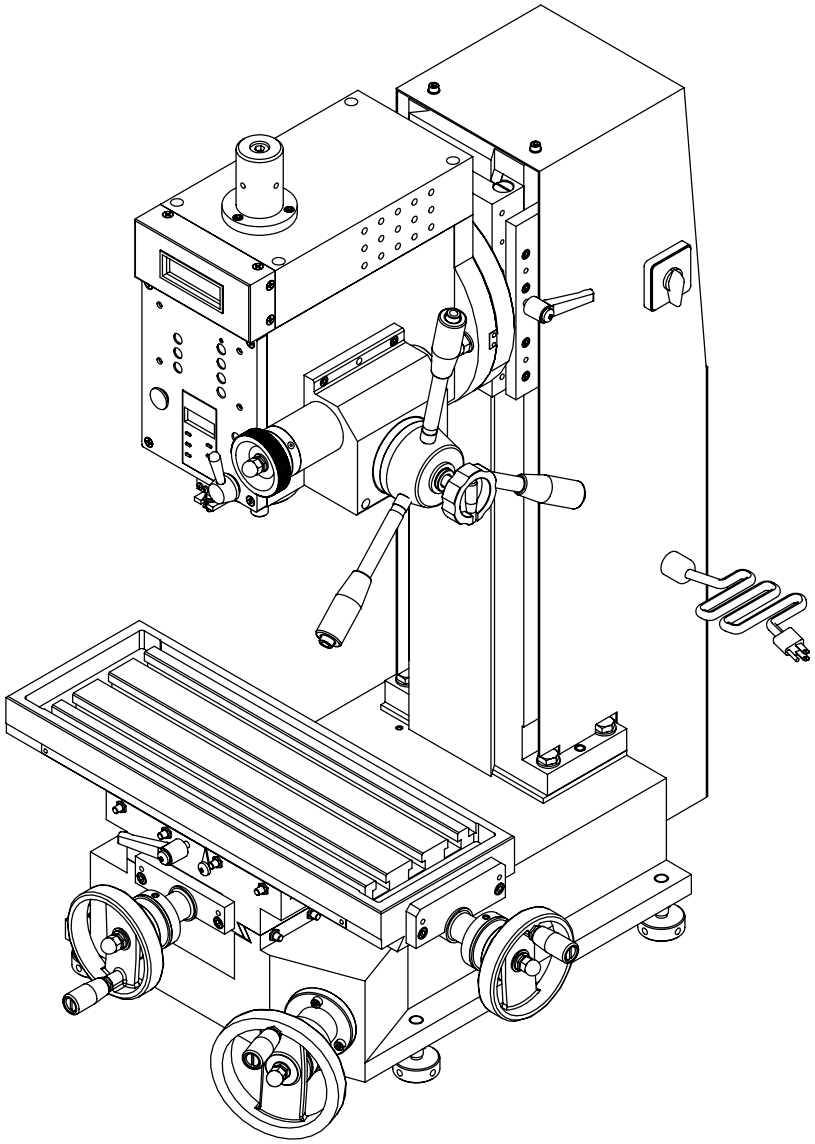
SMALL MILL MACHINE

Instruction manual



Please read this manual thoroughly and follow all directions carefully

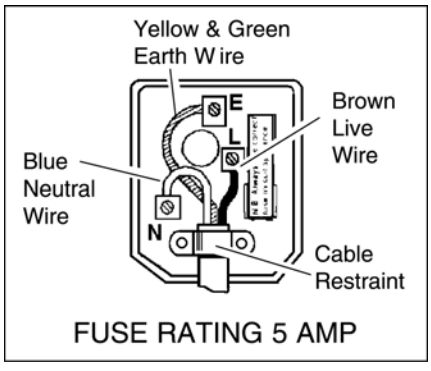
SAFETY INSTRUCTIONS

ELECTRICAL SAFETY

☐ **WARNING!** It is the responsibility of the owner and the operator to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a Residual Current Device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician. You may obtain a Rdesidual Current Device by contacting your Sealey dealer. **You must** also read and understand the following instructions concerning electrical safety.

1. The **Electricity at Work Act 1989** requires all portable electrical appliances, if used on business premises, to be tested by a qualified electrician, using a Portable Appliance Tester (PAT), at least once a year.
2. The **Health & Safety at Work Act 1974** makes owners of electrical appliances responsible for the safe condition of those appliances and the safety of the appliance operators. **If in any doubt about electrical safety, contact a qualified elctrician.**
3. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1. and 2. and use a Portable Appliance Tester.
4. Ensure that cables are always protected against short circuit and overload.
5. Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.
6. **Important:** Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.
7. **DO NOT** pull or carry the appliance by the power cable.
8. **DO NOT** pull the plug from the socket by the cable.
9. **DO NOT** use worn or damaged cables, plugs or connectors. Immediately have any faulty item repaired or replaced by a qualified electrician. When a BS 1363/A UK 3 pin plug is damaged, cut the cable just above the plug and dispose of the plug safely. Fit a new plug according to the following instructions (UK only).



a) Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.

b) Connect the BROWN live wire to the live terminal 'L'.

c) Connect the BLUE neutral wire to the neutral terminal 'N'.

d) After wiring, check that there are no bare wires, that all wires have been correctly connected, that the cable outer insulation extends beyond the cable restraint and that the that the restraint is tight.

Double insulated products, which are always marked with this symbol ⧈, are fitted with live (brown) and neutral (blue) wires only. To rewire, connect the wires as indicated above - **DO NOT** connect either wire to the earth terminal.

10. Products which require more than 13 amps are supplied without a plug. In this case you must contact a qualified electrician to ensure that a suitably rated supply is available. We recommend that you discuss the installation of an industrial round pin plug and socket with your electrician.

11. If an extension reel is used it should be fully unwound before connection. A reel with an RCD fitted is preferred since any appliance plugged into it will be protected. The cable core section is important and should be at least 1.5mm^2 , but to be absolutely sure that the capacity of the reel is suitable for this product and for others which may be used in the other output sockets, we recommend the use of 2.5mm^2 section cable.

GENERAL SAFETY

☐ **WARNING!** Disconnect the drilling/milling machine from the mains power, and ensure the cutting tool or chuck is at a complete standstill before attempting to change accessories, service or perform any maintenance.

☐ Maintain the drilling/milling machine in good condition (use an authorised service agent).

☐ Replace or repair damaged parts. Use recommended parts only. *Unauthorised parts may be dangerous and will invalidate the warranty.*

☐ Locate the drilling/milling machine in a suitable area. Ensure the surface is flat and firm. Keep area clean and tidy and free from unrelated materials, and ensure there is adequate lighting.

☐ Keep the drilling/milling machine clean for best and safest performance and check moving parts alignment regularly.

☐ ***WARNING!*** *Before each use check that drill/chuck/cutting tool is secure and that it is not worn or damaged. If worn or damaged replace immediately.*

☐ **WARNING!** Keep guard and holding fixings in place, tight and in good working order. Check regularly for damaged parts. A guard, or any other part, that is damaged must be replaced with a new one, to ensure that it operates properly and performs its intended function, before the tool is used. The safety guard is a mandatory fitting where drilling/milling machine is used in premises covered by the Health & Safety at Work Act.

☐ Remove adjusting keys and wrenches from the machine and its vicinity before turning it on.

☐ **WARNING!** Wear approved safety eye protection and, if oil mist is generated, respiratory protection.

☐ Remove ill fitting clothing. Remove ties, watches, rings and other loose jewellery and contain long hair.

☐ Keep hands and body clear of the work table when operating the drilling/milling machine.

☐ Maintain correct balance and footing. Ensure the floor is not slippery and wear non-slip shoes.

☐ Always clamp workpiece securely to the table or hold securely in a vice which is firmaly mounted to the table. NEVER hold a workpiece by hand.

☐ Keep children and unauthorised persons away rom the working area.

☐ **WARNING!** DO NOT switch the drilling/milling machine on whilst the drill or cutting tool is in contact with the workpiece. Bring the drill or cutting tool gradually to the workpiece. Avoid un-intentional starting of the drilling/milling machine.

DO NOT force the drilling/milling machine to achieve a task it was not designed to perform.

DO NOT allow untrained persons to operate the drilling/milling machine.

DO NOT get the drilling/milling machine wet or use in damp or wet locations or areas where there is condensation.

☐ WARNING! DO NOT use drilling/milling machine where there are flammable liquids, solids or gases such as petrol, paint solvents, waste wiping rags etc.

DO NOT operate the drilling/milling machine if any parts are missing or damaged as this may cause failure and/or possible personal injury.

DO NOT remove the safety guard whilst in use.

DO NOT attempt to remove a workpiece until the drill or cutting tool has stopped rotating.

DO NOT touch the workpiece close to the cut as it will be very hot. Allow to cool.

DO NOT leave the drill or cutting tool operating unattended.

DO NOT operate the drill or cutting tool when you are tired or under the influence of alcohol, drugs or intoxicating medication.

☐ When not in use switch the drilling/milling machine off and isolate from the power supply.

Specification：

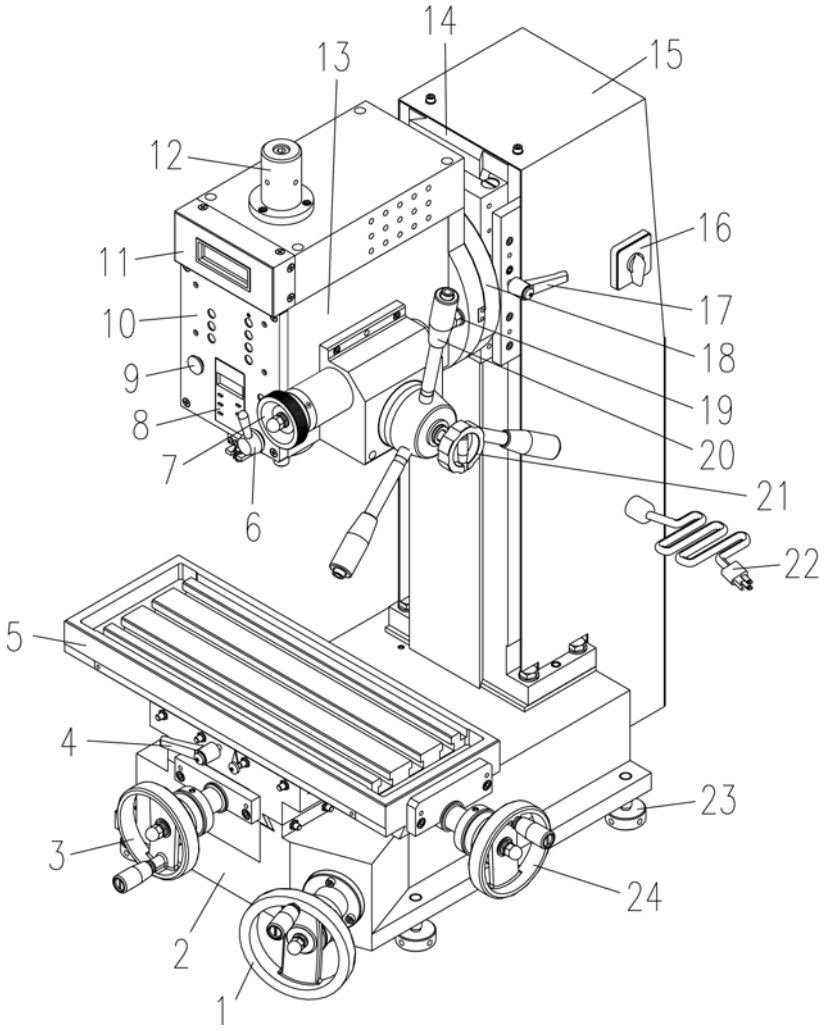
Max. drilling capacity:	25 mm
Max. tapping capacity:	12 mm
End mill capacity	25 mm
Face mill capacity	50 mm
Spindle stroke	70 mm
Throat	230 mm
Max. distance spindle to table	350 mm
Spindle taper	MT#3 or R8
Spindle speed	100-1750 rpm ±10%
Table effective size	550x160 mm
T-slot size	12 mm
Table cross travel	160 mm
Table longitudinal travel	300 mm
Motor output power	1000 W
Overall dimension(LxWxH)	685x560x830 mm
Weight (Net/Gross)	165 / 198 Kg
Packing size (LxWxH)	840x820x1040 mm

Unpacking & Preparing for Use

Before unpacking you must check the package carefully, to find whether it is damaged and any may have effect on the machine, please connect with the distributor in advance.

Unpacking carefully, check the species of standard accessories and the quantity to find whether it is as same as the packing list in the package.

FEATURE



1	Lifting handwheel	13	Spindle box
2	Base	14	Fuselage
3	Cross feed handwheel	15	Cover for fuselage
4	Lock handle	16	Power switch
5	Worktable	17	Lock handle
6	Spindle lock handle	18	Rotate connect plate
7	Fine feeding handwheel	19	Lock bolt
8	Depth display	20	With tapping handle
9	Emergency stop switch	21	Fine feeding lock handle
10	Touch Switch panel	22	Power plug
11	Rotate speed display	23	Adjust bolt
12	Protective cover	24	Longitudinal handwheel

Installation

CAUTION!

DO NOT ATTEMPT TO USE THE MACHINE UNTIL INSTALLTION IS CAMPLETED, AND ALL PRELIMINARY CHECKS HAVE BEEN MADE IN ACCORDANCE WITH THIS MANUAL.

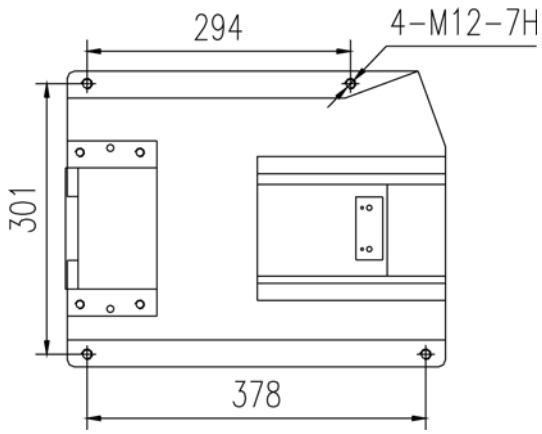
MOUNTING THE MACHINE

The machine should be mounted on a strong, heavy workbench, of sufficient height so that you do not need to bend your back to perform normal operations.

Ensure the location is adequately lit and that you will not be working in your own shadow.

We strongly recommend that the machine bolted firmly to strong workbench using the tapped holes used to secure the feet to the machine. This is to provide added stability and consequently, additional safety.

To do this, first drill four M12 clearance holes in a worktop, at the dimensions shown in the diagram opposite, and with appropriate length M12 bolts, or screws, with flat washers. (not supply).



Application

This small mill machine is both for milling or drilling and tapping, widely used in different places. Fine exterior, wide range of speed and easy to use.

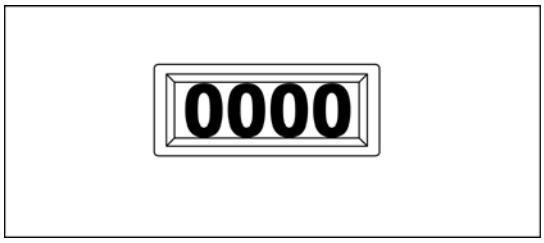
Designed for industrial usage milling, drilling, tapping, reaming, steps and mill plane with metal and other material.

Operation

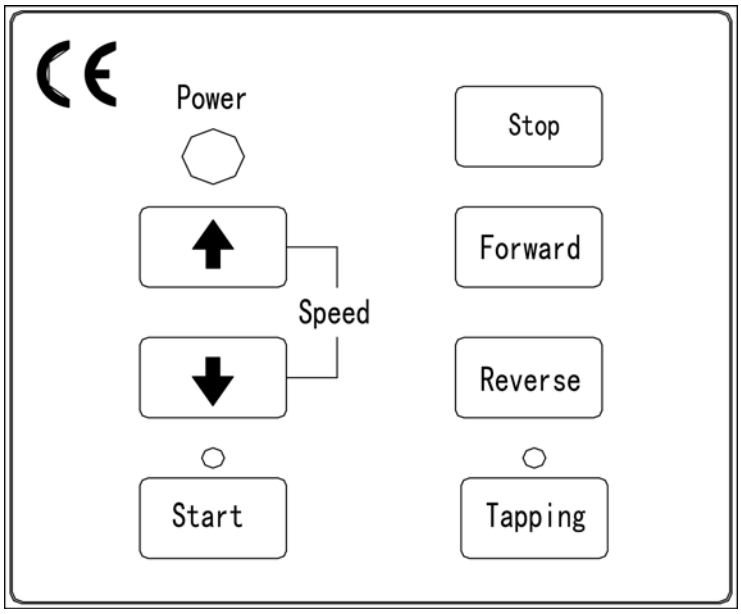
1. Before starts to use this machine, operator should go through the instructions carefully so as to acquaint with the construction of the machines, the functions of the various controls and also the driving systems.

2. This machine uses touching button (see operation panel below), operating steps refer to the flow chart.

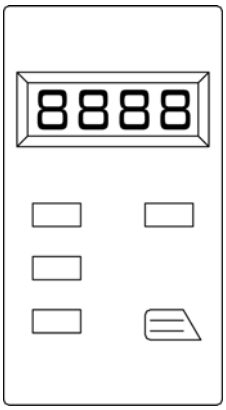
Spindle speed readout ⟶



Operation panel



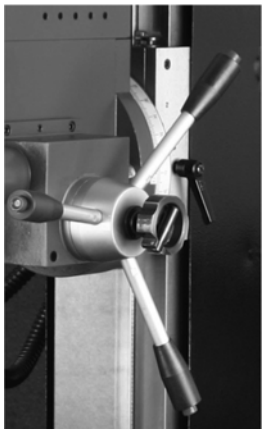
Spindle depth readout

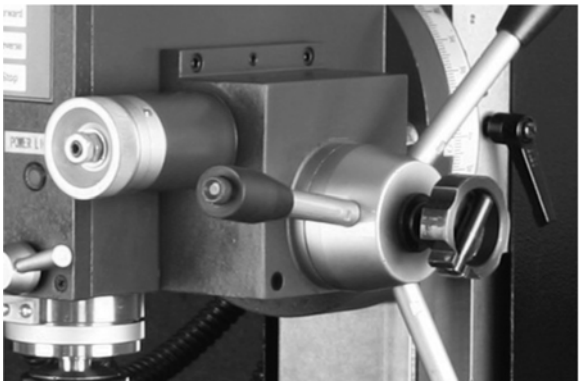


Operating steps

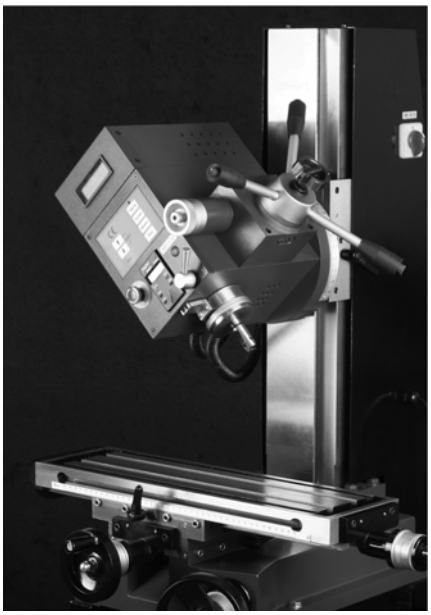
1. Insert the electric plug into its socket. Turn the power switch (on left) to 'I' position, the power indicator lights (green, in front of the spindle box).
2. Release the Emergency stop switch by turning the round head of the switch, the Spindle speed readout shows '0000'.
3. Press 'Start' button on the touching panel, the light above 'Start' button lights, spindle speed readout shows '0100 FORWARD'. Notice:'0100' is the lowest speed of this machine.
4. Press '⇧' button, speed increase, press '⇩' button , speed decrease.
5. Press 'Stop" button, spindle stop running, if press 'Start' button now, spindle runs to the speed last setting automatically.
6. Press the "Tapping" button, the light above the 'Tapping' button lights. This means now is the 'Tapping mode', 'Forward' and 'Reverse' buttons are unavailable

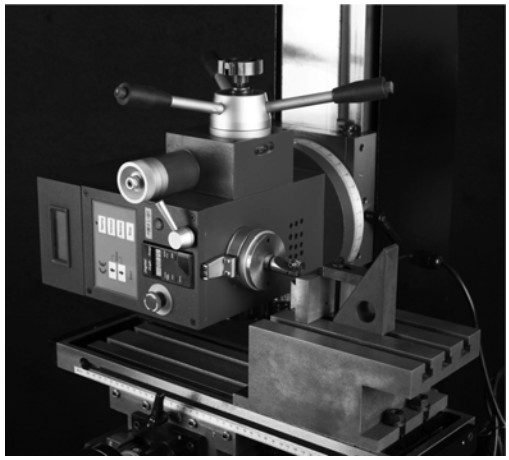
7. Taping: the highest speed under ‘Tapping mode’ is 500rpm. Press the button end of the handle the first is “forward” when press again it change to “reverse”.
8. Fine feeding function: When lock the Lock small handwheel (A), then the control handle (B) can not useable. Turn the fine feeding handwheel (C) the spindle will micro remove.





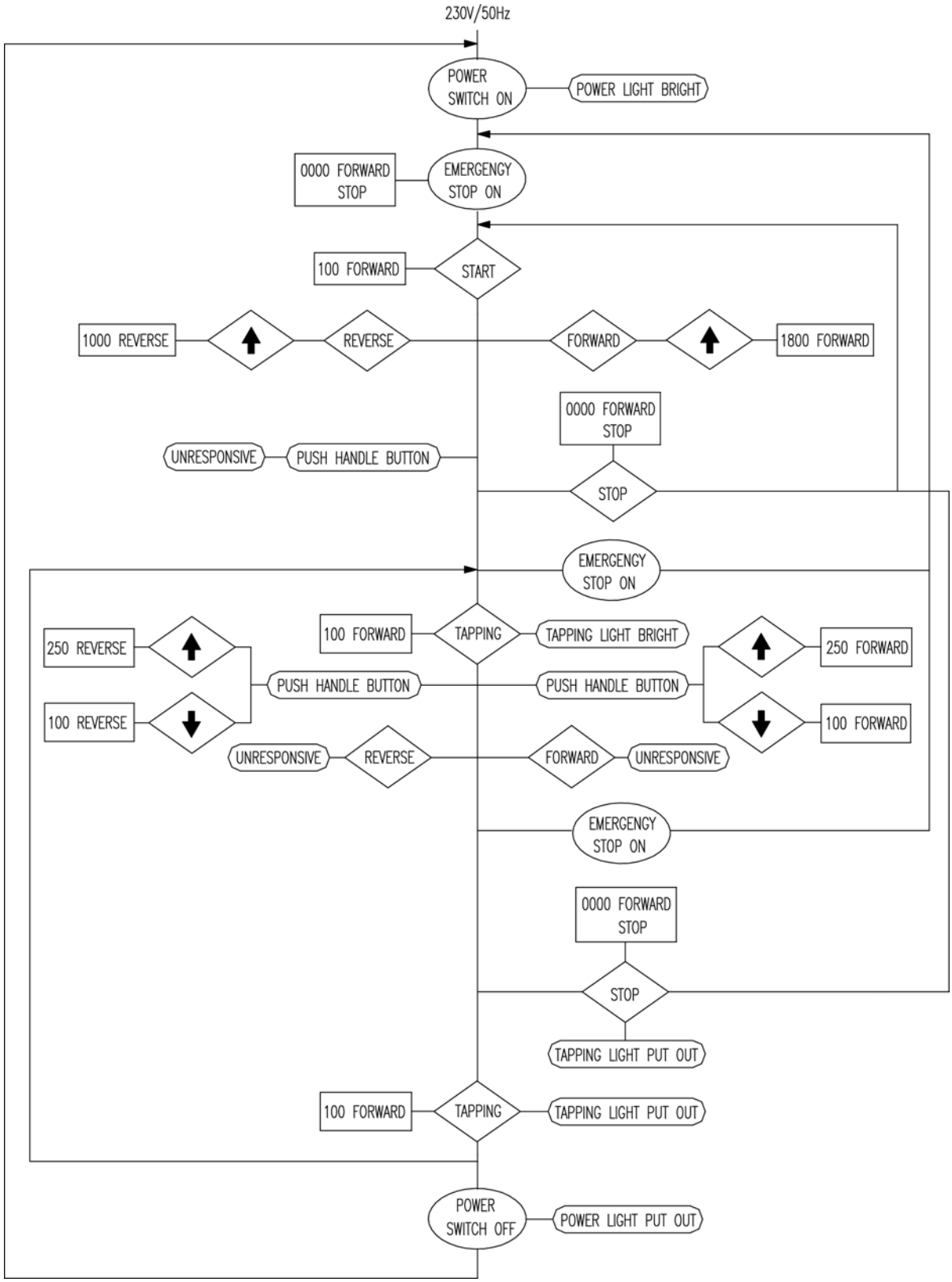
9. The Mill machine have a big feature: It can do angle milling and horizontal milling. (before move the headstock need loosen on socket screw in right side, then loosen two nut to tilt) You need purpose a optional accessories the worktable. See below pictures.



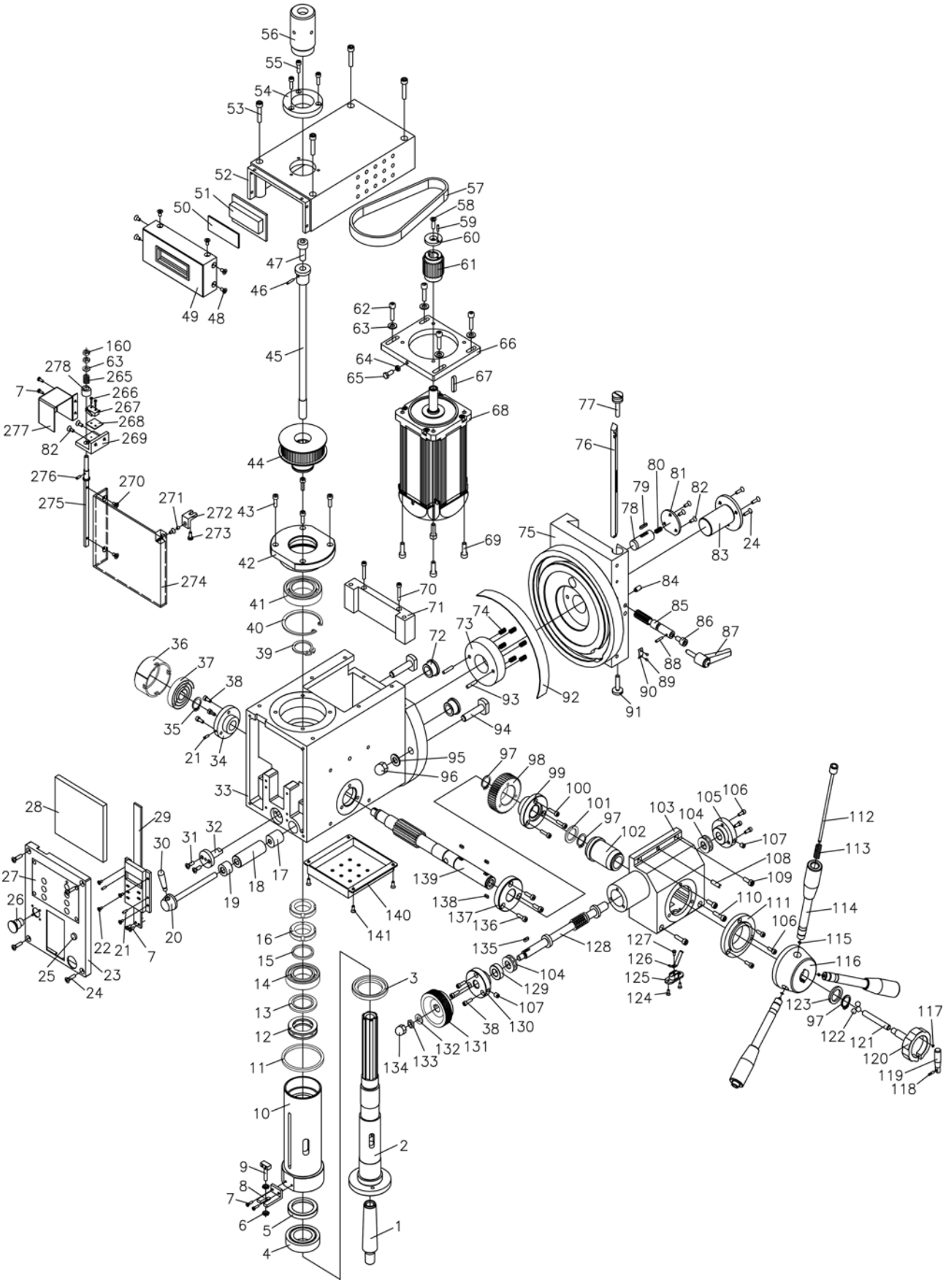


Notice:
After using should turn the power switch to position ‘0’ and pull out the plug from socket.

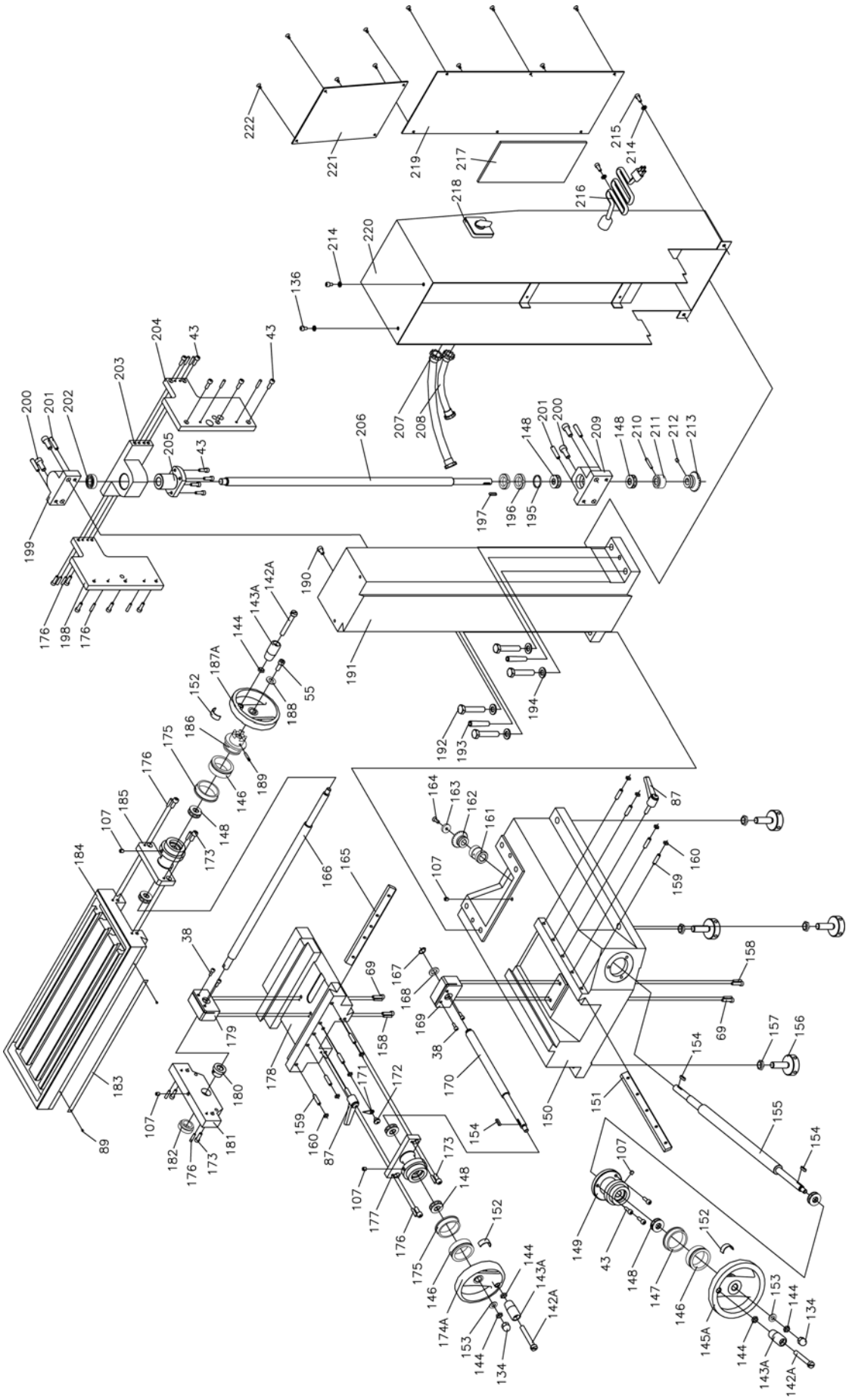
Flow chart


230V/50Hz
POWER SWITCH ON
POWER LIGHT BRIGHT
0000 FORWARD STOP
EMERGENGY STOP ON
100 FORWARD
START
1000 REVERSE
REVERSE
FORWARD
1800 FORWARD
0000 FORWARD STOP
UNRESPONSIVE
PUSH HANDLE BUTTON
STOP
EMERGENGY STOP ON
250 REVERSE
100 FORWARD
TAPPING
TAPPING LIGHT BRIGHT
250 FORWARD
PUSH HANDLE BUTTON
PUSH HANDLE BUTTON
100 REVERSE
100 FORWARD
UNRESPONSIVE
REVERSE
FORWARD
UNRESPONSIVE
EMERGENGY STOP ON
0000 FORWARD STOP
STOP
TAPPING LIGHT PUT OUT
100 FORWARD
TAPPING
TAPPING LIGHT PUT OUT
POWER SWITCH OFF
POWER LIGHT PUT OUT

Parts drawing (I)



Parts drawing (II)



Parts list I

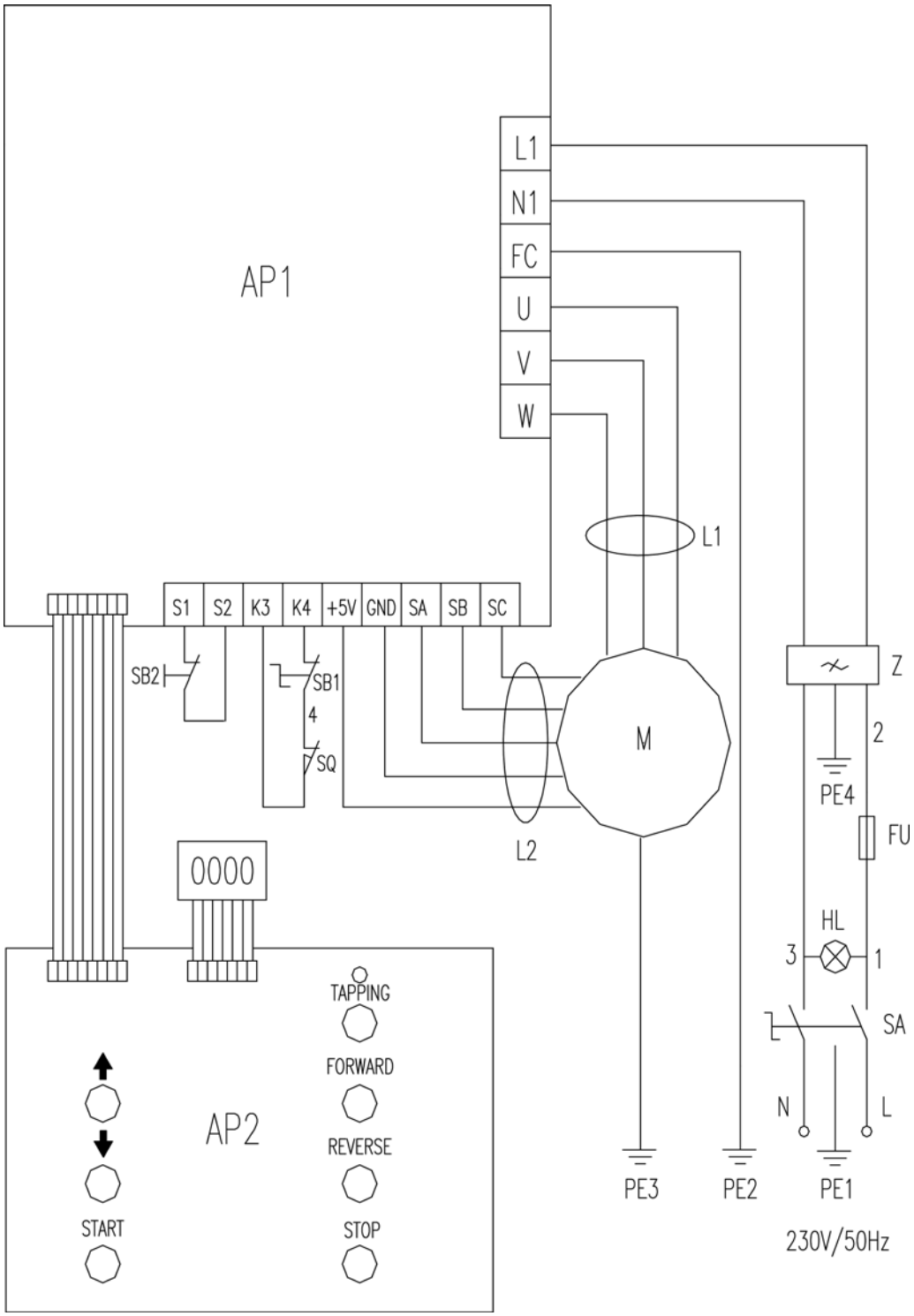
No.	Description	Q'ty	No.	Description	Q'ty
1	Taper shank	1	40	Check ring 65	1
2	Spindle	1	41	Bearing 80107	1
3	Under oil seal I	1	42	bearing seat	1
4	Taper bearing 32907	1	43	Screw M5x16	21
5	Under oil swal II	1	44	Synchronization pulley	1
6	Nut M5	2	45	lock bolt	1
7	Screw M3x8	4	46	Taper pin 3x18	1
8	Display fixed bracket	1	47	Screw M10x16	1
9	Square screw	1	48	Screw M4x6	6
10	Spindle sleeve	1	49	Cover	1
11	Sleeve limit pad	1	50	Block piece	1
12	Bearing 8106	1	51	Rotate speed display	1
13	Upper washer II	1	52	Spindle box cover	1
14	Bearing 80106	1	53	Screw M6x40	4
15	Upper washer I	1	54	Dustproof cover I for spindle	1
16	Small round nut M27x1.5	2	55	Screw M4x10	4
17	Spindle brake sleeve II	1	56	Dustproof cover II for spindle	1
18	Spindle brake sleeve I	1	57	Timing belt	1
19	Deep washer	1	58	Screw M6x16	1
20	Lock bolt	1	59	Pin 3x10	1
21	Spring round pin 3x8	3	60	Washer	1
22	Screw M3x8	4	61	Motor timing pulley	1
23	Switch panel	1	62	Screw M6x20	4
24	Screw M4x16	7	63	Washer 6	4
25	Indicator light	1	64	Nut M5	1
26	Emergency stop switch	1	65	Bolt M5x25	1
27	Touch panel	1	66	Motor support plate	1
28	PC Board	1	67	Key 5x25	1
29	Electron display	1	68	Brushless motor	1
30	Small handle	1	69	Screw M5x20	8
31	Screw M3x10	2	70	Screw M4x35	2
32	Spindle sleeve orientation shaft	1	71	Spindle box paneling	1
33	Spindle box	1	72	Orientation steel sleeve	2
34	Left support flange	1	73	Rub circle	1
35	Check ring 16	1	74	Compress spring 1x6x20	6
36	Check spring cover	1	75	Vertical slide	1
37	Clockwork spring	1	76	Tilted wedge	1
38	Screw M4x12	10	77	Adjusting screw	1
39	Check ring 35	1	78	orientation small gear shaft	1

No.	Description	Q'ty	No.	Description	Q'ty
79	Key 4x12	1	119	Assistant small handle	1
80	Compress spring 0.7x4.7x25	1	120	Worm wheel lock handle	1
81	Cover board	1	121	lock small shaft	1
82	Screw M4x10	3	122	Steel ball 8	3
83	Center orientation shaft	1	123	Adjust mat	1
84	Screw M6x8	1	124	Screw M3x6	2
85	Small gear shaft	1	125	Touch fastness fight	1
86	Inlay shaft	1	126	Guide electricity bar	1
87	Small handle assembly	3	127	Screw M3x6	1
88	Taper pin 3x10	1	128	Worm	1
89	Scutcheon rivet	4	129	Worm adjust mat	1
90	indication brand	1	130	Worm left support flange	1
91	Adjust screw	1	131	Worm handwheel	1
92	Staff guage	1	132	Washer 8	1
93	Pin 5x20	2	133	Nut M8	1
94	T screw	2	134	Cup nut M8	3
95	Washer 10	2	135	Key 4x10	1
96	Cap nut M10	2	136	Screw M5x12	5
97	Check ring 20	3	137	Right support flange I	1
98	Tilted gear	1	138	Key 6x8	3
99	Fastness sleeve	1	139	Gear shaft	1
100	Screw M4x16	3	140	Spindle box below cover	1
101	Washer I	1	141	Screw M4x10	4
102	Guide electricity assembly	1	142A	Screw M8x75	3
103	Worm support box	1	143A	Handle sleeve	3
104	Bearing 8101	2	144	Nut M8	5
105	Worm right support flange	1	145A	Handle wheel	1
106	Screw M4x10	6	146	Dial	3
107	Cup oil 6	7	147	Inlay circle	1
108	Screw 6x20	1	148	Bearing 51101	8
109	Screw M5x16	2	149	Support flange	1
110	Screw M5x20	2	150	Base	1
111	Right support flange II	1	151	Cross wedge	1
112	Joy stick	3	152	Reed	3
113	Compress 0.7x6x25	3	153	Washer 8	2
114	Handle assembly	3	154	Key 4x16	3
115	Check ring 4	3	155	Rotate shaft	1
116	Big handle seat	1	156	Adjust bolt	1
117	Small magnetism block	1	157	Nut M12	4
118	Pin 3x14	1	158	Taper pin 3x20	4

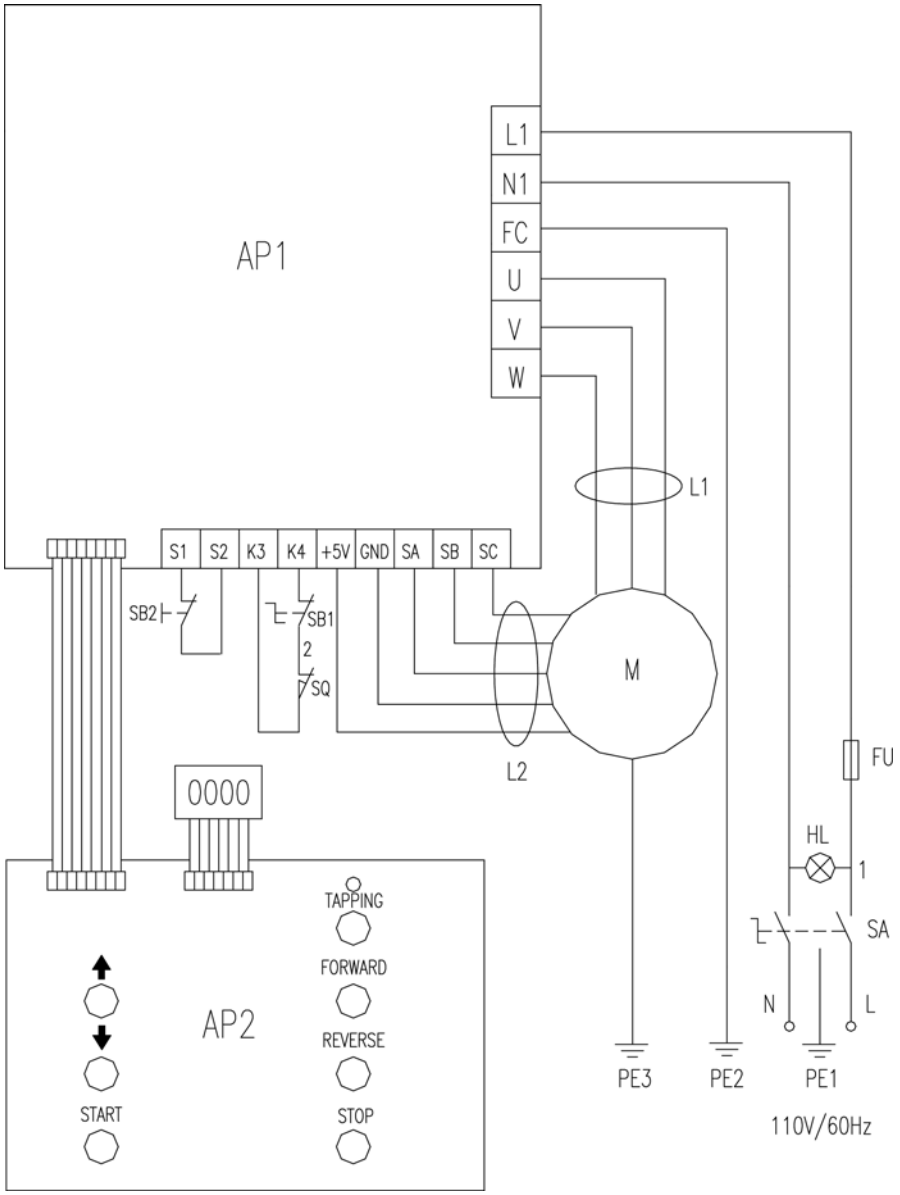
Parts list (III)

No.	Description	Q'ty	No.	Description	Q'ty
159	Screw M6x25	8	199	Upper bearing seat	1
160	Nut M6	8	200	Screw M8x20	4
161	Shaft sleeve	1	201	Taper pin 6x30	4
162	Taper gear	1	202	Bearing 80101	1
163	Washer	1	203	Support fight	1
164	Screw M5x14	1	204	Side support plate I	1
165	Portrait wedge	1	205	Verticality leadscrew nut	1
166	Portrait leadscrew	1	206	Verticality leadscrew	1
167	Check ring 12	1	207	Tube connecter	4
168	Washer	1	208	Tube	2
169	Cross leadscrew nut	1	209	Below bearing seat	1
170	Cross leadscrew	1	210	Taper pin 4x26	1
171	Finger	1	211	Limit sleeve	1
172	Screw M6x6	1	212	Set screw M5x8	1
173	Screw M6x16	6	213	Taper gear II	1
174A	Handwheel	1	214	Washer 5	4
175	Inlay circle	2	215	Screw M5x8	2
176	Taper pin 4x20	14	216	Power line	1
177	Bearing Seat	1	217	PC Board	1
178	Saddle	1	218	Power switch	1
179	Portrait leadscrew nut	1	219	Cover II	1
180	left bearing sleeve	1	220	Back cover	1
181	Left support	1	221	Cover I	1
182	Left support stop up	1	222	Screw M4x5	10
183	Staff guage	1	*265	Compress spring 1.4x8.2x24	1
184	Work table	1	*266	Screw M2x10	2
185	Portrait leadscrew bearing seat	1	*267	Micro switch	1
186	Leadscrew clutch	1	*268	Insulation washer 20x27	1
187A	Handwheel	1	*269	Support plate	1
188	Washer	1	*270	Screw M4x8	3
189	Pin 4x28	1	*271	Magnet block	1
190	Screw M6x10	1	*272	Block	1
191	Verticality lead rail	1	*273	Screw M4x10	1
192	Bolt M10x50	4	*274	Protect cover	1
193	Taper pin 6x40	2	*275	Rotate shaft	1
194	Washer 10	4	*276	Round pin 3x8	1
195	Washer	1	*277	Cover	1
196	Small round nut M16x1.5	2	*278	Spacer	1
197	Key 4x20	1	**Notice**: the parts with "*" means use for Protective		
198	Side support plate II	1	Cover for drill chuck (these parts is optional parts)		

Circle drawing (230V)



Circle drawing (110V)



Packing List

No.	Description	Q'ty	Remarks
1	Drill chuck with taper shank and key	1	
2	L Hex. Wrench S:3,4,5,6,	4	
3	Double end wrench: 8x10; 14x17;17x19	3	
4	Oil cup	1	
5	T-nut	2	
6	L Hex. Wrench assembly	1	
7	Lock wrench	1	
8	Fuse	1	
9	manual	1	