

# Polymak<sup>®</sup>

Solutions Provider For Industry & Trade

## MAGNETIC DRILL

### PM6023-HD PM6028-HD

#### INSTRUCTION MANUAL

# Polymak<sup>®</sup>

Solutions Provider For Industry & Trade

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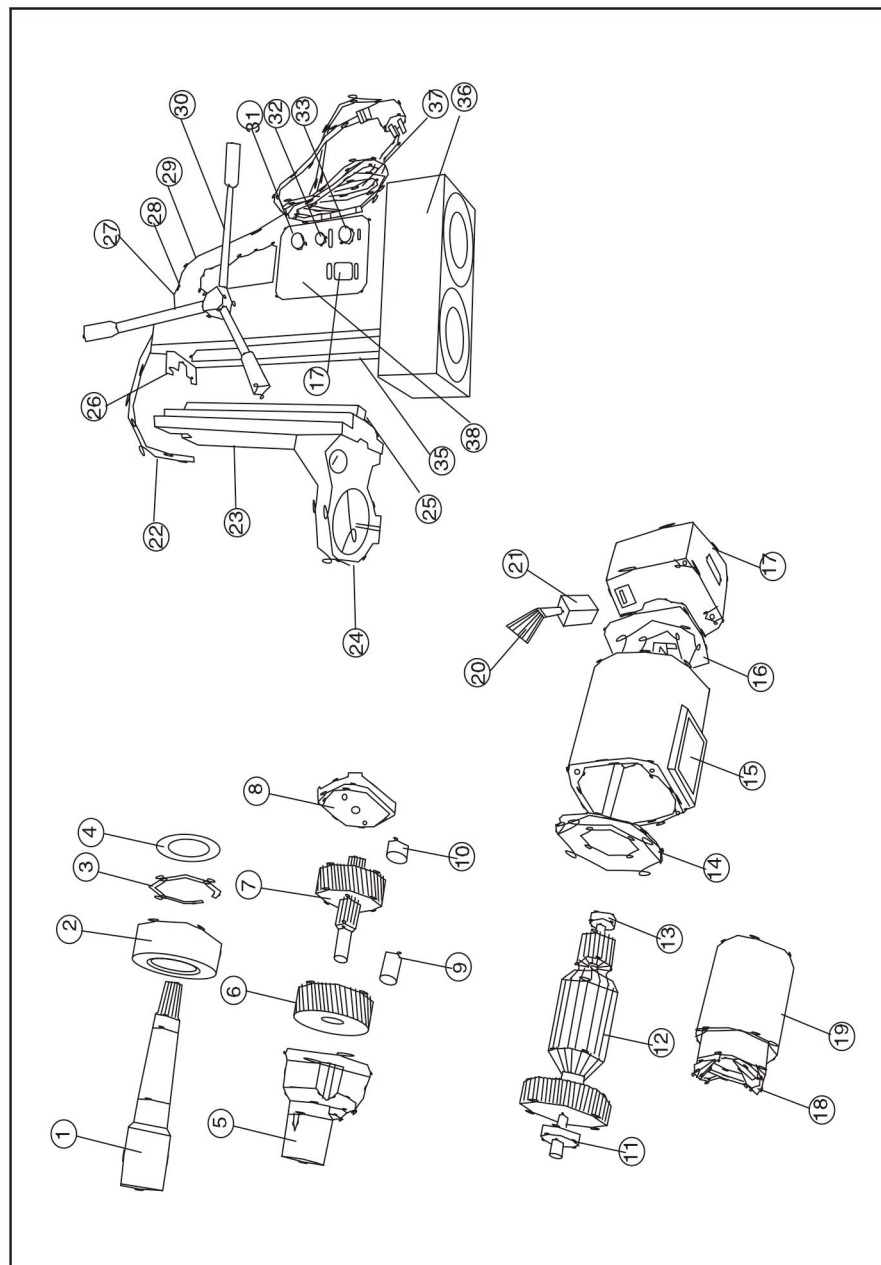
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Read and follow all safety precautions in instruction manual.



## PARTS LIST of the Mod. ELECTRIC DRILL

NO.	Code	Name	Remark	NO.	Code	Name	Remark
1	133065	Spindle		26	110204	Bracket cover	
2	211080	Bearing		27	110205	Bracket	
3	252019	Retainer		28	310216	Screw	
4	114058	Dust mat		29	133071	Lift spindle	
5	162055B	Gear box		30	110206	lifting handle	
6	136059	Big flat gear		31	430021	light indicator	
7	136060	Cluster bearing		32	430022	Block	
8	163028B	Medial plate		33	445080	Magnet switch	
9	212024	Bearing	942/10	34	445081	swich	
10	212025	Bearing	941/10	35	160051	Alu.Adjusting slider	
11	211043	Bearing		36	182035	Electromagnet	
12	442102	Amature		37	412035	Power cord	
13	211029	Bearing		38	430023B	Cricuit pand assembly	
14	321047	Air deflector		39			
15	164015	Air deflector		40			
16	310190	Field coil bracket		41			
17	160039	Bracket housing		42			
18	441103	Field coil		43			
19	310191	Field coil sleeve		44			
20	431049	carbon brush		45			
21	432031	Brush holder		46			
22	332018	Cord sleeve		47			
23	160040	Aluminum bracket		48			
24	110183B	Clamp bracker		49			
25	138001	Rack		50			

## Original instruction

### GENERAL SAFETY INSTRUCTIONS

- ◆ Listed below are common subject to the safety precautions when using our tools.
  - ◆ Please be sure to carefully read through before using; and please preserve this instruction properly after reading.
  - ◆ Please be absolute compliance with safety precautions during using to prevent fire, electric shock, personal injury and other accidents.
1. Keep the work area clean. Disorganization easily leads to accidents.
  2. Please pay attention to the work environment. Do not expose your equipment to rain, or not use in damp or wet locations, or not use in flammable liquids and gases.
  3. Please guard against electric shock. Avoid body contact with earthed or grounded Specialty Products such as pipes, heating, refrigerators, etc.
  4. Beware children. Children should be kept out of the work area. Any bystanders should keep safe distance.
  5. Store the tool. The equipment should be packed away in a dry locate, which won't be reached by children. Power tools should be locked when convenient.
  6. Do not force the equipment. The equipment will do a better and safer job and give you much better service if it is used at the rate for which it is designed.
  7. Use the right tool: Do not use small tools or accessories for the heavy job.
  8. Watch clothing. Do not wear loose clothing, Jeweler or anything that could get caught in moving machinery. Rubber gloves and non-slip rubber shoes shall be wore in outdoor work. Long hair should be contained in a protective covering.
  9. Always wear appropriate safety equipment. Use safety goggles while operating.
  10. Protection of cables: Do not take the cable to bring power tools and pull the plug from the power. The cable should be kept away from heat, oil, and avoid contacting with sharp objects.
  11. Fixed work: use clamps or bench vice clamping before operations, so that is more secure than using your hand. Meanwhile hands can concentrate on operating tool.
  12. Stand dependable: Be dependable while operations, pay attention to keep proper footing and balance.
  13. Proper maintenance of tools: Keep tools clean and sharp in order to fully utilize to the function. According to the manual, lubricate and change accessories. Regularly check the cables and extension cables, the damage to be replaced immediately. The handle should be kept clean, dry and non-stick oil spill.
  14. Promptly cut off the power: to develop the habit of promptly cut off the power before the rest or replace accessories (grinding wheel, drill, etc.).
  15. Remove the wrench: remove adjusting keys or wrenches before boot.
  16. Avoid accidental starting: Never place your hand near the switch while plug in the power tool is moved; Ensure the switch is turned off.
  17. Use extended conductor outdoors, Extend conducting wires must be used when using the tools outdoors.
  18. Keep cool-mind at work. Concentrate on the work piece and the tool when performing the job. Never use the equipment when fatigue.
  19. Check damaged parts and accessories: Before continuing to use power tools, parts, accessories and protective equipment should be carefully checked for no damage to decide whether to competent to work. Check the moving parts and other effects of operating conditions, unless specified in the operating manual, The damaged parts should be replaced in the service center. When the power switch is not working, please repair.

- 20 Warning. The use of any non-original accessories other than those recommended in this instruction manual could result in damage to the equipment and injury to the operator.
21. Supply voltage: Pay attention to match the supply voltage and the voltage of the tool nameplate ( $\pm 5\%$ ). When the supply voltage is higher than the voltage of the application of the tools, personal accidents may occur and damage the tool. Power supply voltage is lower than the application of the tool voltage, detriment of the motor.

◆ This product complies with GB1396, GB4343, GB17625 national standards.

#### ◆ Additional Instruction

1. Work place should be kept dry and spacious without incidentals.
2. Keep the bits sharp.
3. Spanner and keys should be removed from bits.
4. Do not force the drill. When the operation hindered, kick back the drill to avoid overload. Whenever the speed reduce abnormally, relax the feed immediately. Cut off power supply immediately when the drill suddenly stopped.
5. The power cord must be put behind the back of machine and far away from the bits.
6. Insert to plug into the power socket only the equipment is switched off.
7. Never randomly extend or disconnect the power cord.
8. Rough surface will affect the function. Please check to avoid injury before operation. If necessary, polish the rough position with buffing tool provided.
9. When operate in general place, Please assemble such safe protective measurement as earth protector (including leakage protective plug, socket and so on). If not, operator should wear insulated gloves, insulated shoes or stand on the insulated pad, When operate on good electrical conductivity place such as wet station or metal frame, please assemble earth protector with rated leakage action current $\leq 30\text{mA}$ , reacting time $\leq 0.1\text{S}$ .

#### ◆ Earth system

Proper grounding could reduce the risk of electrical shock. The equipment should be equipped with standard cord and grounding connector in according with local codes. Do not connect the live or neutral wire to the earth terminal of the plug. Grounding outlet should be connected with the continuous earth system. Make sure the jack and lug plate permanent jointed by living cord and put through the earth.

#### ◆ Extension Cord

Use only standard extension cords with grounding plug and socket. Repair or change the cord as damaged.

#### ◆ Electric Safety

Before connecting the equipment with the main supply socket, make sure the source voltage is the same as the designated voltage. When the source voltage higher than designated voltage, it will cause personal injury and damage the equipment. When the source voltage lowers than the designed voltage, it will damage the motor. So do not connect the plug when the source voltage is uncertain.

#### ◆ Warning

When soaking in the sky, carefully tight the safety belt and fix the magnetic drill to prevent it falls down when the power cut-off suddenly.

#### ◆ Maintenance

Warning: Make sure to turn off the switch and pull out the plug before check and maintain.



- (1) Repeat 2 (a、 b、 c)operation;
  - (2) Repeat 1 (c、 d)operation(Note: drilling of scrap iron must be adopted by corresponding prevention measures.);
  - (3) Repeat 2 (f)operation;
4. Other working way: user can flexible use by depending on the work situation, but must consider security.do work in this way).

◆Possible fault and elimination method:

fault	causes	elimination method
1.magnetic seat without suction	1.switch contact undesirable. 2.power broken. 3.fuse burn out fuse burn out. 5.electromagnet short circuit or burn out. 6.circuit board burn out.	1. Repair switch. 2.Repair power. 3.replace fuse. 4.maintenance or replace magnetic seats. 5.Change adsorption face. 6.replace circuit board.
2.Not running after electric drill connection.	1.switch contact undesirable. 2.joint loosening 3.brush and commutator not contact 4.The armature or field coil burn out	1.repair and replace switch. 2.check joint of electric drill . 3.repair or replace brush 4.exchange armature or field.
3.turn the handle rails to let it not move	1.cut shaft key. 2.gear and rack dislocation.	1. replace shaft key . 2.unscrew screws below rack and remove guide plate to repair.
4.magnetic suction small	1.adsorption workpiece thin. 2. adsorption surface small. 3.Strut bar do not top to adsorption face. 4.Diode may be virtual welding.	1.replace adsorption face or thicken adsorption face(thickness $\geq 15\text{mm}$ ) . 2.replace adsorption face or temporary weld thick adsorption face . 3. top strut bar tight. 4.re-welding.
5. drill a elliptic hole	1.loose fasteners because of drill vibration 2.sundry on the adsorption face	1.regulate vertical thickness and tighten firmware 2.re-grinding 3.eliminate sundry

■ Note: when magnetic drill is at fault, get professional maintenance technicians or send it back our factory for maintenance.

◆ Product Description

Magnetic Drill is an adsorption in the horizontal, side and top surface of the steel work piece of the drilling power tools, widely used in buildings, bridges, boilers, shipbuilding and other industries. For large-scale iron and steel parts and some scene operations, magnetic can be used when drill and electric drill are unable or inconvenience processing. It is easy to use, flexible, and can reduce labor intensity and improve the precision and efficiency.  
The product can be used on both twist drill drilling tool and hollow drill reaming.

◆Specification

Specification	13 13RE	16 16RE	19 19RE	23 23RE	28 28RE	32 32RC	38 38RC	49 49RC	60 60RC	80 80RC	2800E	3800E	6800E	7800E	9800E	1280E
D. Of bit (mm)	13	16	19	23	28	32	38	49	60	80	28	38	68	78	98	128
Electromagnet suction (N)	11000	11500	12000	13000	13800	14500	15500	16500	19500	20000	13000	14500	15800	16500	16800	17000
Guide Travel (mm)	140	150	180	180	210	200	200	200	200	200	140	150	180	180	210	210
Horizontal displacement (mm)	30	30	20	20	20	20	20	20	20	20	30	30	20	20	20	20
Rotary angle (°)	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90	0/90
Rated voltage (V)	110/220/240V~					380V					110/220/240V~					
Rated frequency (Hz)	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60
Rated speed (r/min)	790 0-790	680 0-680	350 0-350	330 0-330	300 0-300	150 150/280	135 135/250	120 120/220	105 105/205	95 95/185	0-680	0-650	0-580	0-550	0-520	0-500
Rated input power (W)	1280	1380	1750	1880	2080	1700	1830	2000	2750	2850	1480	1620	1720	1880	2080	2180
Spindle taper (Morse)			2#	2#	3#	4#	4#	4#	5#	6#						
Weight (kg)	11.5	13.5	21	21	22	51	51	51	51	51	11.5	13.5	22	22	24	24

### ◆Safe Instruction

1. Read this manual carefully about Characteristics and operating rules before operating this power tool. They contain information which will enable you to use the tool safely and help protect those around you. The operator must go through specialized training.
2. Before using confirm the operating voltage no more than 5%, if over it which will cause the motor damaged and leakage accident.
3. Operators must wear safety helmet, insulating gloves and overalls(can't wear loose clothing). Do not wear hanging ornaments and long hair sticking out in order to avoid the winding accident.
4. Please pay attention to keeping the Motor internal no water or obstructing blowhole for fear of reducing Heat dispersion and motor damaged.
5. Before operation please confirm whether there is dangerous thing for drilling, such as high voltage wire, gas pipelines, water pipe, telecommunication pipe, etc.
6. When Magnet drill punch through the steel plate, please pay attention to drop-in and safety items, when Iron beams drilling, pay attention to the safety of the structure.
7. Do not exposed Magnetic drill to dangerous environment, especially dust, inflammable, explosive gas. The workplace should be kept good lighting conditions and tidy.
8. In any case, magnetic drilling should start in the no-load conditions, prohibit load starting to damage magnetic drilling. When aloft working, please note the stability to prevent magnetic drill falling.
9. The power cord should be used to meet the safety requirements of four-core rubber cable, to ensure the reliable grounding of the grounding line.
10. When install or move magnetic drill, power must be cut off.
11. When move magnetic drill, lift magnetic drill to prevent damaging magnetic seat.
12. In maintenance, original parts must be used to achieve the best use of state(Warning: Because fixed rickety which leads to the consequences, the company assumes no responsibility.)
13. Magnetic drill has the safety belt, in impending work, seat belt must be fastened to fix the magnetic drill, which prevent magnetic dropping and accident caused by sudden power outage.

### ◆Announcements

1. Understand the structure of magnetic drill before use: magnetic chuck, electric drill and transmission operation function.
2. Ensure the switch is turned off and the plug is pulled out before install or take down the drill.
3. Turn the feed handle, whether the electric drill up and own freely, rise to the highest position and assemble required drill. Remove the same.
4. Drill must be sharp. For cone bit, pay attention to aim flat tin tail at the cone to cover on the waist slots and insert taper sleeve. Remove the bit, iron should be inserted in taper sleeve waist slot and make the bit off by hammering.
5. For drill chuck, key wrench must be taken down after outfit drill.
6. When operation, the cable should be put behind the equipment and away from the bit.
7. When connect the power, electric drill and magnet switch must be in off position.
8. When use magnetic drill, safety belt must be fastened.

### ◆Operating Sequences

1. Insert the plug to the power socket, aim the bit at processing position, then turn on the electromagnetic switch, make the electromagnetic adsorb onto the surface of the magnetic substance such as steel etc. check the adsorption surface without sundry and whether the magnetic is normal or not.(thick of the general steel >20m).
2. Rotate magnetic drill around the parts of drilling, and select the suitable adsorption materials, penetrate a side of safety belt into the handle hole of frame, another side is fastened in solid structure with about 100mm length left, then tighten the fastening bolt. Try to force pluck off without loose displacement.
3. For stand bar, adjust the stand bar until it retains the absorbing surface.
4. With the rotary table for magnetic drill, loose the wheel handle, move dial to drive frame and aim the bit at processing position, tighten the wheel handle.
5. Turn on the drill switch, check whether the bit jump, whether the voice is balance, turn the handle into if as everything is normal.
6. Hole the feed handle to operate slowly, do not force, feeding generally in 0.05 mm/R, do not overexert in case the overload.
7. Need to rest for a period of time after lasting for 2-3 hours, in case magnetic in overheating and burn out.

### ◆Several manner of working and Announcements:

1. Horizontal working way:
  - (1) Move magnetic drill to work piece (Record: keep the surface of magnetic contact clean and tidy, without oxide and sundry).
  - (2) Connect the power, open the magnetic control switch. Magnetic seat firmly suck to the work piece.
  - (3) Put on the required bits, unscrew turntable and press screw, let the drill aim at processing hole, tighten top tight screws, rotate the stand bar, against the limit of working face.
  - (4) Open the control switch for drilling processing. (Note: general feeding in 0.05mm/r, do not overexert in case the overload).
  - (5) After processed, turn off the electric drill control switch and magnetic control switch; take the magnetic drill from product.
2. Side working way: (Record: two people above operation and shut someone monitoring):
  - (1) Insert the plug to the power socket;
  - (2) Lift magnetic drill, make magnetic posted by surface, open magnetic seat control switch, magnetic seat firmly suck on the work piece;
  - (3) Fasten insurance rope (Note: Don't be too tight so that the drill frame has adjustment quantity), prevent magnetic dropping and accident caused by sudden power outage;
  - (4) Repeat lc operation:
    - ①Repeat ld operation (Note: when operation, people do not stand below magnetic drill. In case sudden power outage);
    - ②After process finished, turn off electric drill control switch, two people grasp the magnetic drill, loose insurance rope, turn off magnetic control switch, take off magnetic drill.
3. Top working way (Note: Operation need above two people and someone monitor, last resort to