

Vertical Drilling Machine

OPERATION MANUAL

MODEL DP-32



Foreword

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

This user manual has been prepared for those who use the machine or who are responsible for maintenance and service of the machine. Keep this manual properly for future reference. Always make this manual easily available for all those concerned.

Read through the manual carefully before transporting, installing and starting up the machine. The machine is simple design and robustly built, but we can't guarantee perfect function if it is incorrectly handled.





Therefore, it is necessary to let yourself to be acquainted with the function thoroughly and to carry out practical tests on the various parts in the control system and the machine settings. Once these are mastered the excellent properties of the machine can be fully utilized and the component parts will be given the maximum service life.

Each machine should be tested for accuracy and capacity in the factory. The experienced personnel check both the mechanical and electrical functions according to a standardized program, that means we can guarantee the highest workmanship and consistent quality.

By our following directions and your own good judgement, we convinced that your new machine will give satisfaction to everyman. However, should any problems arise, please do not hesitate to contact our dealers or ourselves.

Correctly use your machine is one of the best concerning design and safety. However, any machine that is used incorrectly could be a safety risk. It is of vital importance, that those who use the machine should be informed to know how to handle it correctly. They should read and understand these instructions as well as all plates available on the machine.

0.1 Safety symbol

	Rear the manual carefully before operation and maintenance of the machine.
	Wear safety glass when operating the machine.
	Wear ears protection when operating.
	Cutting hazard. Do not touch the drill bit when it is running.

1 SAFETY INSTRUCTIONS

1.1 SAFETY RULES FOR ALL MACHINES WEAR PROPER APPAREL.

- (1.) **Always wear eyes protection.** Also use face or dust mask if cutting operation is dusty.
- (2.) **Wear proper apparel.** Do not wear loose clothing, gloves, rings, bracelet etc., there is hazard of entanglement.
- (3.) Wear protective hair covering to contain long hair.
- (4.) **Keep proper footing** and balance at all times. Non-slip footwear is recommended.
- (5.) **Keep children away from the machine.** Serious injury could occur if the tool is tipped or if the cutting machine is accidentally contacted.
- (6.) **Don't leave machine** until it comes to a complete stop.
- (7.) **Do not operate machine** while under the influence of alcohol or any medication.
- (8.) Make sure the plug is disconnected from power supply while making maintenance, adjustment or repair.
- (9.) Always keep hands and fingers away from the aiguille.
- (10.) **Do not force the machine.** It will do the job better and safer at the ratings for which it was designed.
- (11.) Use clamps to hold work piece when operating.
- (12.) Consult the operator's manual for recommended accessories. The use of improper accessories may cause hazard.
- (13.) **Avoid accidental starting.** Always make sure the low/high speed switch is in '0' position before plugging in power cord.
- (14.) **Grounding the machines.** Always make sure your machine is well connected to the earth. It may reduce electric shock hazards.
- (15.) Do not install & use the machine in flammable, explosible or damp environment.
- (16.) For your hearing health, we advise the operator to wear hearing protection when necessary.
- (17.) **Do not start the machine until all safeguards are located to their position.** Hazards may occur when running with safeguards opened.
- (18.) Fix the machine to the floor for enough stability when machining long and heavy workpiece. Proper lifting equipment is required for workpieces over 10 kg in weight. Provision shall be provided by the end user for installation and operation of lifting equipment.
- (19.) **The speed adjustment must be done only when the machine stops.**
- (20.) The machine tool must only be used for the purpose it has been designed for. Never use the machine tool without the limits established by the technical data.
- (21.) Do not neglect regular inspections in accordance with the instructions for use.
- (22.) Operation, setting and maintenance including shall be achieved by the required skill level of operators.
- (23.) It should use certain tools in case avoid being scalded for the hot blade tools after drilling.
- (24.) Don't put the fingers on drilled hole in case to protect the safety of finger.
- (25.) The swarf is sharp after drilling, it should use certain tool to clean in order to avoid fingers being hurt.
- (26.) Pay attention to the spindle rotation direction when take the first trial run, the direction should be the same with the direction which indicated on front of the machine. When the rotation is not right, you can change the rotaion in the plug conveniently.
- (27.) **Pay attention to the relationship between the diameter of drill and spindle speed.** The spindle speed must decrease with the increasing of drill diameter. When the diameter of drill is $\Phi 25\text{mm}$, the spindle speed shall be lower than 600rpm; Only when drill diameter is $\Phi 3\text{mm}$, the maximum spindle speed can be selected.

1.2 ADDITIONAL SAFETY RULES FOR THE AIGUILLE:

- (1.) **Make sure the rotating direction of the aiguille is right.** The direction of the aiguille should be in accordance with the direction mark on the machine.
- (2.) **Make sure aiguille speed** is set correctly for the drill.
- (3.) **Check and use proper aiguille** including aiguille size and type.
- (4.) **Always make sure the aiguille and workpiece are** firmly clamped before starting cutting.
- (5.) **Make all adjustments with the power off.** In order to obtain precise and correct ways of adjustment while assembling, the user should read the instruction detailed in this manual.
- (6.) **Keep your work area clean.** Cluttered areas and benches invite accidents.
- (7.) **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use running machine in damp or wet locations, or expose them to rain. Lighting within the workzone shall be provided with a minimum of 500lux at the tool tip when the guard is open.
- (8.) **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept in the safe distance from work area.
- (9.) **DISCONNECT** the plug of the machine away from power source when making repairs.
- (10.) **CHECK DAMAGED PARTS.** Before using the machine, guards or other parts that are damaged should be carefully checked to ensure that they will operate properly. Guards or other parts that are damaged should be immediately replaced.
- (11.) **STOP MACHINE** before servicing and when changing accessories such as aiguille, etc.

2. INTRODUCTION OF THE MACHINE

2.1 Usage

This machine is used only for general metals drilling and tapping within the range of drilling capacity. Cast iron, steel, copper, aluminum, stainless steel, etc. can be machined in the machine.

Forbidden cutting materials: 1) Non-metallic materials, e.g. graphite, stone, wood, plastics, etc. 2) The materials having a rigidity that is lower than the rigidity of the materials to be clamped or fixed; 3) Metals having low ignition points, e.g. magnesium alloy; 4) Toxic and inflammable materials.

2.2 Requirement of operating site

This machine is designed for operating on the site:

The height above sea level doesn't exceed 1000m;

The temperature range of air doesn't exceed 5°C ~ 40°C.

The relative humidity doesn't exceed 50% at a maximum temperature of +40 °C.

Higher relative humidity may be permitted at lower temperature (e.g. 90% at 20°C).

Lighting within the workzone shall be provided with a minimum of 500lux at the tool tip when the guard is open.

Clean environment, good ventilation and enough space shall be kept to operate and maintain the machine tool and electrical cabinet conveniently.

2.3 Requirement of power supply

The input power supply of the machine is AC400V, 50 Hz. 3/PE.

1) Fluctuating range:

- **Voltage** The steady-state AC power supply is 0.9~1.1 times of the rated value.

- **Frequency** 0.99~1.01 times of rated frequency (continuous working)

0.98~1.02 times of rated frequency(short period working)

- **Harmonics** The sum of 2nd-5th distorted harmonic must not exceed 10% of RMS of voltage, maximum 2% of RMS of line voltage is allowed to add to the sum of 6th-30th harmonic.

2) Unbalanced voltage of 3-phase power supply

Negative sequence component are not allowed to exceed 2% of the positive sequence component.

3) Short-circuited protection and incoming line

The machine tool shall have short-circuited protective device at the power supply end by the end-user, the rated current of which must be as low as possible, but not be less than 5A. The diameter of the incoming supply cords include PE conductor should not be less than 1.5mm².

4) Overvoltage protection

Overvoltage protection device shall be provided in the power supply line by the end user.

2.5 Electrical connection

Electrical installations should be always performed by authorized electricians.

1)Make sure that the correct voltage is supplied to the machine.

2)Set up the electrical connections according to the attached electrical drawing.

3)Make sure that the drilling spindle has the correct rotation direction.

Warning: The machine must be grounded firmly!

2.6 Specification,

Drilling capacity(mm)	32,40(optional)
Tapping capacity(mm)	19
Swing(mm)	530
Spindle taper	MT3, MT4(optional)
Spindle travel	150
Spindle speed	High speed 245-2000rpm,Low speed 65-540rpm
Spindle nose to table(mm)	530
Spindle nose to base(mm)	1180
Quill diameter (mm)	75
Column diameter (mm)	115
Motor power	2.2kw
Table size(mm)	560x475
Table slot(mm)	16
Base size(mm)	688x486
Machine size(cm)	95x64x200
Net weight	340kg

2.7 .Noise information:

We evaluated the noise according to EN ISO 3746 under following condition: idle running with the spindle maximum rotation speed.

The sound power level: 90.2dB(A);

The sound pressure level:77.6 dB(A).

The figures quoted are emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. i.e. the number of machines and other adjacent processes. Also the permissible exposure level can vary from country to country, This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

2.8 Residual risks

- 1) It should use certain tools in case avoid being scalded for the hot blade tools after drilling.
- 2) Don't put the fingers on drilled hole in case to protect the safety of finger.
- 3) The swarf is sharp after drilling, it should use certain tool to clean in order to avoid fingers being hurt.

3 Packing and transportation

While transporting or handling the machine, be most careful and let the activity be done by qualified personnel especially trained for this kind of activity.

While the machine is being loaded or unloaded, make sure that no person or subject gets pressed by the machine !

Do not enter the area under the machine lifted by a crane or a high-lift trolley!

During transporting or storing the machine, means must be taken to protect the machine against excessive vibrations and humidity.

It should be stored in a shelter at temperatures ranging from -25°C to 55°C.

As standard, the machine is wrapped up in a robust wooden box and is transported this way.

Transportation after unpacking, please use heavy duty fiber belt to lift up the machine in fig 1.

Warning: - **Tighten** all locks before operating.

- **ALWAYS** keep proper footing & balance while moving this machine, and only use heavy-duty fibre belt to lift up the machine.

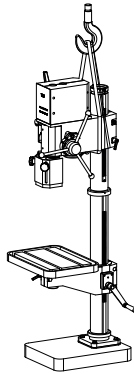


Fig1

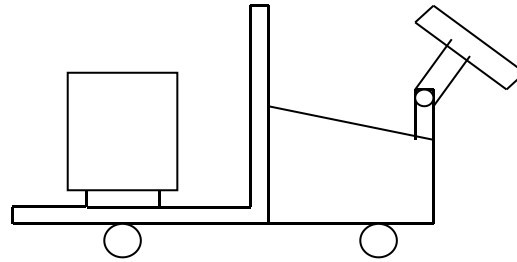


Fig2

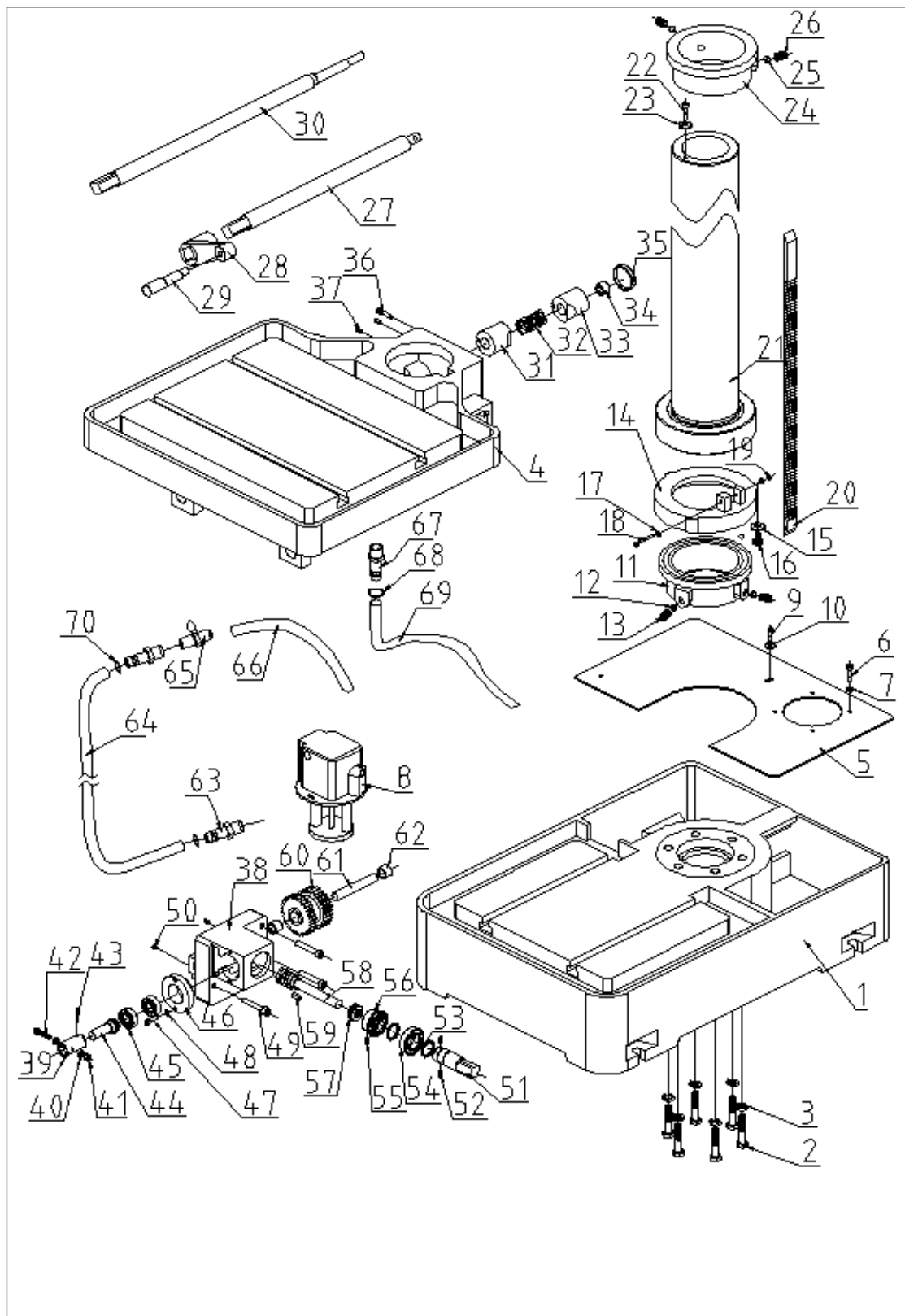
4 Cleaning

All bright parts of the machine are treated with rusty prevention. By removing this, be careful not to use too strong cleaning compound. The paint might then get damaged.

5 Lubrication

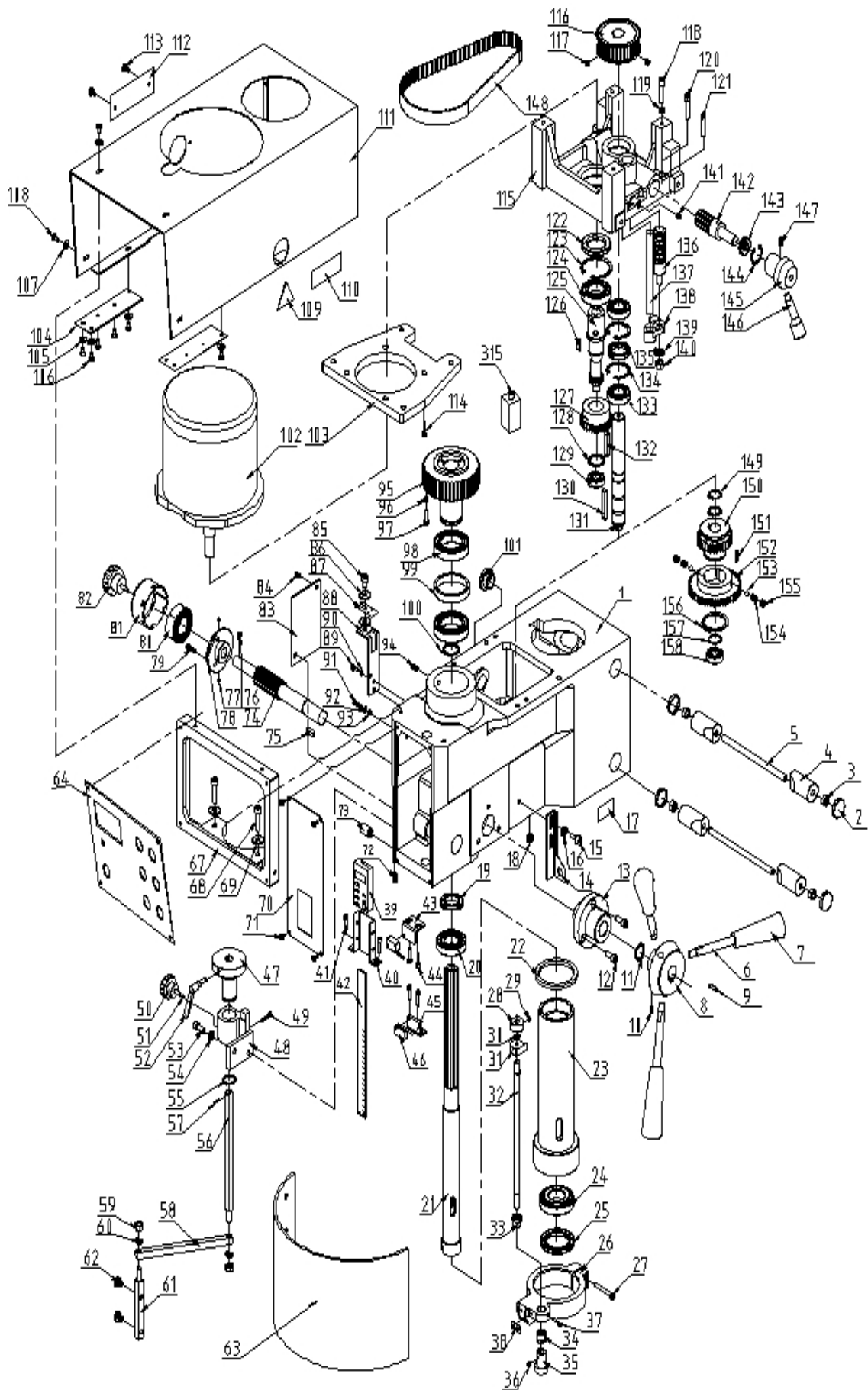
All high –speed shafts and gears are journalled in ball bearings or roller bearings, so that the machine needs very little lubrication, but shall ensure that at least one lubrication each year.

10 PART LIST



Part #	Description	Size	Q'ty
1	Base		1
2	Hex Bolt	M12X65	6
3	Spring Washer	12	6
4	Working Table		1
5	Cover		1
6	Hex Screw	M6X12	4
7	Washer	6	4
8	Coolant Pump	45W2m	1
9	Hex Screw	M5X10	1
10	Bigger Washer	5	1
11	Colum sleeve		1
12	Copper block		2
13	Hex Bolt	M12X20	2
14	Colum sleeve cover		1
15	Bigger washer	8	3
16	Cross screw	M8X16	3
17	Washer	4	2
18	Hex Bolt	M4X60	1
19	Nut	M4	1
20	Rack		1
21	column		1
22	Hex Bolt	M6X12	1
23	Bigger washer	6	1
24	Lower sleeve		1
25	Copper block		2
26	Hex Bolt	M12X20	2
27	Rock arm		1
28	Cranking Bar		1
29	Turning Handle	M10X80	1
30	Rock Arm		1
31	Front Sleeve		1
32	Spring		1
33	rear sleeve		1
34	Wire Block		1
35	CoverΦ45		1
36	Hex Bolt	M6X25	1
37	Spring pin	5X16	2
38	Gear box		1

39	Connecting sleeve		1
40	Flat washer	6	2
41	nut	M6	1
42	screw	M6X30	1
43	Spring pin	4X26	1
44	Gear 1		1
45	bearing	6202-2z	2
46	Bearing base		1
47	Hex Screw	M6X20	2
48	Spring washer	6	2
49	Hex bolt	M8X50	3
50	Hex bolt	M5X8	2
51	Connecting sleeve		1
52	Hex Bolt	M6X10	2
53	Ring	25	2
54	bearing	6005-2z	1
55	Hex Bolt	M6X10	1
56	Gear 2		1
57	Bearing	51102	1
58	Worm		1
59	Key	5X20	1
60	Gear		1
61	Gear shaft		1
62	Copper sleeve		2
63	Slub Head	G3/8"	2
64	Pipe	Φ12Xφ8	2m
65	Vlave	G3/8"	1
66	Pipe	G3/8"	1
67	Joint		1
68	Pipe Clamp	φ25	2
69	Pipe	φ25Xφ21	1.5m
70	Pipe Clamp	φ12	2



1	Head assembly		1
2	Blank cover		6
3	Hex nut	M12	4
4	Locking block		4
5	Locking lever		2
6	Feed Handle		3
7	Long handle sleeve	M12X60	3
8	Seat for feed handle		1
9	Key	6X20	1
10	Set screw	M5X10	1
11	Circlips	25	1
12	Hex socket cap screw	M8X20	3
13	Shaft sleeve		1
14	Cooling pipe bracket		1
15	Hex socket cap screw	M8X20	1
16	Flat washer	8	1
17	Data lable		1
18	Drain plug	G1/4	1
19	Round nut	M30X1.5	1
20	Taper roller bearing	30206	1
21	Spindle		1
22	O rubber sealing ring	75X5.3	1
23	Sleeve		1
24	Taper roller bearing	30207	1
25	Oil seal	B53	1
26	Lower bush		1
27	Hex socket cap screw	M6X50	2
28	Small bush		1
29	Hexagon socket set screws	M4X6	1
30	O ring	10X1.5	1
31	Anti-rotation block		1
32	Screw rod		1
33	Screw jacket		1
34	Small bush		1
35	Turn handle		1
36	Hexagon set screws with cone	M5X8	1
37	Hexagon socket set screws	M5X10	1

38	Lable		1
39	Digital tachometer display		1
40	Digital seat		1
41	Hex socket cap screw	M5X20	2
42	Digital scale		1
43	Micro switch top bracket		1
44	Hex socket cap screw	M5X20	4
45	Micro switch lower bracket		1
46	Micro switch		2
47	Inner sleeve		1
48	Fixed seat		1
49	Cross recess head screw	M4X25	2
50	Star handle	M8X32	1
51	Copper block		1
52	Ajustable fixing handle	M6	1
53	Hex socket cap screw	M8X20	2
54	Flat washer	8	2
55	Circlips	30	1
56	Vertical square bar		1
57	Spring pin	3X14	1
58	Horizontal square bar		1
59	Hex nut	M10	2
60	Spring washer	10	2
61	Fixed strip		1
62	Hexagon flat head screws	M8X12	2
63	Safety guard		1
64	Panel		1
65	Hexagon flat head screws	M5X10	4
66	Washer	5	4
67	Front bracket		1
68	Hex socket cap screw	M8X35	2
69	Washer	8	2
70	Head box panel		1
71	Flat washer combination	M4X10	4
72	Hexagon socket set screws	M8X16	1
73	Sleeve guide pin		1

74	Feed gear shaft		1
75	Key	6X20	1
76	Cross recess head screw	M5X8	1
77	Spring pin	3X5	2
78	Connecting disc		1
79	Screw	M5X20	3
80	Coil Spring		1
81	Coil Spring box		1
82	Knob	M6X25	1
83	Left rear cover		1
84	Pain washer assembly	M5X12	2
85	Bolt	M8X12	1
86	Washer	8	2
87	Speed display card board		1
88	Speed display bracket		1
89	Bolt	M5X12	2
90	Spring washer	5	2
91	Bolt	M4X20	2
92	Locking washer	4	2
93	Nut	M4	2
94	Screw	M8X16	1
95	Belt Wheel		1
96	Hex Nut	M5	1
97	Screw	M5X20	1
98	Bearing	6009-2z	2
99	Sleeve		1
100	external circlip	45	1
101	Oil Leveler A20	M27X1.5	1
102	Motor		1
103	Motor Flange		1
104	Board		2
105	Washer	5	4
106	Screw	M5X10	8
107	Washer	5	6
108	Screw	M5X10	6
109	Lightning label		1
110	Speed label		1
111	Cover		1
112	Oil label		1

113	Pain washer assembly	M5X12	2
114	Screw	M10X16	4
115	Motor support seating		1
116	Middle Belt wheel		1
117	Screw	M8X8	2
118	Screw	M8X35	4
119	Spring Washer	8	4
120	Screw	M8X35	4
121	Pin	6X40	2
122	Oil seal	B46	1
123	Internal Circlip	62	1
124	Bearing	6007-2z	1
125	Shaft		1
126	Flat Key	8X7X20	1
127	Gear		1
128	external circlip	32	1
129	Bearing	6202-2z	1
130	Flat Key	8X7X56	1
131	Back shaft		1
132	Flat Key	8X7X36	1
133	Bearing	6005-2z	2
134	Internal Circlip	47	2
135	Oil Seal	B36	1
136	Round Rack		1
137	Yoke Bar		1
138	Copper shift fork		1
139	elastic collar	10	1
140	Nut	M10	1
141	Screw	M6X10	1
142	Fork Rack		1
143	Oil Seal	B13	1
144	Internal Circlip	30	1
145	Speed handle seat		1
146	Speed handle		1
147	Screw	M10X12	1
148	Arc synchronous belt	720-8M	1
149	external circlip	25	2
150	Upper Gear		1
151	Flat Key	6X6X16	1

152	Lower Gear		1
153	Steel Ball	SΦ8	2
154	Spring		2
155	Screw	M10X10	2
156	external circlip	48	1
157	external circlip	25	1
158	Bearing	6202-2z	1

14 Electrical drawing

