

**OPERATING INSTRUCTION -20**

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# Operation Manual

## WARNING

To prevent electric shock or fire, please strictly abide by the procedures in the operation manual.

The machine only for the authorized persons, please do not let other people to operate. If any violation of the instructions operation and cause personal injury or machine damage, our company disclaim all responsibility.

The machine can be only maintained by the people who has the certification.

## THANKS TO THE BUYER

Thanks for buying the series of magnetic drill machine of our company. Please read the operation manual and pay attention to the safety precaution.

The right operation, will make you fully feel our products superior performance.

Please put this manual in a safe place for future reference.

## ABOUT THIS MANUAL

The machine model of the description in this manual:

<b>OB: 13 / 13E / 13RE / 16 / 16E / 16RE</b>	<b>Magnetic Drill</b>
<b>OB: 19 / 19E / 19RE / 23 / 23E / 23RE / 28 / 28E / 28RE / 28H / 28HE / 28HRE</b>	<b>Magnetic Drill</b>
<b>OB: 32 / 32C / 32RC / 32RTC / 38 / 38C / 38RC / 38RTC</b>	<b>3-Phase Magnetic Drill</b>
<b>OB: 49 / 49C / 49RC / 49RTC / 60 / 60C / 60RC / 60RTC</b>	<b>3-Phase Magnetic Drill</b>
<b>OB: 80 / 80C / 80RC / 80RTC / 100 / 100C / 100RC / 100RTC</b>	<b>3-Phase Magnetic Drill</b>

Confirm the machine model according to the nameplate.



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## DESCRIPTIONS OF PRODUCTS

Magnetic drill is a kind of electric tool for adhering and drilling on the horizontal level, side face and top face, and widely used in the building, bridge building, and ship building industries and so on. You can use the magnetic drill when you can not use drill press and electric hand drill to drill huge steel workpieces or in field operation. It's very convenient to use, flexible, can reduce labor intensity, improve the machining precision and work efficiency.

## CAUTIONS

1. Please read the manual carefully before use, to understand the magnetic base drill structure; electromagnetic sucker, electric drill and transmission functions.
2. Before installing or remove the drill must confirm the motor switch is closed and unplug.
3. Using a drill bit after clamping, key wrench must be removed, while the drill must be sharp, for Morse taper shank drill should pay attention to the flat iron tail at the cone sleeve waist groove insert cone sleeve. Remove the drill, the inclined flat iron is inserted on the oblique iron just bit dropping hammer sleeve waist groove.
4. And its operation must be put in the fuselage behind the cable, away from the drill bit
5. In the switching power supply, electric and magnetic switch must be in the off position
6. Drilling machine must be used when using engine coolant. The use of cooling liquid (soap) according to the ratio of watered, absolutely can not direct use water cooling. Otherwise very easy to damage, and the main internal rust on the drill bit can't get it out. No internal machine water, otherwise it will burn the circuit board.
7. Such as the use of the stepless speed regulation, models of constant power overload protection, the machine during use motor suddenly stop functioning, then in the function of overload protection device, the steps are as follows: A. turn off the power switch, paused for a few minutes; B. weight of the plug, then open the motor.
8. The use of magnetic base drill, must wear a seat belt buckle.
9. No rough operation personnel, feed can not handle in order to work fast and pressed down the machine feed, so lossy bit and machine
10. Non-magnetic materials can not drill with magnetic base, if the non-magnetic material punching need to choose the magnetic base drill with sucker.
11. Cannot use at the same time, electric welding machine and magnetic base drill on the same piece of steel plate, so that the operating from electric shock danger.



## ELECTRICAL SAFETY

Tool before connecting power, using the socket must be able to fit the plug machine. The 380V model to determine the fire and. Line the correct docking, power supply socket with the need of professionals to complete. Do not arbitrarily change the plug, adapter plugs can't pick. The electric tool wire used together.

## SAFETY INSTRUCTIONS

Warning labels and/or other labels on the machine must be replaced when they were removed.

	<p>Do not operate the machine at insufficient lighting conditions. Do not operate the machine outdoors. Do not operate the machine when you are tired, when your concentration is impaired, and/or under the influence of drugs, medication or alcohol.</p>
	<p>Climbing onto the machine is forbidden! Heavy injuries by falling down or by tilting of the machine are possible.</p>
	<p>The machine shall be used only by trained persons. Non authorized persons, especially children, shall be kept away from the work area.</p>
  	<p>Do not wear loose clothing, long hair openly or loose jewellery like neck-laces etc. when operating the machine They might be caught by rotating parts and cause serious injuries.</p>

	<p>Use proper safety clothing and devices when operating the machine (safety goggles, ear protectors, safety shoes ...).</p>
	<p>Before any maintenance you have to disconnect the panel saw from the power source.</p>

## INSTRUCTIONS

1. Plug the power plug, the drill bit aim at processing position, make the magnetic switch is opened, so that the magnetic is adsorbed on the surface of steel plate magnetic materials. No impurities on the surface, and check whether the attractive force is normal or not. (general plate thickness should be more than 10mm)
2. Please placed the magnetic base drill required from the drilling near site and select the appropriate adsorption material. And will handle hole safety rope penetrates into the frame, the other one is in fastening frame after the penetration of the buckle, and then close the safety rope buckle. Hand and pull off, should not loose and mobile.
3. For a support screw, regulating the support screw that the bottom touches the workpiece surface.
4. For the magnetic base is provided with the angle of the drill, the use of angle wrench movement angle disk in the annex to the belt rack makes bit central alignment processing position, tighten the angle wrench.
5. Open the electric drill switch, check whether the drill bit beat, sound is normal, if everything is normal can turn the handle to feed.
6. Start feeding should be slow, gives the quantity of about 0.05mm/r in general, not too much force, to prevent overload.
7. If the drill suddenly stopped, you must turn off the power switch immediately, (Must close the magnetic control switch)
8. Please shut down for a period of time machine in continuous use for 2-3 hours, in case magnetic base is overheated and leakage or burned.
9. Should be filled with cooling water or cooling liquid using hollow drill, turn on the tap, and let it flow out slowly.

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10. The company factory hollow drill are equipped with cooling kettle, please put the kettle arranged on the corresponding position before operating the machine, and tighten the two round head screw. The kettle is connected after please figure two (035), fittings is screwed on the hydrosphere, tighten the end can be on the frame by.

11. After 300 hours of operation, the gear lubricating oil should be replaced.

## **GROUNDING DEVICE**

This tool should be properly grounded, in order to avoid the shock. Grounding device should have the lead standard, and a grounding plug with earthing special line. Do not be ground false joint in the line of fire or three-phase line. Grounded power receptacle should be connected with the earthing device is connected to the eternal, so that it can work with yellow green wire connected to the plug hole and connection piece at the same time and ground connection.

## **QUALITY ASSURANCE**

Consumers buy our machines produced within six months, enjoy free maintenance and warranty service. During normal use of the whole or parts of any manufacturing process or product failures caused by components, please present the original invoice, the dealer stamped and filled properly warranty certificate to the Company or the Company's designated repair station to receive free services. machine consumable normal wear and tear, overload, do not operate according to operating specifications, disassemble, damage caused as a result of use of parts other than the Company and damage, are not covered by warranty. warranty expires, provided by the designated repair station maintenance service. maintenance records must be sealed or signed by the repair station to take effect.

## FAULT HANDING

FAULTS	CAUSES	ELIMINATION METHODS
Magnetic base without suction	Switch contact undesirable	Repair the switch
	Power supply is broken	Repair the power supply
	The fuse burn out	Replace the Fuses
	Electromagnet short circuit or burn out	Repair or replace the magnetic bridge
	Adsorption not on the steel frame	Change the adsorption surface
Machine did not run after the jump	Switch contact undesirable	Repair and change switch
	Joint loose	Check the electric drill part connector
	Brush and commutator poor contact	Repair or replace the electric brush
	Drill the armature or stator coil burn out	Changing the armature or stator
Magnetic little suction	Adsorption artifacts thin	Replace the adsorption surface or thickening adsorption surface (> 10mm steel sheet)
	Adsorption on the surface is small	Replace the adsorption surface or temporary welding thick surface adsorption
	Support bar between the adsorption surface	Support bar top tight
	Diode may be virtual welding	Re Welding
Turn the handle guide does not work	Shaft key cut	Replace the shaft key
	Wheel and rack misplace	Unscrew the rack bottom screw, remove guide to repair
Drill out the elliptical hole	For a drill and a fastener is loose	Correction of verticality tighten the fasteners
	Bit unilateral cutting	Grind anew
	Adsorption surface have sundry	Eliminate clutter
Spindle shake	Frame adjusting screw loose	Tighten adjusting screws
Electric ignition	The spark turns orange.	Slow down.
	Sparks flying out.	Change the brush, please.
	Sparks into a ring of fire	Please check if the motor is burned.

**Warning:** magnetic drill equipped with a safety rope, when operating, make sure the magnetic drill and the object is fastened by the rope. In case of power failure suddenly, causing the machine fall off or thrown objects and cause accidents.

**Attention:** Our company does not assume any responsibility because the machine is not solid or fixed safety facilities are not in appropriate place cause accident.



## MAGNETIC DRILL

### 1. Single-phase magnetic drill specification table

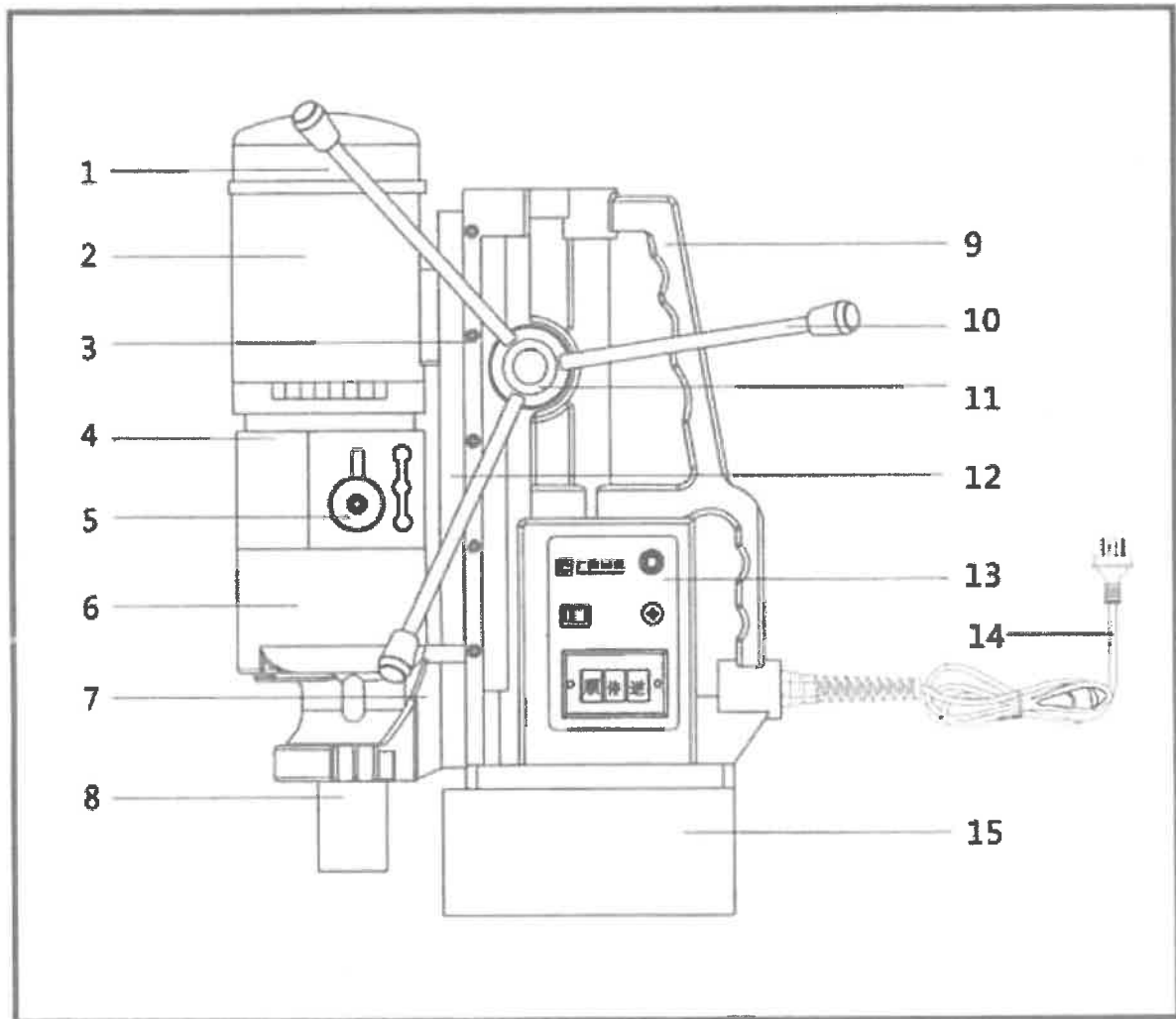
Specifications	OB-13 OB-13E OB-13RE	OB-16 OB-16E OB-16RE	OB-19 OB-19E OB-19RE	OB-23 OB-23E OB-23RE	OB-28 OB-28E OB-28RE	OB-28H OB-28HE OB-28HRE
Max.hole diameter mm	13	16	19	23	28	28
Rated frequency Hz	50-60	50-60	50-60	50-60	50-60	50-60
Rated voltage V	110/220~	110/220~	110/220~	110/220~	110/220~	110/220~
Max.attraction N	11000	11500	16000	16500	17800	17800
Rated input power W	1150	1380	1380	1400	1680	1680
No-load speed rpm	800 100-800 100-800	670 100-670 100-670	490 100-490 100-490	470 100-470 100-470	340 100-340 100-340	340 100-340 100-340
Arbor Tool Holder	13#钻夹头	16#钻夹头	2#	2#	3#	3#
Stroke mm	120	120	160	180	200	200
Weight Kg	10/12	11/13	17/19	18/20	19/21	19/21

### 2. Three-phase magnetic drill specification table

Specifications	OB-32 OB-32C OB-32RC OB-32RTC	OB-38 OB-38C OB-38RC OB-38RTC	OB-49 OB-49C OB-49RC OB-49RTC	OB-60 OB-60C OB-60RC OB-60RTC	OB-80 OB-80C OB-80RC OB-80RTC	OB-100 OB-100C OB-100RC OB-100RTC
Max.hole diameter mm	32	38	49	60	80	100
Rated frequency Hz	50-60	50-60	50-60	50-60	50-60	50-60
Rated voltage V	380~	380~	380~	380~	380~	380~
Max.attraction N	15000	15500	165000	19000	20000	22000
Rated input power W	1900	2100	2300	2500	2800	3000
No-load speed rpm	150 150/280 150/280 95/188/235	135 135/250 135/250 70/150/220	120 120/220 120/220 68/140/210	150 150/210 150/210 66-150/210	55 55/190 55/190 50-90/190	45 45/108 45/108 45-90/108
Arbor Tool Holder	4#	4#	4#	5#	5#	5#
Stroke mm	210	220	230	230	240	250
Weight Kg	44/52	44.5/52.5	45/53	58/66	59/67	60/68

※Models with RE and RC and RTC have the function of positive and negative rotation.

## MAGNETIC DRILL STRUCTURE INTRODUCTION



1.air intake cover

2.stator case

3.screw

4.intermediate flange

5.knob

6.gear box

7.clamp

8.spindle

9.bracket

10.handle bar

11.lifting shaft

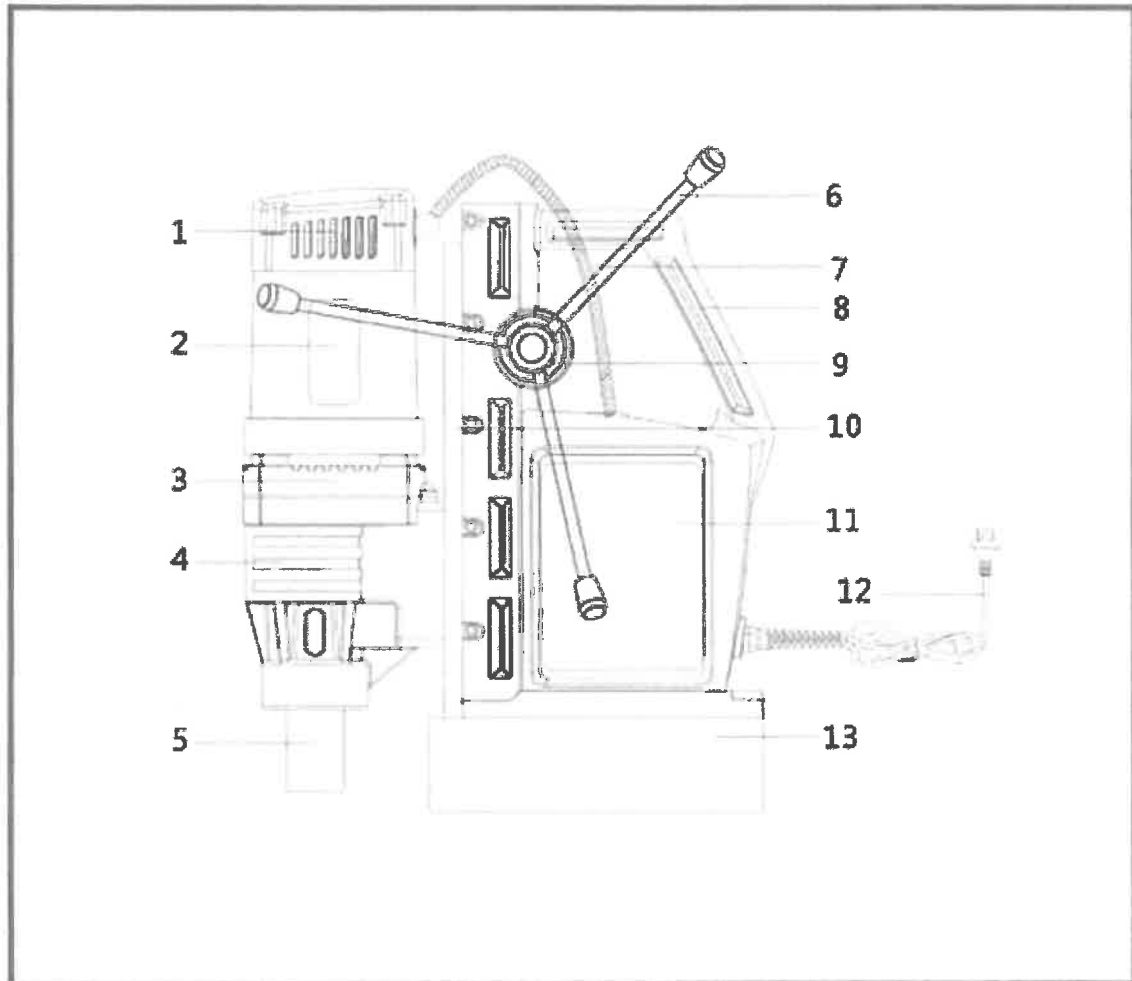
12.lifting guide

13.panel assembly

14.power line

15.magnetic base

## MAGNETIC DRILL STRUCTURE INTRODUCTION



1.air intake cover

2.stator case

3.intermediate flange

4.gear box

5.spindle

6.handle bar

7.hose

8.bracket

9.lifting shaft

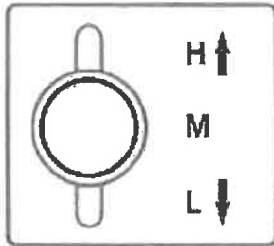
10.lifting guide

11.panel assembly

12.power line

13.magnetic base

## MAGNETIC BASE DRILL POSITION DESCRIPTION



**L—LOW SPEED:** For hard materials, large drill bit (cutter tools), tapping

**M—MID SPEED:** For the appropriate size, hollow drill, twist drill

**H—HIGH SPEED:** For soft material, small drill bit holder. (cutter tools)

L is for low speed, H is for high speed and, M is for medium speed (3 speed models). The drawing is for low speed. Low speed to high speed, turn the knob clockwise, otherwise, anticlockwise.

- The machine shift before putting the gearshift knob screw loose to will fall next state (the best), shift after tighten the knob.
- Shift when the machine stops or will stop.
- Shift in place. If the spindle doesn't rotate or there is some noise after starting up, the gear may not shift in place. Turn off the machine immediately, and then shift the gear to proper place, rotate the spindle back and forth (easy to shift) at the same time till shift in place
- Do not shift when the machine is full-speed operated, over load or stuck.

## GROUNDING DEVICE

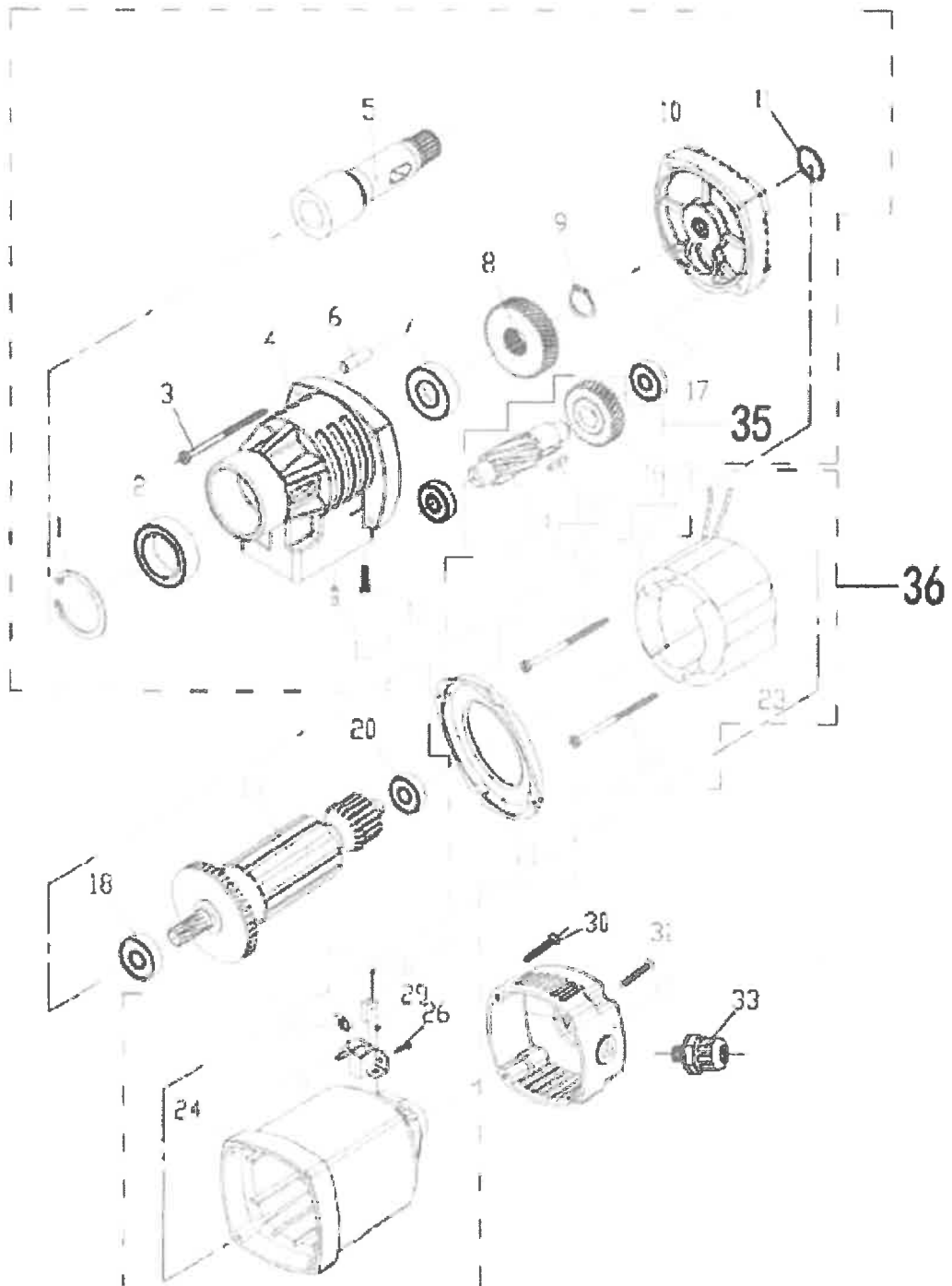
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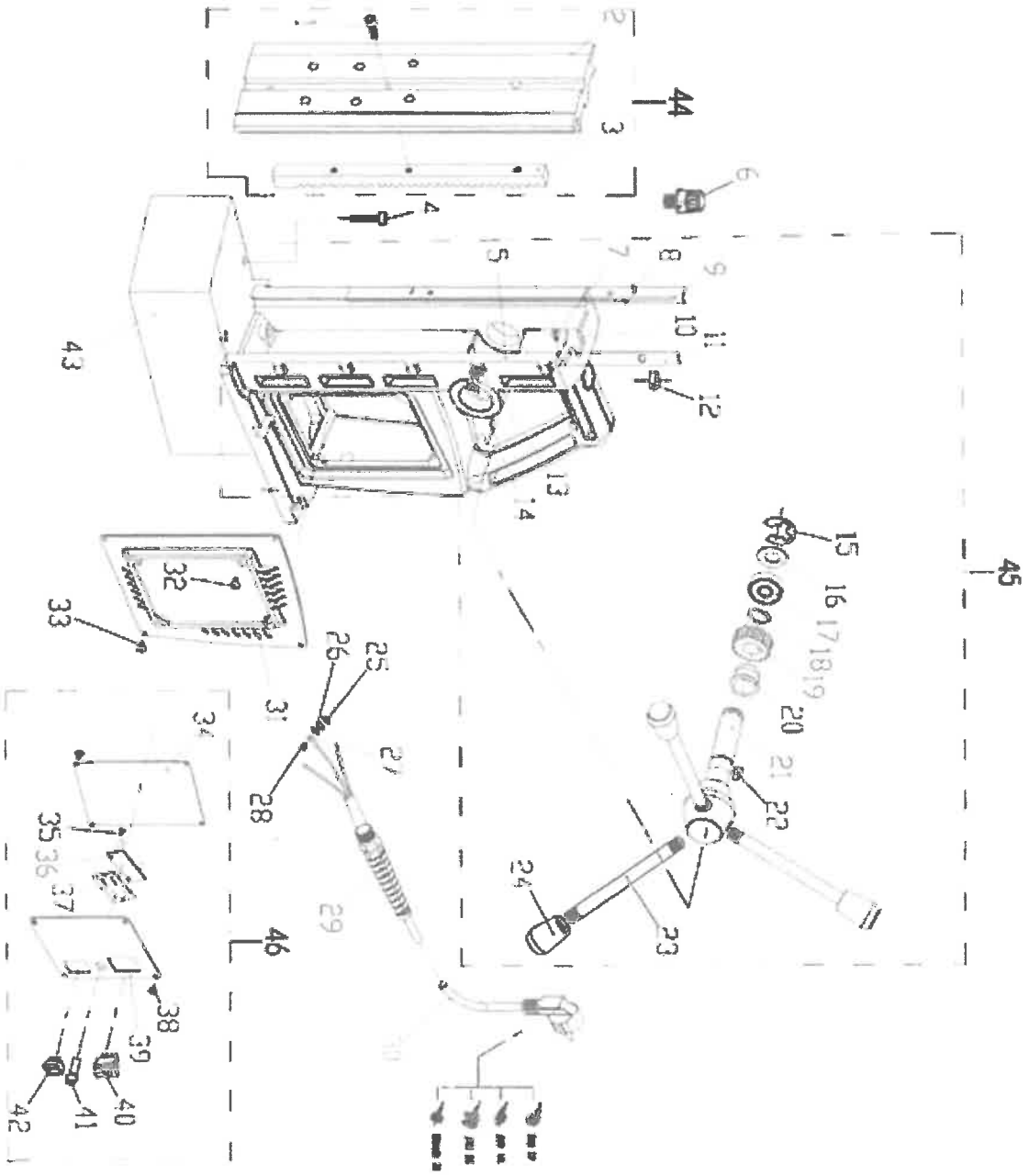
NO.	Parts name	QTY
1	Inner card 52	1
2	Bearing 6205	1
3	Round head cross self-propelled screw M5 * 55(half tooth)	4
4	Gear box 19	1
5	Spindle 23	1
6	Cylinder $\phi$ 4 * 12	1
7	Bearing 6204	1
8	Spindle gear 23A-3	1
9	Card 16	1
10	Center cover 19	1
11	O-ring $\phi$ 31.5 * 1.8	1
12	Cylinder $\phi$ 5 * 15	2
13	Hegonal screw M6 * 25	4
14	Class I tooth shaft 23A-2	1
15	Crescent pin 4 * 12	1
16	Class I gear 23A-1	1
17	Bearing 629	2
18	Bearing 6201	1
19	Rotor OB-23	1
20	Bearing 6200	1
21	Bend 19	1
22	Round head cross self-propelled screw M5 * 70(half tooth)	2
23	Stator OB-23	1
24	Stator shell 19	1
25	Brush frame 19 copper	2
26	Round Cross Screw M4 * 10	4
27	Bypass 19/40	2
28	Carbon Brush 19	2
29	Round Head Cross Screw M4 * 8(Copper)	2
30	Round head cross self-propelled screw M4 * 35	2
31	Round head cross self-propelled screw M4 * 40	2
32	Cover 19-A	1
33	Hose connector M12 * 1.5	1

# OB-23 Motor



<b>NO.</b>	<b>Parts name</b>	<b>QTY</b>
1	Hegonal screw M6 * 18	3
2	Guide board 16-19YWC	1
3	Teeth 14 * 14 * 250(M2)	1
4	Hegonal screw M8 * 25	4
5	Smooth strip CX-16	1
6	Hose connector M12 * 1.5	1
7	Cross level screw M3 * 8	3
8	Volume 3 * 8	2
9	Folding slider CX-16	1
10	Frame 16YWC-23	1
11	Adjusting sliders 16	1
12	Horizontal instrument 16 * 8	1
13	Nut M5	5
14	Hegonal top silk M5 * 25 in flat head	5
15	E-card 15	1
16	Roller pads 17 * 30 * 1	1
17	Bearing 6903	1
18	Card 18	1
19	Lift gear 16-19	1
20	Composite bearings 26 * 30	1
21	Lift shaft 16-19	1
22	Marketing 5 * 14	1
23	Knife handle 19 #	3
24	Spherical handle M10(4)	3
25	Pad M4	2
26	Waveform gasket M4	1
27	Copper nose OT 1.25 -4	1
28	Round Cross Screw M4 * 8	1
29	Fold proof connector M12 * 1.5	1
30	Power cord 3 * 1.0 * 2.5 M	1
31	Panel Box 16-Small	1
32	Round head cross self-propelled screw M3 * 8	4
33	Round Cross Screw M3 * 8	4
34	Parameter Panel OB-16	1
35	Flat head self-propelled screw M4 * 8	2
36	Circuit board support CX13-98BT	1
37	Circuit board CXXLB-202-102	1
38	Stainless steel large flat head screw M3 * 6	4
39	Button Panel 16	1
40	Red and green switch KND2-14 / 2	1
41	Fuse MF-527	1
42	Switch KCDS	1
43	Disk CX-202 * 103 * 45	1

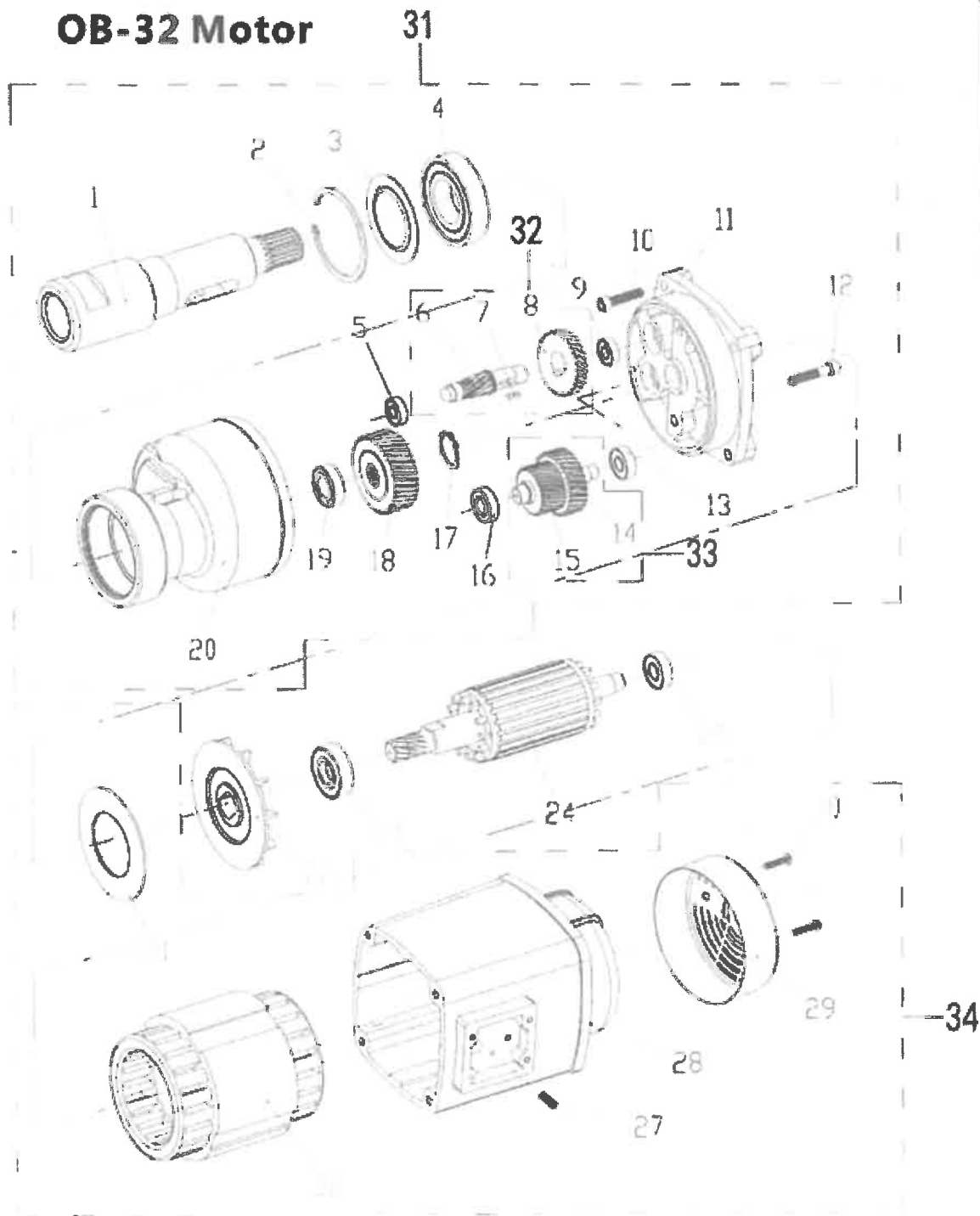
# OB-23 Stand





<b>NO.</b>	<b>Parts name</b>	<b>QTY</b>
1	Spindle 32	1
2	Inner card 80	1
3	Gasket 32	1
4	Bearing 6208	1
5	Bearing 6201	1
6	Class I tooth axis 32-2	1
7	Marketing 4 * 10	1
8	Class I gear 32-1	1
9	Bearing 6001	1
10	Hegonal screw M8 * 35	4
11	Middle cover 32	1
12	Hegonal screw M8 * 40	2
13	Bearing 6001	1
14	Class II gear 32-3	1
15	Class II gear axis 32-4	1
16	Bearing 6002	1
17	Card 22	1
18	Spindle gear 32-5	1
19	Bearing 6205	1
20	Gear box 32	1
21	Windscreen 32	1
22	Wind Leaf 32	1
23	Bearing 6204	1
24	Rotor OB-32	1
25	Bearing 6202	1
26	Stator OB-32	1
27	Hegonal top silk M6 * 10 in flat head	1
28	Stator shell 32	1
29	Top 32	1
30	Hegonal screw M5 * 16 in semicircle	2

# OB-32 Motor



NO.	Parts name	QTY
1	Hegonal screw M6 * 22	1
2	Clamp 32	1
3	Hegonal screw M6 * 25	2
4	Hegonal screw M6 * 18	3
5	Hegonal screw M6 * 25	4
6	Hegonal screw M6 * 12	12
7	Edge 32-49	2
8	Guide plate 32-49ZC	1
9	Wave tube 16	1
10	Teeth 14 * 14 * 310(M1)	1
11	Hose joint M16 * 1.5	1
12	E-card 15	1
13	Nut M6	5
14	Roller pads 17 * 30 * 0.5	1
15	Bearing 6903	1
16	Card 18	2
17	Lift gear 32-60	1
18	Copper sleeve 32 φ 18 * 22	1
19	Knife handle 32-100	3
20	Flange head 32	1
21	Spherical handle M12(2)	3
22	Marketing 5 * 14	1
23	Marketing 5 * 18	1
24	Lift shaft 32-60	1
25	Hegonal screw M6 * 18	5
26	Ground Line Sign 32	1
27	Nut M4	1
28	Hegonal screw M4 * 16 in semicircle	1
29	Power cord 4 * 1.0 * 4 M	1
30	Fold proof connector M16 * 1.5	1
31	Button Panel 32	1
32	Indicator L16A(red 380V)	1
33	Fuse MF-527	1
34	Switch KCD1-108	1
35	Switch KA 0-5	1
36	Hegonal screw M4 * 16 in semicircle	2
37	Nut M4	2
38	Stainless steel large flat head screw M3 * 6	8
39	Circuit board CX XLB32100-380	1
40	Circuit board support CX32-100	1
41	Round head self-propelled screw M4 * 8	2
42	Parameter Panel OB-32	1
43	Frame 32	1
44	Disk CX-245 * 125 * 80	1
45	Hegonal screw M8 * 30	4

# OB-32 Stand

