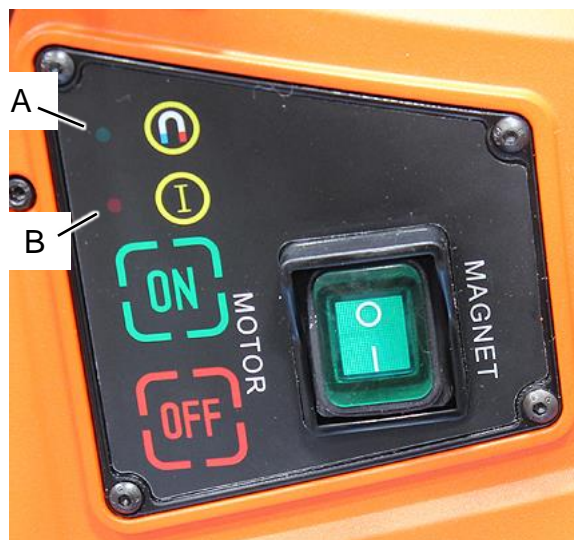




### Magnetic Adhesion Indication

When the magnetic drilling machine on working:

- The adhesion of the magnet reaches the requirement of drilling hole, the magnet indicator light of control panel will be green normally on state.
- When the magnet indicator light is red flashing, it is warning that the magnetic adhesion has failed to reach full strength.
- The following items may be the cause:
  - The thickness of the material is too thin to meet the requirements of use.
  - The surface of the material has a welding scar or a thicker paint.
  - material surface is roughness.
  - The bottom of magnetic base has iron and impurities.



**CAUTION:** If the magnet indicator light changes to flashing red during operation, the operator shall immediately stop the drilling operation and correct the conditions which cause the drill to have poor magnetic adhesion. Failure to maintain full green light magnet indicator operation may allow the drill to break loose and cause damage and or serious injury.

### Motor Overcurrent Alarm Indicator

During operation, when the motor power is within nominal range, the overcurrent alarm indicator light (B) on the control panel will be OFF.

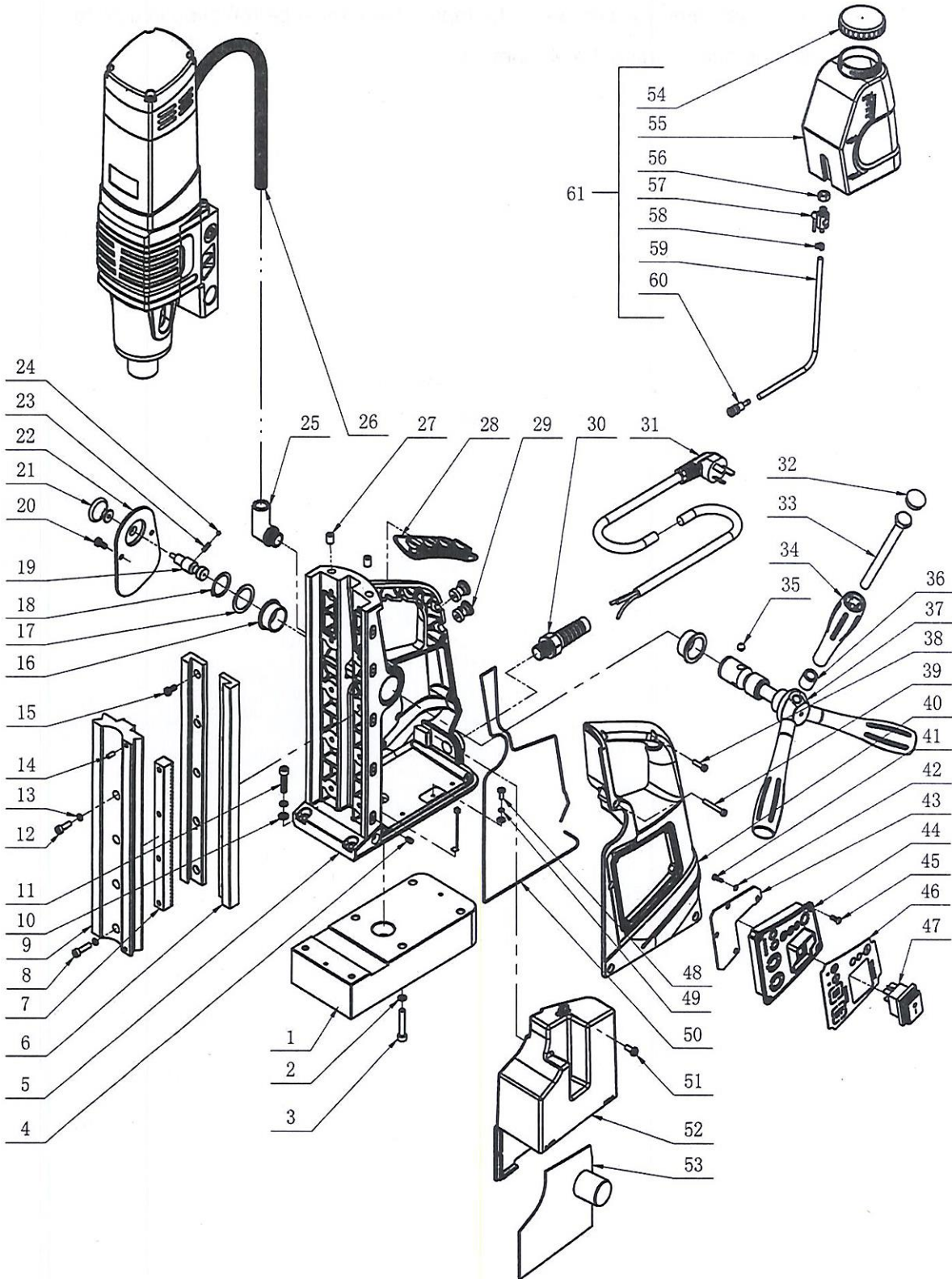
As the drill is being used if the operator is nearing the overcurrent limit, the overcurrent alarm indicator light will begin to flicker as a reminder to the operator to reduce the feed rate. As the operator reduces the feed rate and the current lowers back to the normal range, the light will again turn off.

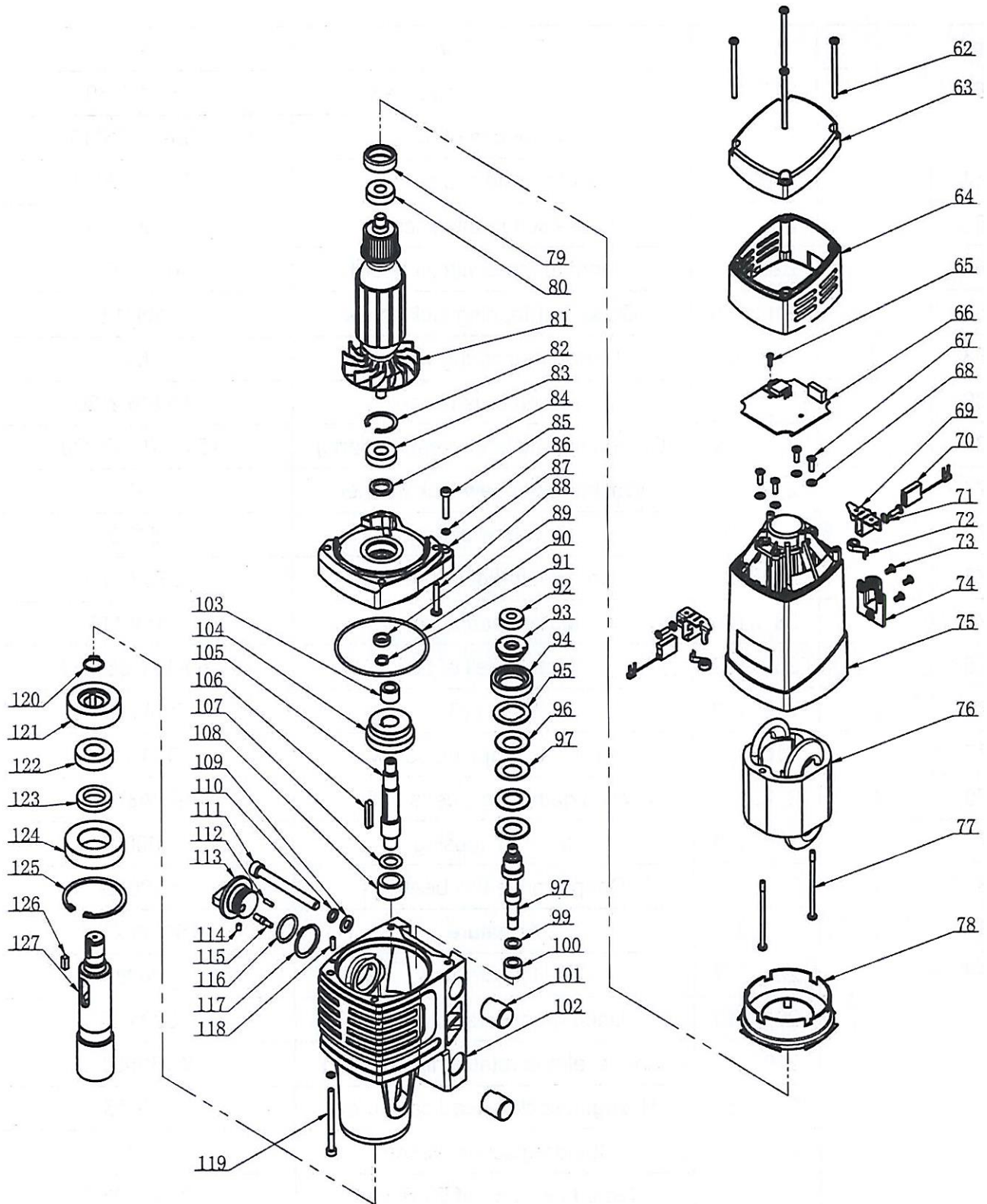
When the motor power exceeds the allowable current limit, the motor stop as a protective step. The over current alarm indicator light will be illuminated red.

The operator may remove the load from the drill and then when the drill or cutter is safely clear of obstructions, they press the motor control green "ON" button to restart the motor.



# DRILL PARTS DIAGRAM







### Drill Parts List

Item	Qty.	Part#	Description	Size
1	1	2303167	Magnetic Base	97*210*46 220V
2	6	2103010	Standard Spring Washer	M6
3	6	2102189	Hexagon Socket Head Cap Screws	M6*30
4	5	2102061	Hexagon Round Head Screws	M5*8
5	1	2303158	Fuselage	50-221*101*324
6	2	2303154	Slideway	16*27*290
7	1	2303153	Rack	15*15*190 m1.5
8	1	2102128	Hexagon Round Head Screws	M5*20
9	1	2303155	DX-50 Skateboard	28*280
10	2	2103011	Flat Washer - A Grade	M6
11	2	2102066	Hexagon Round Head Screws	M6*25
12	3	2102060	Hexagon Round Head Screws	M5*15
13	4	2103008	Standard Spring Washer	M5
14	2	2102057	Hexagon Flat End Tight Screws	M4*10-10.9
15	10	2102059	Hexagon Round Head Screws	M5*10
16	2	2303130	Feed Shaft Sleeve	Ø35* Ø25*15
17	1	2303201	Flat Gasket	Ø2 5* Ø33*1
18	1	2101005	Shaft Elastic Ring - B Type	Ø25
19	1	2303177	Lock Clutch Shaft	Ø14*53.5
20	2	2102040	Hexagon Round Head Screws	M5*10
21	1	2303176	Lock Handle	Ø25*10
22	1	2303170	Cover Plate	112*68*8
23	1	2106073	Cylindrical Compression Spring	Ø3.8* Ø0.6*13
24	1	2105004	Round Steel Ball	Ø4
25	1	2202020	Corner Joint	ZT-M16-E-AD13
26	0.6	2603018	Flex Conduit	Ø13
27	2	2303205	Pressure Oil Ring	Ø8*10
28	1	2303132	Handle Cover	109*44*20
29	2	2303129	Fixed Link of Cooling Kettle	Ø17*20
30	1	2202019	Durable Twisting Connector	MA16-P-10
31	1		Power Cord	220V 1mm2
32	3	2303030	Feed Handle Cap	Ø20*9
33	3	2102145	Hexagon Head Bolt - C Grade	M10*150



Item	Qty.	Part#	Description	Size
34	3	2303029	Feed Handle	Ø1 0* Ø30*120
35	3	2105005	Round Steel Ball	Ø8
36	3	2303174	Handle Extend Cover	Ø16* Ø10*38
37	1	2303160	50 Feed Gear Shaft	Ø40*121.5 z14m1.5
38	7	2102125	Hexagon Round Head Screws	M4*15
39	1	2102126	Hexagon Round Head Screws	M4*30
40	1	2303159	50 The Fuselage Cover (Orange)	50-185*51*304
41	4	2102134	Cross Recess Pan Self-Tapping Screw	ST2.9*10
42	4	2103017	Small Washer Level A (Plastic)	Ø3
43	1	2204017	Standard Type Switch Circuit Board	88*38 220V
44	1	2303131	Control Panel	103*98*29
45	4	2102056	Hexagon Flat& Round Heap Cap Screw	M4*10
46	1	2303208	Standard Type Switch Thin Film	92.6*95*0.5
47	1	2303203	Waterproof Rocker Switch (Red Light)	KCD2
48	1	2102079	Cross Recess Pan Head Screw	M4*10
49	1	2103006	Standard Type Spring Washer	M4
50	0.95	2104049	Gasket (O-Ring)	Ø1.8*0.95
51	1	2102136	Cross Recess Pan Head Screw	M5*12
52	1	2303133	Circuit Board Box	138*72*133
53	1	2204018	Standard Type Master Control Circuit Board	133*118 220V
54	1	2303128	Cooling Pot Cap	Ø58*12
55	1	2303127	Cooling Pot	850ml
56	1	2611208	Hexagon Thin Nuts	M8*1
57	1	2399031	Valve Aluminum Joint	Ø15.5*37-90
58	1	2199013	Steel Band Elastic Ring Hoop	Ø6
59	0.4	2499001	PU Tube	6*4
60	1	2611207	Water Nozzle (Single Seal Belt with Spring)	4mm
61	1	2303190	Water Bottle Assembly	850ml
62	4	2102133	Cross Self-Tapping Screw	ST4.2*60
63	1	2303120	Motor Cap Of 50	50-86*86*45
64	1	2303121	Motor Wind Cap Of 50	50-88*88*61
65	2	2102134	Cross Self-Tapping Screw	ST2.9*10
66	1	2204016	Standard Motor Circuit Board	70*70 220V



Item	Qty.	Part#	Description	Size
67	6	2102058	Cross Self-Tapping Lock Screw	M4*12
68	4	2103007	Corrugated Spring Washer	M4
69	2	2303141	Carbon Brush Base	15.8*6.2*20
70	2	2303139	Carbon Brush (Note: Wearing Parts)	15.8*20*6.2 220V
71	3	2103016	Washer Outer Saw Lock Washer	4
72	2	2299005	Flat Spiral Spring	5*0.3
73	3	2102187	Cross Self-Tapping Screw	ST3.5*9.5
74	1	2303126	Motor Head Cover	34*40*13
75	1	2303122	Motor Shell Of 50	50-101*96*167
76	1	2299013	Field Coil	1500W 220V
77	2	2102137	Cross Self-Tapping Screw	ST4.2*70
78	1	2303123	Wind Gathering Sleeve Of 50	50-Ø87*43
79	1	2303143	Bearing Housing	6000
80	1	2105011	Deep Groove Ball Bearings	6000ZZ
81	1	2299015	Armature	1500W 220V
82	1	2601282	Hole Circlip	Ø28
83	1	2611013	Deep Groove Ball Bearings	6001ZZ
84	1	2104041	Inner Skeleton Rotating Lip Seal Ring	Ø15* Ø21*3
85	2	2102151	Hexagon Socket Head Cap Screw	M5*25
86	4	2103008	Standard Spring Washer	MS
87	1	2303152	Gear Box Cover Of 50(B1ack)	50-106*96*35
88	4	2102138	Cross Self-Tapping Screw	ST4.8*30
89	1	2303164	Field Coil	Ø10* Ø15*4.5
90	1	2104053	O-Ring	Ø84* Ø2
91	1	2103014	Shaft Circlip-B Type	Ø10
92	1	2611014	Deep Groove Ball Bearings	608ZZ
93	1	2303238	Friction Clutch Copper Sleeve	Ø29*9.5 M16*1.5
94	1	2303237	Clutch Gear Shaft	z44m 0.8h8
95	1	2303241	Friction Copper Spacer	Ø33*1.5
96	3	2106076	Belleville Spring	Ø31.5*16.2*1.25
97	1	2106074	Belleville Spring	Ø31.5*16.8*0.8
98	1	2303144	1# Drive Gear Shaft	z17m1h7/z10m1h9
99	1	2103019	Flat Washer	Ø15* Ø9.2*1
100	1	2105019	Single Row Needle Roller Bearing	NK 9/12
101	2	2303012	Clamping Block	Ø20*24





Item	Qty.	Part#	Description	Size
102	1	2303151	Gear Box Of 50 (Black)	50-117*98*164
103	1	2105018	Single Row Needle Roller Bearing	NK 10/12
104	1	2303175	Duplicate Gear	z34m1h6.3/z41m1h8
105	1	2303147	2# Drive Gear Shaft	z13m1h16.5
106	1	2303172	Flat Key	A5*5*28
107	1	2103018	Flat Washer	Ø21* Ø12.2*1
108	1	2105020	Roller Bearing	NA4901
109	2	2103012	Flat Washer-A Stage	M8
110	2	2103013	Standard Spring Washer	M8
111	2	2102129	Hexagon Socket Set Screw (10.9 Gr)	M8*75
112	1	2101056	Cylindrical Pin	Ø3*10
113	1	2303157	Shift Knob Of 50	Ø39.6*31
114	1	2303206	Pressed Ball Head Plunger	4
115	1	2303156	Shift Shifter Lever Of 50	Ø6*21.5 M5
116	1	2104044	O-Ring	Ø21.2* Ø2.65
117	1	2101051	Shaft Circlip-A Type	26
118	1	2101034	Cylindrical Pin	Ø4*12
119	2	2102127	Hexagon Socket Head Cap Screw	M5*60
120	1	2101059	Shaft Circlip-B Type	Ø17
121	1	2303163	Shaft Gear Of 50	z45m1h15
122	1	2105007	Deep Groove Ball Bearings	6003 2R
123	1	2104042	Inner Skeleton Rotating Lip Seal Ring	Ø20* Ø32*6
124	1	2105010	Deep Groove Ball Bearings	6006ZZ
125	1	2601288	Hole Circlip-A Type	Ø55
126	1	2303173	Flat Key	B5*5*12
127	1	2303166	Output Shaft Of 50	Ø34*145 MT3



NOTES



NOTES



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