



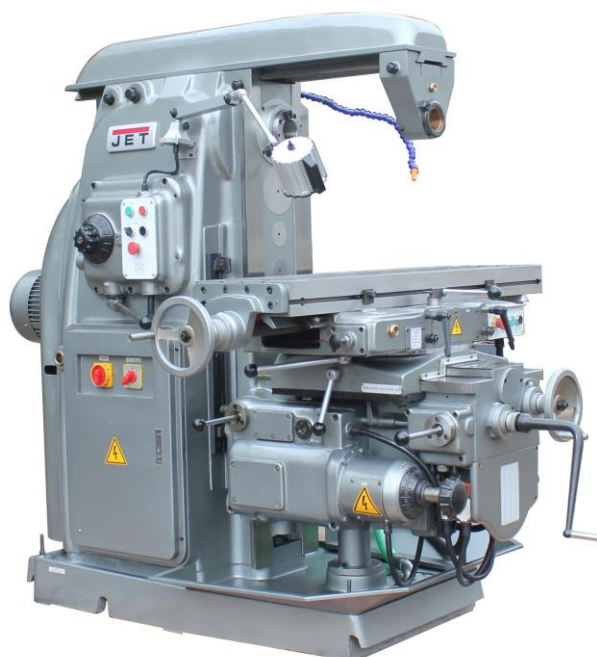
**JHM-1253 DRO**

**Milling Machine**

Original:

**GB**

**Operating Instructions**



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# GB - ENGLISH

## Operating Instructions

Dear Customer,

Many thanks for the confidence you have shown in us with the purchase of your new JET-machine. This manual has been prepared for the owner and operators of a JET JHM-1253 Milling Machine to promote safety during installation, operation and maintenance procedures. Please read and understand the information contained in these operating instructions and the accompanying documents. To obtain maximum life and efficiency from your machine, and to use the machine safely, read this manual thoroughly and follow instructions carefully.

### 1. Declaration of conformity

On our own responsibility we hereby declare that this product complies with the regulations\* listed on page 2. Designed in consideration with the standards\*\*.

### 2. Warranty

JPW(Tool) AG guarantees that the supplied product(s) is/are free from material defects and manufacturing faults. This warranty does not cover any defects which are caused, either directly or indirectly, by incorrect use, carelessness, damage due to accidents, repairs or inadequate maintenance or cleaning as well as normal wear and tear. Further details on warranty (e.g. warranty period) can be found in the General Terms and Conditions (GTC) that are an integral part of the contract. These GTC may be viewed on the website of your dealer or sent to you upon request. JPW(Tool) AG reserves the right to make changes to the product and accessories at any time.

### 3. Safety

#### 3.1 Authorized use

This **Milling Machine** centre is designed for milling and drilling machinable metal and plastic materials only. Machining of other materials is not permitted and may be carried out in specific cases only after consulting with the manufacturer.

#### Never cut magnesium- high danger to fire!

The proper use also includes compliance with the operating and maintenance instructions given in this manual.

The machine must be operated only by persons familiar with its operation and maintenance and who are familiar with its hazards.

The required minimum age must be observed.

The machine must only be used in a technically perfect condition.

When working on the machine, all safety mechanisms and covers must be mounted.

In addition to the safety requirements contained in these operating instructions and your country's applicable regulations, you should observe the generally recognized technical rules concerning the operation of metalworking machines.

Any other use exceeds authorization.

In the event of unauthorized use of the machine, the manufacturer renounces all liability and the responsibility is transferred exclusively to the operator.

#### 3.2 General safety notes

Metalworking machines can be dangerous if not used properly. Therefore the appropriate general technical rules as well as the following notes must be observed.

Read and understand the entire instruction manual before attempting assembly or operation.

Keep this operating instruction close by the machine, protected from dirt and humidity, and pass it over to the new owner if you part with the tool.

No changes to the machine may be made.

Daily inspect the function and existence of the safety appliances before you start the machine. Do not attempt operation in this case, protect the machine by unplugging the power cord.

Remove all loose clothing and confine long hair.

Before operating the machine, remove tie, rings, watches, other jewellery, and roll up sleeves above the elbows.

Wear safety shoes; never wear leisure shoes or sandals.

Always wear the approved working outfit.

Do not wear gloves.

Wear goggles when working

Install the machine so that there is sufficient space for safe operation and work piece handling.

Keep work area well lighted.

The machine is designed to operate in closed rooms and must be bolted to the cabinet stand or a solid work bench.

Make sure that the power cord does not impede work and cause people to trip.

Keep the floor around the machine clean and free of scrap material, oil and grease.

Stay alert!

Give your work undivided attention. Use common sense. Do not operate the machine when you are tired.

Do not operate the machine under the influence of drugs, alcohol or any medication. Be aware that medication can change your behaviour.

Never reach into the machine while it is operating or running down.

Never leave a running machine unattended. Before you leave the workplace switch off the machine.

Keep children and visitors a safe distance from the work area.

Do not operate the electric tool near inflammable liquids or gases.

Observe the fire fighting and fire alert options, for example the fire extinguisher operation and place.

Do not use the machine in a damp environment and do not expose it to rain.

Work only with well sharpened tools.

Always close the chuck guard and pulley cover before you start the machine.

Remove the chuck key and wrenches before machine operation.

Specifications regarding the maximum or minimum size of the work piece must be observed.

Do not remove chips and work piece parts until the machine is at a standstill.

Do not stand on the machine.

Connection and repair work on the electrical installation may be carried out by a qualified electrician only.

Have a damaged or worn power cord replaced immediately.

Never place your fingers in a position where they could contact any rotating tool, chuck or cutting chips.

Secure work piece against rotation. Use fixtures, clamps or a vice to hold the work piece.

Never hold the work piece with your hands alone.

When using a vice, always fasten it to the table.

Never do any works "freehand" (hand-holding the work piece rather than supporting it).

Never move the head while the machine is running.

If a work piece overhangs the table such that it will fall or tip if not held, clamp it to the table or provide auxiliary support.

Check the safe clamping of the work piece before starting the machine.

Remove cutting chips with the aid of an appropriate chip hook when the machine is at a standstill only.

Never stop the rotating chuck or tool with your hands.

Measurements and adjustments may be carried out when the machine is at a standstill only.

Setup work may only be carried out after the machine is protected against accidental starting by pressing the emergency stop button.

Maintenance and repair work may only be carried out after the machine is protected against accidental starting by pulling the mains plug.

Do not use wire wheels or grinding wheels on this machine.

To avoid injury from parts thrown by the spring, follow instructions exactly as given when adjusting the spring tension of the quill (see chapter 7.5)

### 3.3 Remaining hazards

When using the machine according to regulations some remaining hazards may still exist.

The rotating chuck, tool and cutting chips can cause injury.

Thrown and hot work pieces and cutting chips can lead to injury.

Chips, dust and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles, dust mask and ear protection.

The use of incorrect mains supply or a damaged power cord can lead to injuries caused by electricity.

## 4. Machine Safety for JHM-1667

The JHM-1253 series milling machines are universal machines that are capable of diverse machining, like drilling, reaming, milling and boring.

Flat, slant, vertical surfaces cutting and slotting can be done with formed cutter or face mill. With the spindle center line rotating at any angle in the first half hemisphere of the rotary head, it has a diverse cutting capacity.

The machines have a wide application for single-piece or small batch production in manufacturing, instruments, construction, maintenance and repair workshops and so like industries.

Featuring optimum structure, easy operation and less maintenance, the machine can also be equipped with DRO system for higher positioning and efficiency in batch production.

Instruction:

★: DANGER: Indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.

▲: WARNING: Indicate a potentially hazardous situation which, if not avoided, could result in injury or machine damage.

△: NOTICE: The item should specially be noticed and cared.

### 4.1 Installation of machine

△: Fully understand procedure and request of installation in the manual.

△: All relative persons must communicate with each other if necessary during installation.

▲: Sling and tool for installation must be pre-checked, and accord with relative safety standard request.

### 4.2 Power supply

△: Check whether electrical box's door is closed.

▲: Shut off power supply if the machine stops due to power cut.

### 4.3 Idle run

▲: The machine runs idle first for preheating before working.

▲: When the machine runs idle, check whether each function of device is normal, check whether each control handle is flexible and reliable, whether each clamping device is loose, whether the each movement direction is normal, whether the each electrical operating part turns flexibly and is in normal position. Open the electrical door and check whether each electrical part (special binding screw) is loose during transportation or tighten them with special tool; check whether electrical parts are damaged. Close the electrical door after all the things are ready, turn the main switch control knob QS1 with key to interlock position, switch on the power supply and run idle after making sure there is not obstacle around the machine.

▲: Check the push button switches on the operation panel first before operating then to avoid mistakenly pressing them.

★: Stop the machine during loading or unloading work piece.

### 4.4. Device

▲: Check all set value and state of moving parts.

★: During lifting heavy objects, use hoisting machinery, crane or multi person cooperative operation;

▲: The work lamp after lighting for a long time will be too hot to touch;

▲: Be careful not to tumble on the ground due to coolant splashes down when the table moves to the extreme travel position.

★: Do not touch moving parts when the machine runs.

▲: Always unscrew the bolt slowly.

▲: Clamp the tool and work piece firmly and safely.

▲: Do not place the tool and apparatus on the table or other part of machine.

▲: Be careful not to hit your head when operating the machine or going under the ram or other protruding parts.

#### 4.5. Automatic run

★: Do not touch switches with wet hands.

▲: Don't lean against the machine when the machine runs.

★: Take care not to press the wrong button, before operation, check the button switch on operation panel visually.

▲: Be sure to close all the doors before run automatically.

▲: Check whether all switches and moving parts are in the correct position before automatic run.

▲: Do not touch any moving parts when machine runs.

▲: Do not touch any switch when machine automatically runs.

#### 4.6. Stop running

▲: Press the ESP switch when malfunction happens.

▲: Fully understand why the machine stops.

▲: Check whether the machine thoroughly stops.

#### 4.7. Switch off power supply when work is over.

▲: Clean the machine.

▲: Stop the machine in special position. (X, Y, Z axes )

▲: Switch off the main switch immediately when work is over; turn control power supply knob in close down position and must take the key away.

#### 4.8. Check, repair, maintenance

△: Fully understand the malfunction of machine according to description of operator.

△: Map out steps of check, maintenance and working range.

▲: Place the sign plate with "under repair" around the machine when maintaining the machines.

★: Place the sign plate with NO SWITCHING ON in the position of main switch to avoid switching on the power supply suddenly.

★: Switch off the main power supply and must place the sign plate with NO SWITCH ON in the position of main switch when repairing the machine.

★: Do not touch the cable, electrical apparatus, and switches by damp hands

▲: Use standard and special tool.

▲: Do not place tool or clothes on the moving parts.

★: When using lifting machinery, only qualified wire rope, hook and pulley are allowed to be use;

▲: Replace with specified parts.

## 5. PERFORMANCE AND APPLICATION

### 5.1 Machine usage

(1) JHM-1253 Horizontal milling machine is suitable to volume production, individual production, machining department, tools and repairing department.

(2) The milling machine is used for cylindrical milling cutter, angular milling cutter, formed cutter and raised cutter to machine all kinds of plane, level, groove and gear. If using accessories, such

as universal milling head, swivel table and dividing head, which can expand the range of machining.

(3) The table of JHM-1253 can swivel 45° left and right. When the table is rotated around its vertical center and installed a certain angle after dividing head, still capable of milling helical surface (such as a drill spiral groove, helical gear, drum, etc.).

### 5.2. The milling machine has the following characteristics:

(1) The machine structure itself has sufficient rigidity to withstand heavy cutting work load.

(2) The machine has enough power and a wide speed range, using carbide cutting tools can be used for high-speed cutting.

(3) In the front and left the machine, each of the same set of function buttons and joystick (i.e. duplex operating device) so that the table can choose the most convenient location to operate.

(4) Spindle start, stop, and fast travel have significant start button, table feed by the handle manipulation, and manipulation of its feeding direction consistent with the direction of the handle within the meaning of spindle speed and table feed speed with dial to select, all of which are manipulated so that the machine is simple, the workers operating the machine does not necessarily need to be skilled.

(5) An important tool transmission parts are made of alloy steel, and special treatment. Wear and tear parts are made of wear-resistant materials, Machine Tool anti crumbs devices, which are sufficient to ensure that the machine has long life.

(6) Wearable part has to eliminate the gap adjustment device to ensure accuracy and smooth machine.

(7) The machine has a good safety device, manual feed and feed motor has an interlocking mechanism, the feed excessive or overloaded due to a fault, the insurer zygote can be automatically disengaged, so that the machine parts will not be damaged, while ensuring the safety of the operator.

(8) The machine can be quickly and effectively braking, when the processing is completed or for other reasons have to stop the machine, simply click the stop button, the machine immediately stop all motion.

(9) The machine can be climb milling and work against the lock, the operator can be applied flexibly according to need.

(10) Table in three directions (longitudinal, lateral, vertical) can move quickly, reduce the auxiliary time and improve productivity.

(11) The table lateral movement and vertical concentration consists of a handle control, the operator can control the table with the handle in both directions of feeding and moving quickly.

(12) A sound machine lubrication system, important moving parts and bearings are lubricated by the motor oil pump automatically, required manual lubrication of parts, which are located in the refueling point obvious place.

(13) The important shafts and spindles are mounted on rolling bearings, to improve the transmission efficiency, tapered roller bearings on the spindle, can be adjusted to ensure precision spindle.

## 6. MACHINE STRUCTURE

### 6.1 The bed:

The bed is connected with basement by bolt. The over beam is on

dovetail guideway, and on the bottom of left side is rack. When turn the hex head on left side of bed upper position by spanner, the rack will move by means of pinion. So the over beam will move forward and backward. There are two sets of clamping devices on upper left of bed. On extending part of over beam, there mount a cutter bar bracket. Each cutter bar bracket is equipped with wear-resistant bronze sleeve. The clearance between sleeve and cutter bar can be adjusted by nut. The coolant tank is in the base.

### 6.2. The drive system of spindle

Spindle drive part is in the bed; it is composed by five shafts. On both sides of bed, there is a window; Open cap of the right window, the drive parts can be seen, and inspection and adjustment should be done. On the left side of window, there is a variable speed control box. The motor is at the back of bed. Move triple or duplex sliding gear by shift fork. Different meshing conditions can be got to make spindle reach 18 kinds of speed.

### 6.3 Speed change of spindle

Gearbox is an independent component, which is installed at the left window of bed. It is close to sliding gear of transmission mechanism. It is controlled by a handle and a turntable (see Fig.1) .

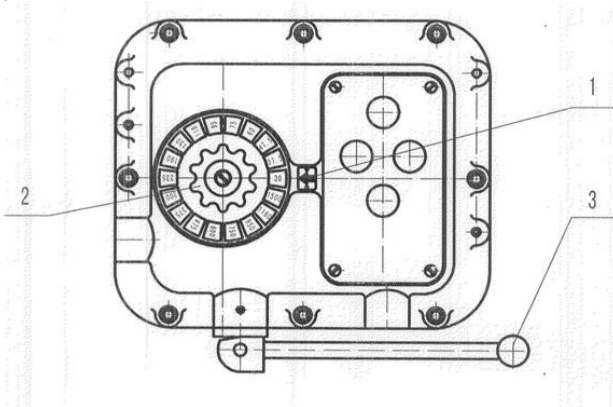


Fig 1

Operation steps are as follows:

(1) Press down handle 3, and make the key block slide out of groove. Then pull the handle to the front till the key block fall down into the second groove.

(2) Turn the turntable 2, which has 18 kinds of speed, making the required speed to the pointer 1. When it points to one speed, the locator will ring; put a little strength to turn to next speed. The turntable can turn clockwise or counter clockwise.

(3) Push handle 3 back to original position with rapid uniform speed. Be sure the key block falls into the groove.

In order to avoid collision between teeth, during shifting handle 3, the motor can get short impulse by means of variable speed control box to make sliding gear passing and meshing smoothly.

Do not change gear during spindle running.

### 6.4 Feed and speed change parts

Gearbox can not only changing feed speed, but make table rapid moving. Gearbox is an independent part, which is fixed on the left side of lifting table. It is driven by feed motor in the lifting table. The gearbox has five rotation shafts. By means of meshing condition of two triple gears and one set of back wheel, it can get 18 kinds of speed. The sliding gear position is controlled by feed speed changing control box. The control box is in front of the gearbox, and there is a turntable in front of the control box for feed

selecting. There are 18 kinds of speed on the turntable; the mushroom handle is used for controlling. (see Fig.2)

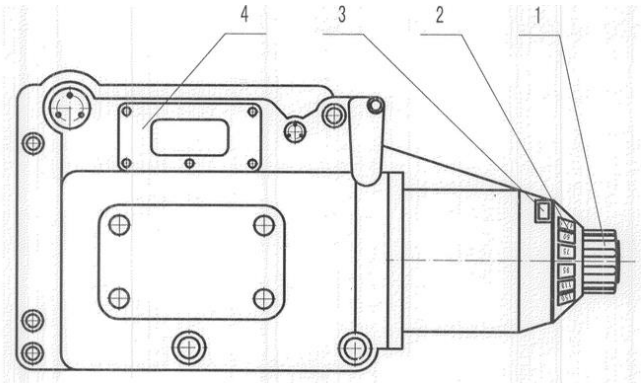


Fig 2

Operation steps for feed speed changing:

(1)pull the mushroom handle 1 to forward;

(2)Turn the handle and turntable 2 is turning as well. Point the required speed to arrow 3. Attention must be paid that, the number on turntable is equal to the longitudinal or horizontal feed rate; but the vertical feed rate is only 1/3 of the number on the turntable.

(3)Pull the mushroom handle to forward limit position, and then push it back.

In order to guarantee variable speed smoothly, feed motor also has the impulse device. The mushroom handle axis movement will make motor has impulse. The feed speed can be changed under machine running.

### 6.5. Lifting table

Lifting table is in front of column, and connect with column through dovetail way, adjust the backlash of lifting table to column with gib. Clamping handle is on the right rear side of lifting table.

Rectangular guide is on the top of lifting table, being used for installing saddle. At the front lower part of lifting table, there is a 1.5 KW flange type motor.

There are control handwheel and handle at the front end of lifting table. Due to interlocking mechanism, when worktable working feed and rapid moving is carried out automatically, handle and hand wheel is out of contact with rotating shaft; they do not rotate along with the shaft so as to ensure the safety of operator.

The horizontal and vertical feed control handles are double entry, namely, two identical handles, which are installed at front and back of lifting table left side respectively. The handle has five positions:

- (1)Worktable upward or rapid upward;
- (2)Worktable downward or rapid downward;
- (3)Worktable forward or rapid forward;
- (4)Worktable backward or rapid backward.
- (5)Horizontal or vertical feed stop.

These five positions are interlock. The feed on each direction cannot be got at the same time. The bump plates at side of bed guide way and on table base can stop horizontal or vertical feed at the required position by means of leverage and rod.

### 6.6 The table part

Work table parts is installed on lifting table; By operating mechanism, the worktable can realize manual, motor and rapid

moving on three directions of longitudinal, horizontal and vertical. There is feed interlock device on each axis.

The handle controlling longitudinal travel of worktable is installed on top center position of worktable base. The handle has three positions, namely "feed to the right ", "feed to the left" and "stop".

The longitudinal feed control handle of worktable also is double entry. The other identical handle is installed at the left lower position of table base.

There is a compensation device for adjusting the clearance between longitudinal leadscrew and nut.

Table longitudinal dovetail guide way and horizontal rectangular guide way clearance can be adjusted by wedge. On left and right side of worktable base has a clamping handle respectively for clamping the base on lifting table. When handle is clamped, the horizontal feed hand wheel can not be turned. Do not even move horizontal auto feed or rapid feed. The worktable is clamped on dovetail guide way by two screws at front end of table base.

JHM-1253 worktable has upper part and lower part; the upper part is rotary disc, and the lower part s saddle. Two parts combination is located by a ring fixed on saddle. The rotary disc can rotate with worktable together around the ring relative to saddle. The max. rotary angle is 45 °leftward/rightward. The rotary disc can be fixed on rotary angle you need by T-bolt.

### 6.7 Cooling section:

Coolant system installed in the machine base, turn the machine back cover you can see the coolant pump and motor, cooling pump coolant delivery along the tube to the nozzle, in order to make the liquid sprayed accurately cut parts, mobile systems have nozzles flexible enough to adjust it in any angle, but also to move along the cantilever rail. The amount of the cooling liquid is regulated through the delivery valve.

## 7.PARAMETERS

No.	Items	JHM-1253
1	Table size (W×L)	320*1325mm
2	Max. longitudinal travel of table	700mm
3	Max. cross travel of table	255mm
4	Max. vertical travel of table	410mm
5	Max. table angle of rotation	±45°
6	No. of T-slot	3
7	T-slot width	18mm
8	Distance of T-slot	70mm
9	Spindle taper	ISO 50
10	Diameter of spindle bore	φ29
11	Diameter of spindle front bearing	φ90
12	Distance of spindle axis to table surface (Max. ~Min.)	30-440mm
13	Distance of table center to vertical ways of column (Max. ~Min.)	470-215mm
14	Distance of spindle axis to Ram	155mm
15	Spindle Speed steps	18
16	Spindle speed range	30-1500RPM
17	Table Speed steps	18
18	Table feed range-- Longitudinal	23.5-1180mm/min
19	Table feed range--Cross	23.5-1180 mm/min
20	Table feed range--Vertical	8-394 mm/min

21	Table rapid moving speed Longitudinal 、 Cross	2300 mm/min
22	Table rapid moving speed Vertical	770 mm/min
23	Main power	7.5KW
24	Main motor speed	1440 RPM
25	Feed motor power	1.5KW
26	Feed motor speed	1410
27	Coolant pump power	1/8HP
28	Coolant pump flux	22 L/min
29	Weight	2940KG
30	Max. Work table load	500KG
31	Overall size (L×W×H)	2294x1770x1610mm

## 8. UN-PACKING AND INSTALLATION

### 8.1 Machine transportation

Packaged machine tool is transported to the designated locations by crane or rolling bar. If crane is used, the wire rope must be able to load over 4 tons. When rolling on a tilting plate, slope of the plate should not be more than 10 degrees. When transport unpacking machine, set steel rope according to the positions shown on Hoisting Diagram (see fig.3) . Before lifting, move worktable near to bed. Do not make steel rope contact machine directly. To avoid damage oil paint, it is better to use wood pa

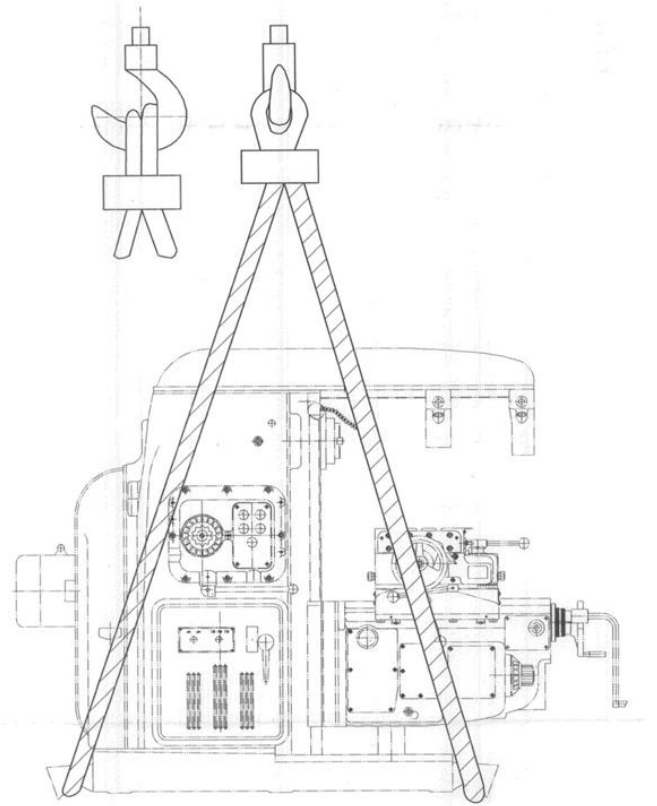


Fig 3

### 8.2. Unpacking

After unpacking, check all the accessories according to packing list. Check machine handle and prominent part of machine for damaging during transporting. If find any accessory loss, please inform immediately. Once the machine is used, manufacturer will not take any responsibility.

### 8.3 Installation of machine

In order to make the machine work smoothly and accurately, lay



concrete foundation according to foundation plan (see fig.4). Pour foundation in solid soil. It is best to tamping beforehand. The foundation depth is decided by soil.

After placing machine tool on the foundation, and before pouring concrete, adjust by level ruler on vertical and horizontal directions. After fully dry, tighten the anchor bolts evenly. Check the machine level. The permissible error is 0.04/1000 on both directions.

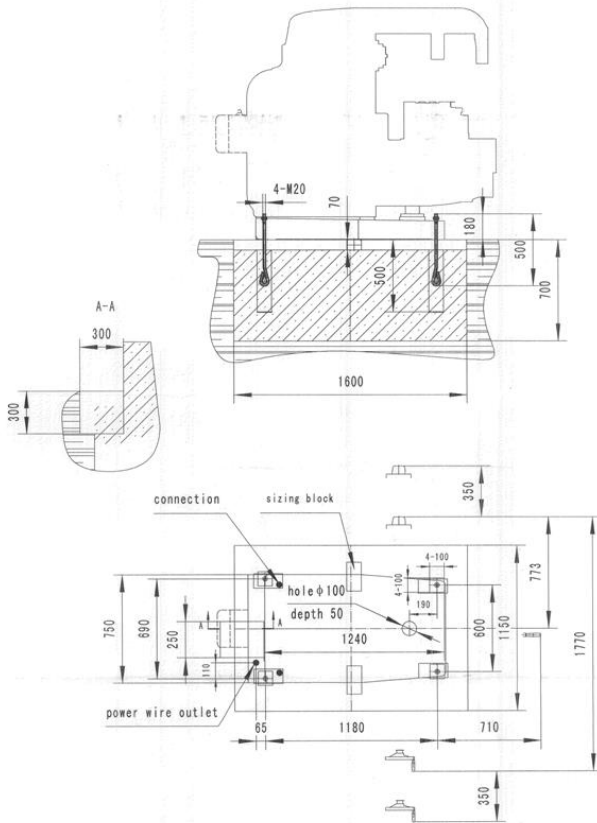


Fig 4

### 8.4 Commissioning

Before commissioning, clean machine parts with kerosene. Do not use any metal material or other instrument enough to scratch parts surface to wipe. After cleaning, coat the exposed surfaces with a thin layer of machine oil. Fill up the lubrication unit and check each lubrication point before commissioning.

Check the motor direction after switching on the machine; and correct the machine wiring according to rotation direction indicated on the machine label.

Perform idle run at least for 30 minutes in the lowest speed. Then test all levels of operation with increasing the speed gradually. Also check if each direction feed control handle of worktable for is flexible and reliable. And check the lubricating oil pump working condition. It should be noted that during feeding, the worktable clamp handle on each direction should be loosened.

## 9. MACHINE TRANSMISSION SYSTEM

### 9.1. Drive system of spindle

Spindle is driven by 7.5 KW flange type motor. The motor is connected with I shaft through Elastic coupling (see fig.5). The spindle will obtain 18 kinds of speed by moving sliding gears (two

triple gear and one duplex gear) of II/IV shaft; the speed range is of 30~1500rpm.

Fig.6 Spindle speed distribution diagram

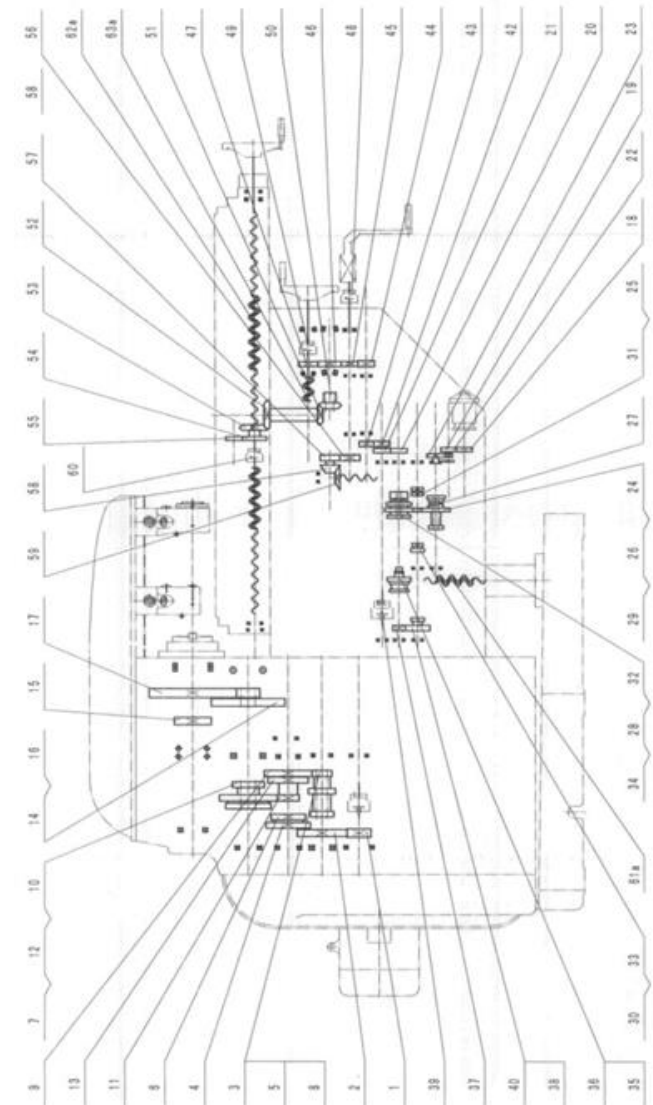
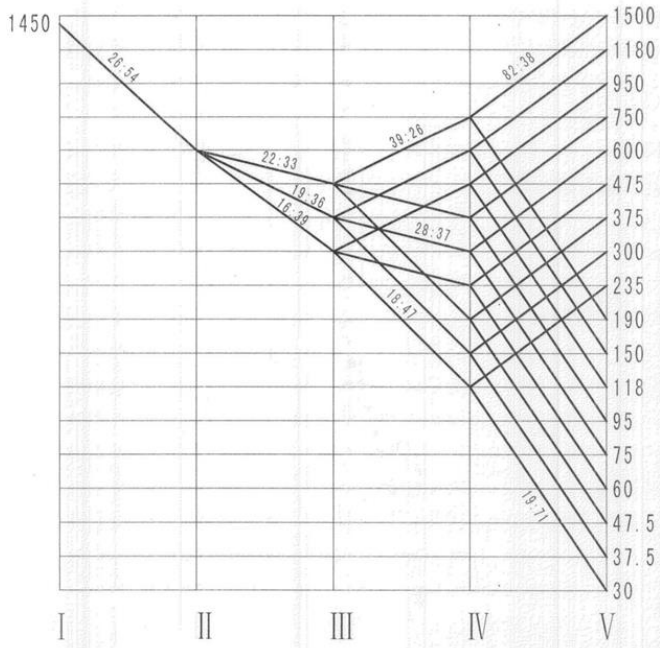
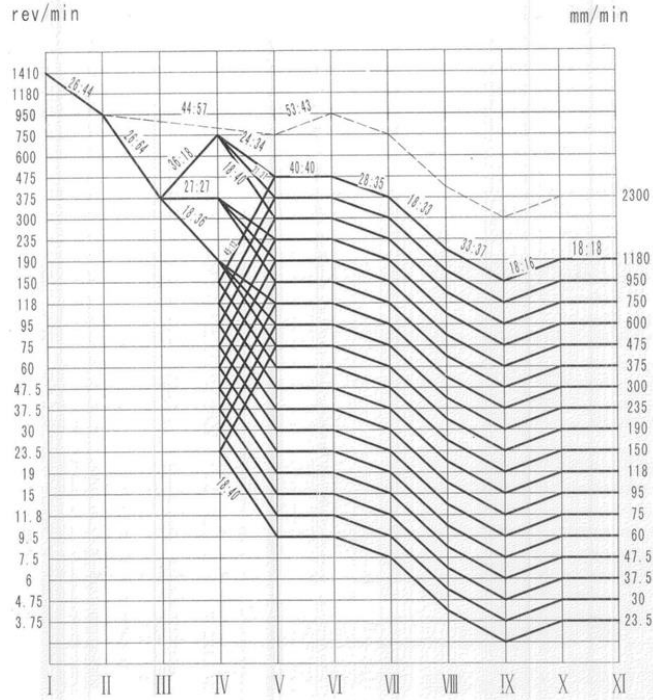


Fig 5



**Fig 6**  
mm/min



**Fig 7**

### 9.2 Feed system (see Fig.5, Fig.6 and Fig. 7)

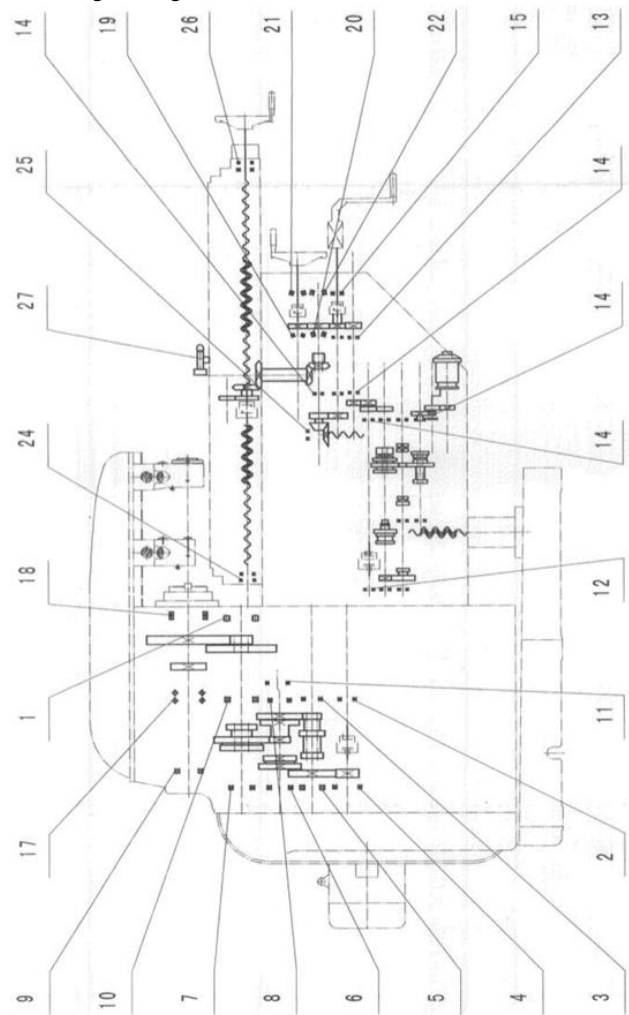
The feed system is driven by 1.5KW flange type motor (in lifting table) individually. The gear (18) is fixed directly on the shaft of motor, shaft V can get 9 steps speed through moving two triple gears on shaft III and shaft V. Push the gear (36) left to disconnect the clutch (35), gear (36) and (39) still mesh as the gear (39) is wide. The drive route: shaft V—37—40—38—36—39; Shaft V drives shaft VI through gear (36), (39) when gear (36) is on the right (shown on the figure), gear (36) engage with clutch (35), so gear (39) can get 18 steps speed. When slow electromagnetic clutch attracts, gear 39 drives VI-shaft and also drives to shaft VII, VIII, IX and X through gear 42, 43, 44, 45, 46 and 47. Clutch 48, 49, 60 is controlled by worktable control handle. Each position of the handle can connect one clutch. So the

corresponding leadscrew turns and gets longitudinal, transverse and vertical feed movement. Three directions of the clutch is interlock, cannot be connected at the same time. The longitudinal and transverse feed range are all in 23.5mm/m to 1180mm/m; Due to lowering speed function of gear 56, 57, 58 and 59, vertical feed rate (namely 8-394 mm/m) is only equivalent to 1/3 of the vertical feed rate. When press down “Rapid” button, the worktable will move rapidly. When the electromagnetic clutch at the right side of VI-axis is connected, motor drives VI-axis through gear 18, 19, 20 and 21. So the worktable can move rapidly. The longitudinal and transverse rapid movement is of 2300 mm/m. The vertical movement is of 770mm/m. The figure 6 is the feed rate distribution chart. The speed is selected by variable speed turntable.

Please see Fig.8 about the site of rolling bearing.

For machine gears and transmission parts list, see Table 1.

For rolling bearing list, see Table 2.



**Fig 8**

**Table 1: Gears and transmission parts list (see Figure 5)**

NO.	Name	Num ber of teeth	Mod ulus	Press ure angle	Material
1	gear	26	3	20°	20Cr
2	gear	54	3	20°	40Cr
3	triple gear	19	4	20°	40Cr
4	duplex gear	36	4	20°	40Cr
5	triple gear	22	4	20°	40Cr
6	duplex gear	28	4	20°	40Cr



7	triple gear	37	4	20°	40Cr
8	triple gear	16	4	20°	40Cr
9	gear	39	4	20°	40Cr
10	triple gear	26	4	20°	40Cr
11	duplex gear	18	4	20°	40Cr
12	triple gear	47	4	20°	40Cr
13	duplex gear	33	4	20°	40Cr
14	gear	82	3	20°	40Cr
15	gear	38	3	20°	40Cr
16	gear	19	4	20°	40Cr
17	gear	71	4	20°	40Cr
18	motor gear	26	2	20°	20Cr
19	duplex gear	44	4	20°	20Cr
20	gear	57	2	200	40Cr
21	gear	43	2	20°	20Cr
22	duplex gear	24	2	20°	20Cr
23	gear	64	2	20°	40Cr
24	triple gear	27	2.5	20°	40Cr
25	duplex gear	27	2.5	20°	40Cr
26	triple gear	36	2.5	200	40Cr
27	gear	18	2.5	20°	40Cr
28	triple gear	40	2.5	20°	40Cr
29	triple gear	18	2.5	20°	40Cr
30	duplex gear	36	2.5	20°	40Cr
31	duplex gear	21	2.5	20°	40Cr
32	duplex gear	37	2.5	20°	40Cr
33	duplex gear	24	2.5	20°	40Cr
34	triple gear	34	2.5	20°	40Cr
35	clutch	9			20Cr
36	gear	40	2.5	20°	200
37	gear shaft	13	2.5	20°	40Cr
38	duplex gear	18	2.5	20°	40Cr
39	gear	40	2.5	20°	40Cr
40	gear	45	2.5	20°	40Cr
42	gear	28	2.5	20°	40Cr
43	gear	35	2.5	20°	40Cr
44	gear	18	3	20°	40Cr
45	gear	33	3	20°	20Cr
46	gear	37	3	20°	45
47	gear	33	3	20°	40Cr
48	clutch	9			20Cr
49	clutch	9			20Cr
50	bevel gear	18	4	20°	20Cr
51	bevel gear	16	4	20	40Cr
52	spiral bevel gear	18	5.11 1	20°	40Cr
53	clutch gear	18	5.11 1	20°	20Cr
54	clutch gear	30	3	20°	20Cr
56	gear	22	3	20°	40Cr
57	gear	33	3	20°	45
58	bevel gear	22	3	20°	40Cr
59	bevel gear	44	3	20°	40Cr
60	clutch	7		20°	20Cr
61	Nut	6			Outer sleeve: 45 Inner sleeve : ZQSn6-6-3
62	screw	6			Y40Mn
63	Nut	6			Outer sleeve: 45 Inner sleeve : ZQSn6-6-3
64	Nut	6			Outer sleeve: 45 Inner sleeve ZQSn6-6-3
65	screw	6			Y40Mn

66	Nut	6			Outer sleeve: 45 Inner sleeve : ZQSn6-6-3
67	screw	6			Y40Mn
68	gear	48	2	20°	20Cr
69	gear	32	2	20°	45
70	bevel gear	25	2	20°	45

Table 2. Rolling bearing list (see Fig. 8)

No.	Name	Model	Dimension	Qty	Accuracy grade
1	single-row radial ball bearing	6411	55x140x33	1	
2	single-row radial ball bearing	6306	30x72x19	1	
3	single-row radial ball bearing	6307	35x80x21	1	
4	single-row radial ball bearing	6212	60x110x22	1	
5	single-row radial ball bearing	6407	35x100x25	1	
6	single-row radial ball bearing	6309	45x100x25	1	
7	single-row radial ball bearing	6309	45x100x25	1	
8	single-row radial ball bearing	6308	40x90x23	1	
9	single-row radial ball bearing	6310	40x110x27	1	
10	single-row radial ball bearing	6312	60x130x31	1	
11	single-row radial ball bearing	6210	50x90x20	1	
12	single-row radial ball bearing	6205	25x52x15	1	
13	single-row radial ball bearing	6206	30x62x16	1	
14	needle with round end		2.5x16	342	
15	needle with round end		3x24	49	
17	Single row radial thrust bearing	7213C/P6	65x120x23	2	P5
18	Dual-row radial cylindrical roller bearing	NN3018K/P5	100x150x37	1	P5
19	single-row cylindrical roller bearing	30206	30x62x16	1	
20	single-row cylindrical roller bearing	32208	40x80x25	1	
21	single-row cylindrical roller bearing	30306	30x72x19	1	
22	single-row cylindrical roller bearing	32209	45x85x25	1	
24	Single row thrust ball bearing	6206	30x62x16	2	

25	Single row thrust ball bearing	51112	60x85x17	1	
26	Single row thrust ball bearing	51206	30x52x16	2	
27	needle bearing	K20x26x17	20x26x17	1	
28	Single-row radial ball bearing	6205	25x52x15	1	
29	needle bearing	HK2524	25x32x24	4	X603 2
30	Single-row thrust ball bearing	51105	25x42x11	1	X603 2

## 10. COOLANT SYSTEM

General emulsified coolant mixture can be used for cooling of the cutting tools. Different coolant can be used for different material. The coolant pump is installed and is compatible with different coolant for different cutting tools. Coolant is stored in the machine base reservoir and pumped to the nozzle via hose. The nozzle can be adjusted to different angle as per needs. Coolant flows back to the reservoir through T slots on the table, hose and filter net.

A switch is installed on the operation panel. Turn it on and the pump will work. To change the coolant, pull the plug on the machine base and drain the coolant. Feed new coolant through the filter net.

## 11. ELECTRIC SYSTEM

NOTE: The machine uses AC three-phase power supply of 400V, 50 Hz

### 11.1 The spindle motion electrical control (see Figure 9)

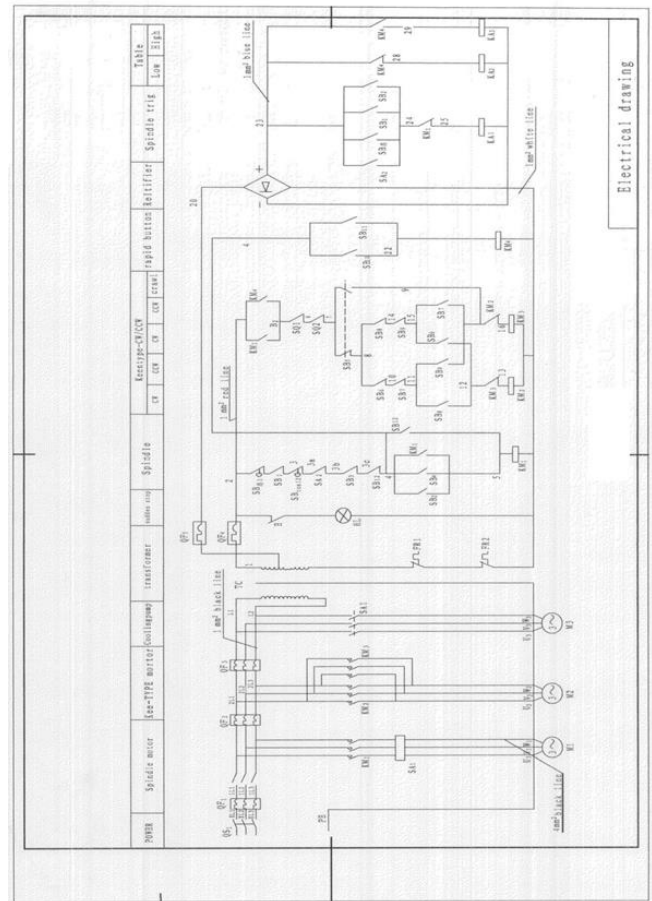


Fig 9

When starting the spindle, switch on the power switch SQ1 firstly, then turn the reversing switch SA1 to spindle required direction. Then pressing down start button SB2 or SB4 to connect contactor KM1, the spindle motor will be started.

When stop the spindle, press down button SB1 or SB3 to cut off the power supply circuit of contactor.

For easy meshing, the spindle motor should rotate instantaneously. When gear shift lever is back to original position (refer to Fig.1), press down travel switch SB12 to make contactor KM1 connecting instantaneously, so spindle motor will rotate instantaneously. Push gear shift lever back with continuous and rapid speed to avoid motor rotate is too fast to damage the gear.

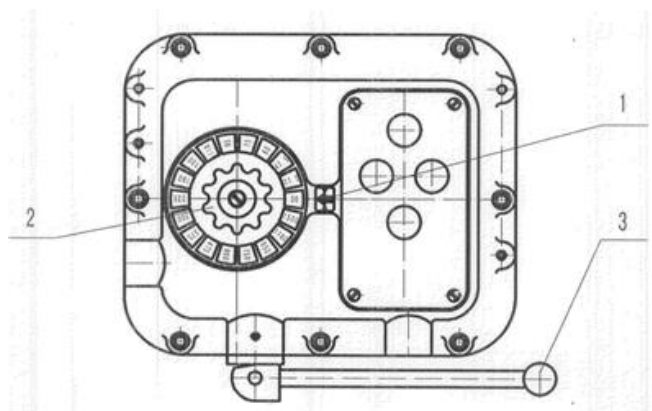


Fig 1

### 11.2 Feed movement of electrical control

Lifting table up and down moving and worktable back and forth moving is controlled by operating handle. The handle linkage mechanism is connected with travel switch. The travel switch is at the left side of lifting table; SB8 is at the back of it, which controls worktable forward and downward moving; SB9 controls worktable backward and upward moving.

The leftward and rightward of worktable moving is also controlled by operating handle. The linkage mechanism controls travel switch SB6 and SB7 for worktable rightward and leftward movement. Start the feed motion only after spindle is started.

During shifting feed speed, push mushroom handle back (see Fig.2), but before reaching to the original position, push travel switch SB5 by means of linkage lever to make contactor KM3 connect instantaneously. So the feed motor instantaneous rotation makes the gears meshing easily.

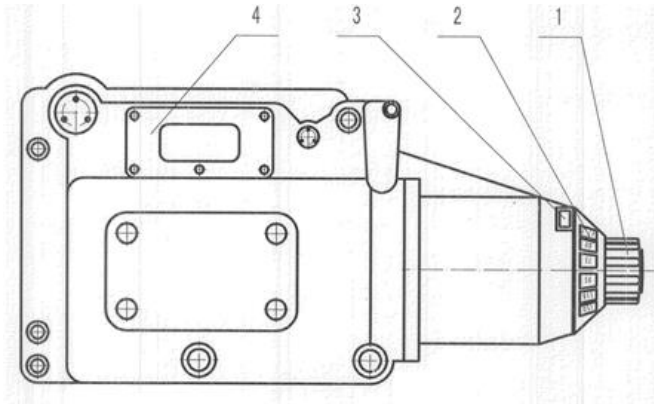


Fig 2

### 11.3 Rapid travel and machine automatic control

After starting the spindle, pull the feed control handle to the desired location. The worktable will move as selected velocity to the pointed direction. Now, press down button SB10 or SB11, KA3 is engaged. The worktable moves rapidly according to its original direction. When releasing the rapid button, the rapid moving is stop, while it moves as original feed speed.

### 11.4 Cooling pump

Close switch SA3, connected C-L coil power supply circuit of contactor, the cooling pump motor start working.

### 11.5 Electrical device list

N O.	Symbol	Model	Name	quantity
1	M1	TYPEY132M-4:7.5KW	spindle motor	1
2	M2	PB-12-0.125KW	coolant pump motor	1
3	M3	TYPEY-90L-4:1.5KW	Lifting motor	1
4	QF1	DZ108-3P/20A	breaker	1

5	QF2	DZ108-3P/3.5A	breaker	1
6	QF3	DZ108-3P/1A	breaker	1
7	QF4	DZ47-63(1P-6A)	breaker	1
8	QF5	DZ47-63(1P-3A)	breaker	1
9	T1	BK-200VA(380V/24V)	transformer	1
10	KM1	CJX1-32	AC contactor	1
11	KM2-KM4	CJX1-9	AC contactor	3
12	SQ7, SQ8	BYDX7-131L	travel switch	2
13	SQ5, SQ6	BYDX1-11DSL3	travel switch	2
14	SB1, SB3	LAY39-11/RJ	stop button	2 (red)
15	SB2, SB4	LAY39-11/GJ	start button	2 (green)
16	SB5, SB6	LAY39-11/KJ	rapid button	2 (black)
17	SQ1, SQ4	LX3-11K	travel switch	2
18	SA2	LAY39-11X/K2	on-off switch	1
19	SA1	LW5-16/3	Spindle forward and reversing switch	1
20	QS1	HZ12-40/04	Power switch	1
21	QL	KBPC QL50A-10	bridge rectifier	1
22	SB1 sub1, SB1 sub2	LAY36-11MJ/R	Emergency Stop Switch	2
23	SQ2, SQ3	JW2-11H/L	travel switch	2
24	SA3	HZ5B-10/3	Coolant pump switch	1

## 12. OPERATION

### 12.1 Manual operation

Variety handles of machine tool to manipulate, buttons, switches, etc. position and role, see machine manipulation (Figure 10) As can be seen from the figure, Longitudinal and transverse and lifting joystick and spindle start, stop, and fast travel button table, have two sets of so-called double-operating device, were installed in the machine front and left, the operator can manipulate the machine two positions. use the handle to control the three directions (vertical, horizontal and elevator) trip is intuitive and easy to remember, moving direction is the direction of the table move handle and unskilled workers are easy to grasp.

Hand shake table hand wheel or handle, are relying on tooth clutch drive shaft rotates together when shaking the hand wheel in either direction; we must first push the hand wheel to the clutch engagement. The feed motor, the lateral and lift the feed hand wheel is pushed interlocking mechanism, the clutch is disengaged, and the hand wheel will not rotate simultaneously, which is particularly important in the fast-moving. For the longitudinal manipulator hand wheel, when not in manual mode, the spring will be out at any time.

Button station is composed of the "Stop", "Start" and "Rapid" buttons. When depressed, "Stop" button, the machine will stop all motion, if vertical, horizontal and lift joystick not zero, then in the press "Start" button, the corresponding feed also will start, start After feeding, when as a result of the adjustment of the machine for automatic or other work to stop the spindle, the spindle must switch on the door handle to move the electrical box in the middle zero.

If the corresponding handle to move in the desired direction on the press under "Rapid" button, you can make the table as fast-moving, if the joystick in neutral (neutral position), then, though depressed "Rapid" button, do not produce rapid moving, "Rapid" button works only when depressed, fast moving immediately stop after release.

Other electrical switches of machine are concentrated in a small door on both sides and electrical boxes around on the bed.

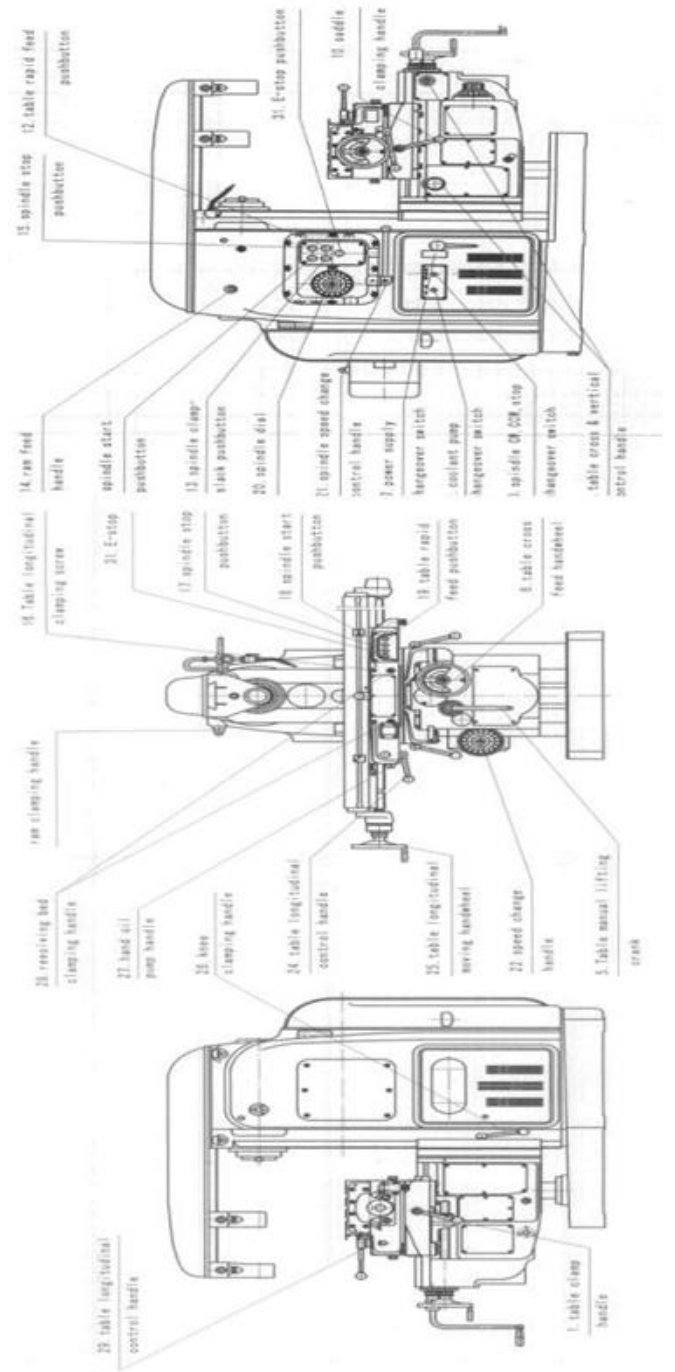
**12.2 Auto**

No matter table in vertical, horizontal or vertical feeding, it can stop automatically by bump plate

**13. ADJUSTMENT AND TEST RUNNING**

**13.1 The rotary table angle adjustment**

On JHM-1253 Milling Machine, the table can each swivel around 45 degrees within the horizontal plane. Adjust machine tool accessories are available by the Allen wrench, "will manipulate the figure of 16 loosen the screw (see Fig.10), both before and after each of the screws can loosen after the rotary table, the rotation angle may be on the scale see, adjust to the desired angle, retighten the screws.



**Fig 10**

**13.2. Longitudinal screw rotation adjustment gap**

In order to adjust the cap should be removed (Fig.11), which cover a portion located on the front bench, and then screw the flange 2 Loosen, then turn the small shaft 3, the use of the worm rotation tighten the nut 4, the rotation reduce the gap, the tightness of the nuts should be, when shaking the hand wheel by the method of inspection, the gap is no more than 1/40 turn the screw, while the full length may not have stuck phenomenon. After adjustment, tighten the screws, having a good cover Plate 1.



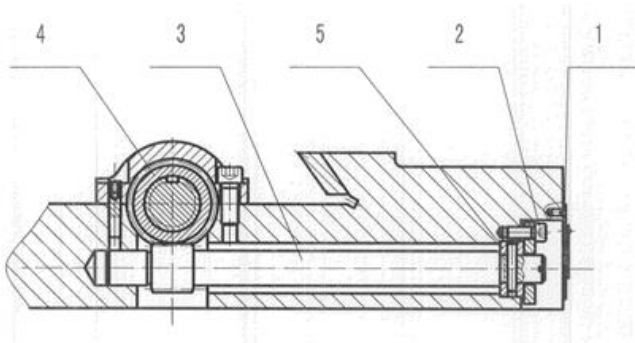


Fig 11

### 13.3. Longitudinal adjustment screw axial clearance

In order to climb milling, not only eliminate backlash between leadscrew and nut, but also minimize the gap between screw and table in the axial direction. Figure 12 shows the structure of the table left screw bearing axial clearance adjustment, first remove the handwheel, tighten the nut 1. Remove the dial 2, the jammed nut washer 4. Release 3, then just slightly loosen the lock nut 3, the gap can be adjusted with a nut 5, the right to adjust, still the third locking nut, buckle On lap 4 washer, then dial, nut and hand wheels turn fitted.

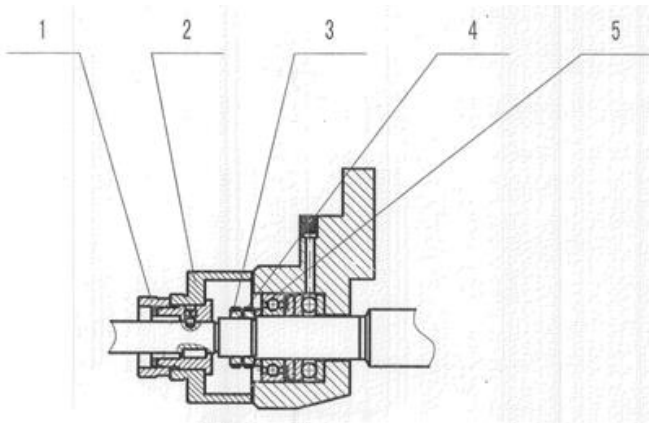


Fig 12

### 13.4 Spindle bearing adjustment

Spindle structure diagram, see (Fig.13), the front spindle mounted in precision double row cylindrical roller bearings, inner ring has a tapered bore 1:12, bearing radial clearance can be adjusted in the order of: 1 Loosen the screws first, then turn the nut 2, remove the washer 3 grinding, adjusted fit, turn fitted tightened to ensure the bearing clearance operation at 1500 rev / min speed 1 hour, bearing temperature should not exceed 70 °C, the temperature rise should not exceed 40 °C.

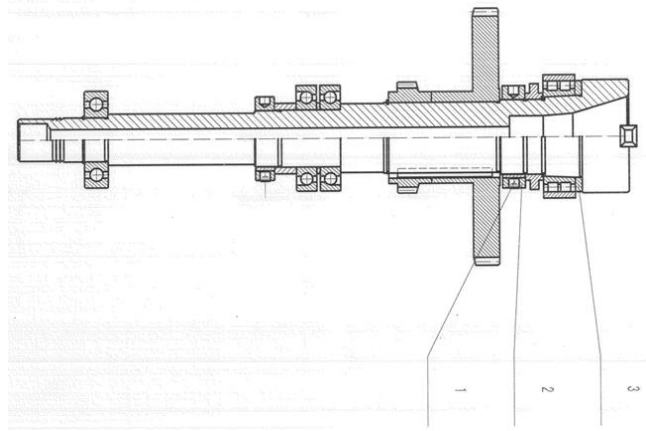


Fig 13

### 13.5 Feed movement and rapid moving clutch adjustment

The feed motion and rapid movement are relying on two electromagnetic clutch gear box in VI shaft. The Figure 14, Figure 15 is a block diagram of VI, the left clutch pulls in, producing feed movement; the right clutch pulls in, the results in a rapid movement; and the two clutches are interlocked.

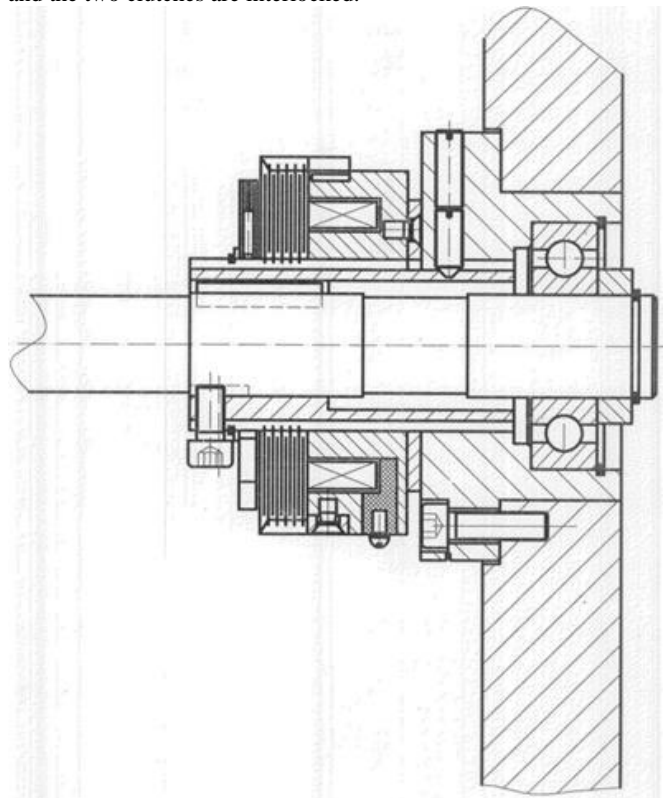


Fig 14



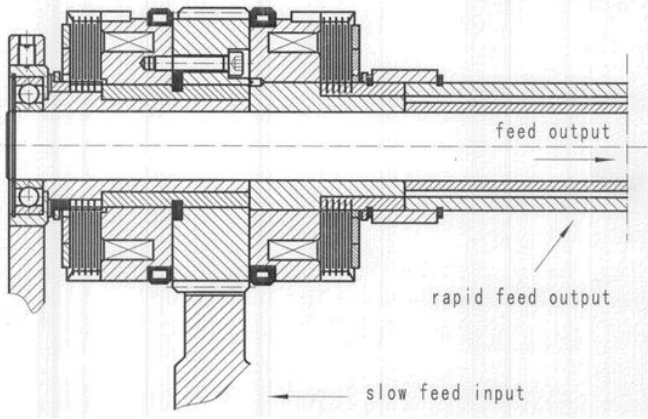


Fig 15

Friction plate with 3mm gap is appropriate; direct current through the brush to the electromagnetic clutch coil generates a magnetic field around the wire rings of magnetic friction plate pressed.

Brush structure shown in Figure 16, the brush holder is fixed on the feeding transmission; open feed gearbox cover (Figure 2), load and unload brush seat through the window so as to replace the brush core. The brush core can move flexibly in brush seat, and it is pressed on guide ring of electromagnetic clutch by spring. To ensure good contact performance, the brush core is only allowed wound by copper wire cloth. No other material can be substitute.

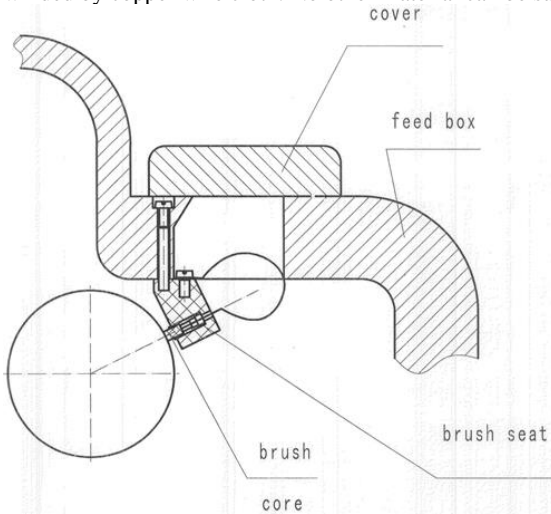


Fig 16

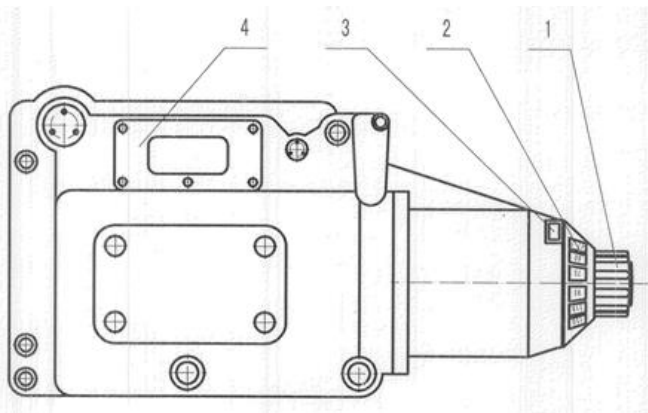


Fig 2

## 14. MAINTENANCE

### 14.1. Recommended cutting specifications of machine tool:

Carbon steel: carbon content of steel 0.45%; tensile strength limit 600 MPa; It is not more than the maximum cutting range: milling cutter diameter is of 100mm; teeth number: 4; milling width :50mm; milling depth: 3 mm; rotation rate : 750 rev/min; feed rate : 750 mm/min.

Cast iron: It is not more than the following maximum cutting range: milling cutter diameter: 110mm; teeth number: 8; milling width :100mm; milling depth: 12mm; rotation rate: 47.5 rev/min; feed rate: 118mm/min.

For the lowest four speeds of cutting, the main motor power should not exceed 5-6 kW; allowing the use of all the power in middle speed; in high speed, may overload 2% of rated power for a short period of time.

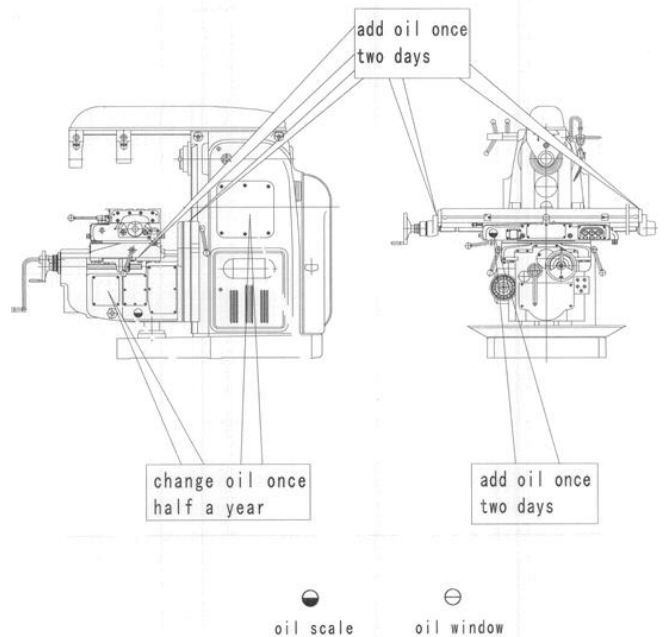
During milling work, the longitudinal leadscrew has quick wear on the milling length, so make use of full travel length as far as possible. If the workpiece need a short travel, the working part of the leadscrew should be replaced often. As far as possible to make it wear uniform.

### 14.2 Machine lubrication:

Clean lubricant tank inside of bed, in lifting table and in rotary disc regularly. Clean oil filter of lubricating oil pump with gasoline, at least twice a year.

Lubricate with clean oil regularly according to Lubrication Diagram. (see Fig. 17) Always check the oil tank oil quantity, when the oil level is lower than the marking, complement in time. The lubrication oil is N46 machine oil.

Always observe the oil window if there is oil flow. If not, repair the lubrication system in time. Adopt molybdenum disulfide grease to lubricate trapezoidal leadscrew for lifting. Lubricate it once every two month. Longitudinal, horizontal and vertical guideways are allowed using N46 machine oil.



**Fig 17**

Trouble shooting: Refer to the following procedures for general troubles:

Observation	Possible Reasons	Solution
No power while machine starts	(1) Input power is wrong. (2) incorrect connection (3) terminal is loose	(1) Input the correct power (2) Connect correctly (3) Press terminals
Spindle works abnormally.	(1) gear shift not in place (2) cutting overload (3) motor failure (4) mechanical part of spindle damage	Check the main gear box; Operate machine according to cutting standard; Repair motor; For details, see Operation Manual
Spindle temperature exceed limit range	(1) bearing is damaged (2) lock nut is too tight	(1) Replace bearing (2) Adjust lock nut
Spindle accuracy exceed limit value	(1) bearing damage or improper adjustment (2) spindle bore worn (3) spindle temperature rise is too high, leading to thermal deformation (4) lock nut loose	(1) Adjust or change bearing. (2) Change spindle. (3) Adjust bearing. (4) Tighten lock nut.
Spindle gearbox has no action	contact point failure	Check electric circuit, adjust adjusting bolt to meet the contact requirement
Abnormal noise with gear box	(1) Drive gear dislocation or loose (2) motor noise	(1) Check all drive gears (2) Check motor
No feeding with gear box	(1) feed motor is not connected or damaged. (2) Feeding electromagnetic clutch does not attract	Check the electrical wiring and electrical components
Abnormal noise with moving part	(1) foreign matter fall in (2) leadscrew nut loose	(1) Remove the foreign matters (2) Tighten screw
Moving parts displacement	(1) leadscrew nut loose (2) screw nut seat loose (3) too big clearance between leadscrew and nut	(1) Tighten it (2) Tighten screw nut seat (3) Adjust the clearance
Moving parts crawl	(1) insufficient lubrication of guideway (2) guideway without lubrication	(1) Check pipeline for jam or oil distributor broken. Add see if lubrication device is normal (2) Add oil for each lubrication point regularly according to machine specifications.
Motor is damaged.	(1) Oil or water infiltration causes electric short circuit (2) wire damage, short circuit	(1) Contact machine manufacturer (2) Replace motor after eliminating circuit fault
Machine noise is out of limit	(1) driving gears loose (2) foreign matter fall in	(1) Tighten loose gears. (2) Remove the foreign mater
Oil consumption of lubrication device is fast	(1) lubrication oil pipe damage (2) oil distributor damage	(1) Replace oil pipe (2) Replace it
Guide leadscrew lubrication inadequate or no lubrication	(1) oil distributor damage or lubricating capacity shortage (2) oil pipe broken or blocked (3) no lubricating oil (4) oil outlet blockage	(1) Repair and replace the joint of lubricating point; (2) Change oil pipe (3) Add lubricating oil (4) Dressing oil outlet
No coolant.	(1) Coolant too dirty, coolant filter blockage (2) pipeline leaking or hose is folded (3) nozzle blockage	(1) Clean filter, change coolant. (2) Change pipe. (3) Clean nozzle.
Coolant pump failure	(1) working for a long time, voltage is too high (2) motor is overheat because of cooling pump blocking (3) cooling pump damage (4) thermal relay burn (5) motor rotates in wrong direction (6) no coolant	(1) Close the thermal relay; (2) Clean cooling pump, then close the thermal relay; (3) Replace cooling pump motor; (4) Replace thermal relay; (5) Reconnect the wiring (6) Add coolant;
Cutting vibration	(1) Cutting parameter selection is not reasonable (2) spindle box drive shaft bearing loose	(1) Adjust the cutting parameter. (2) Adjust spindle box drive shaft bearing

	(3) machine strip is worn, guideway gap is big (4) No clamping of workpiece or clamping method is wrong	(3) Adjust the gib. (4) Clamp work piece.
Workpiece surface waviness is big, roughness over limit	(1) no clamping of workpiece (2) Transmission parts have clearance or preload deficiency (3) Select improper cutting parameter	(1)Clamp work piece. (2)Adjust backlash of guide ways. (3)Adjust the cutting parameter.

**EASY-WORN PARTS (available at extra charge)**

	Drawing No.	Item	Qty.
1	Spindle support bearing		1
2	Nut		1
3	Positioning plate		1
4	Spring		1
5	Adjusting ring		1
6	key		1
7	Nut		1
8	Nut		1
9	Nut		1
10	Spring		1
11	Pin		1
12	Sliding block		1

**15. Environmental protection**

Protect the environment.

Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.

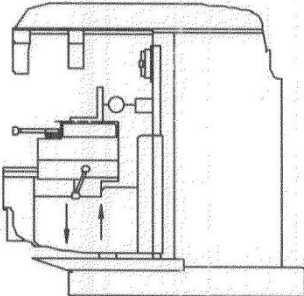
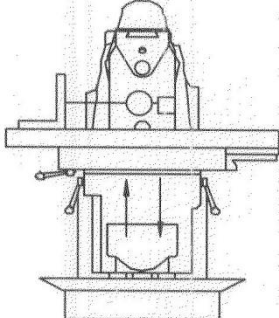
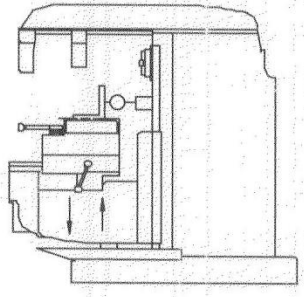
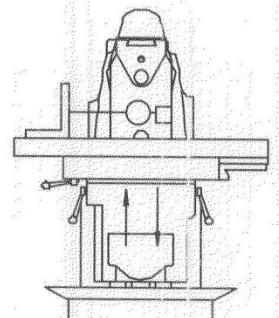


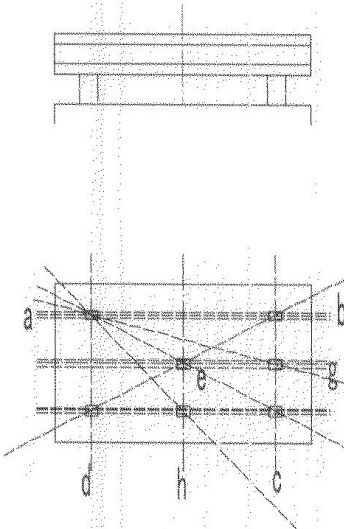
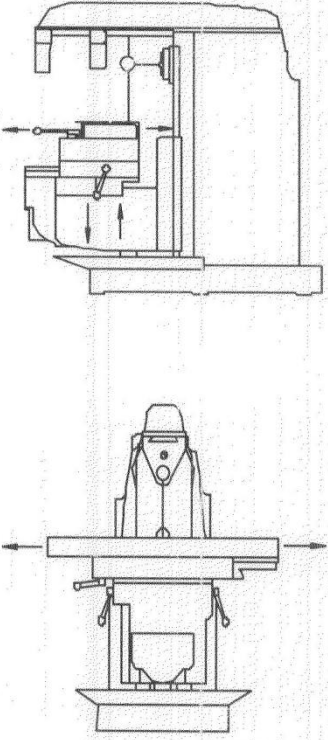
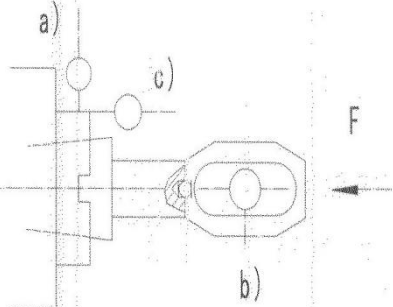
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**16. Available accessories**

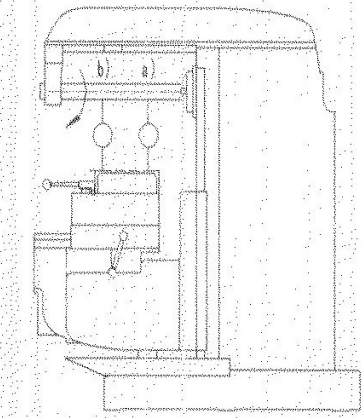
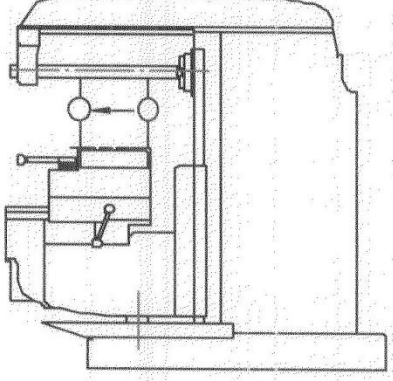
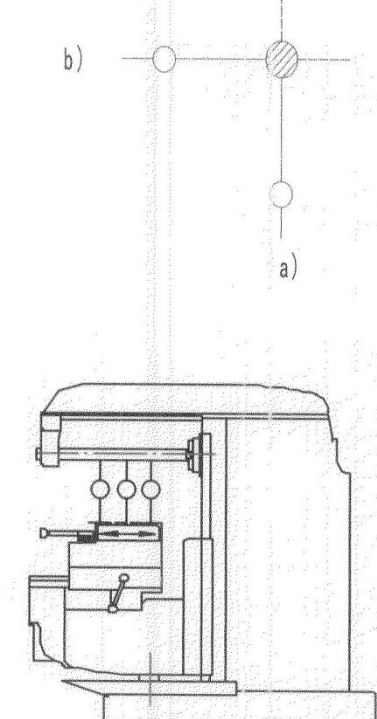
Refer to the **JET**-Price-list

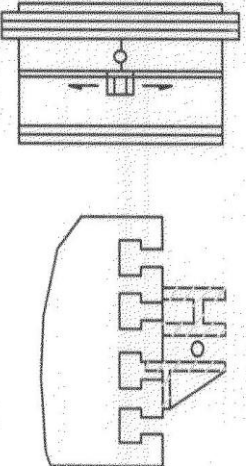
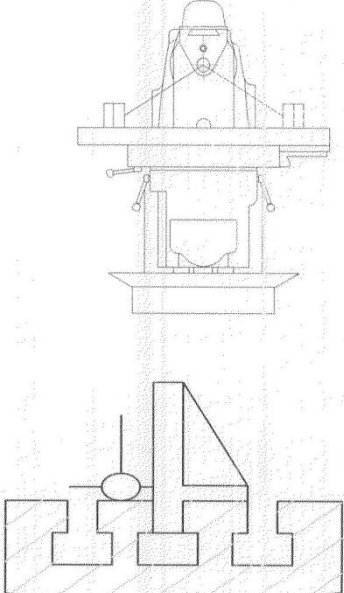
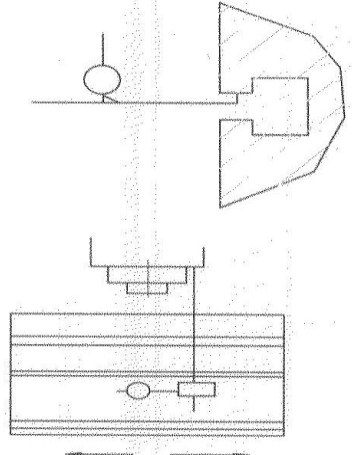
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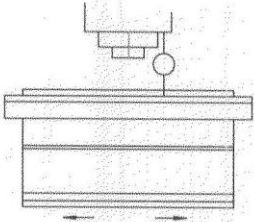
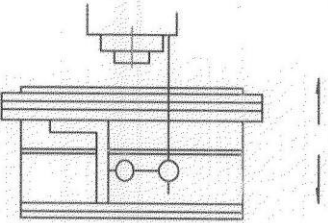


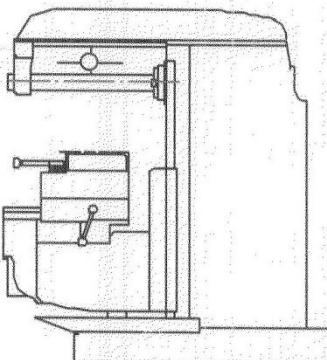
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			Tolerance	Measurement
G1	Linearity of vertical movement of knee a) In cross vertical plane b) In longitudinal vertical plane	a)  b) 	a) 0.025/300 b) 0.025/300	
G2	Squareness of table surface to guideway of column a) In cross vertical plane b) In longitudinal vertical plane	a)  b) 	a) 0.025/300 $\alpha$ $< 90^\circ$ b) 0.025/300	

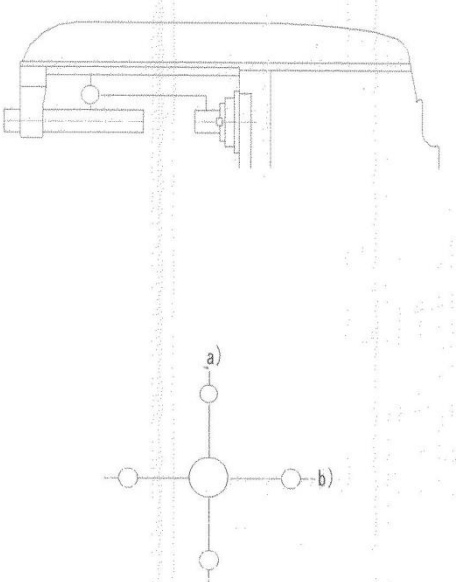
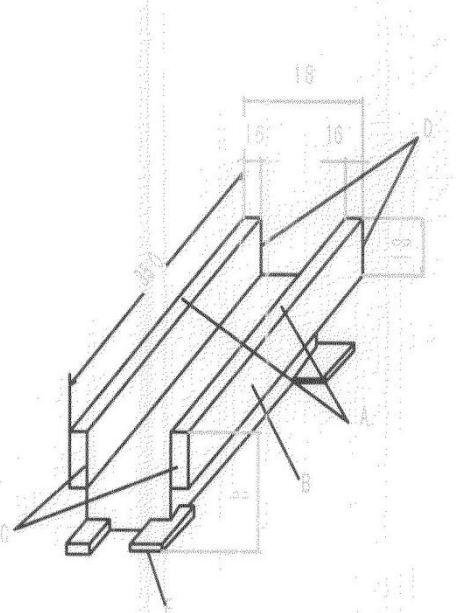
<p>G3</p>	<p>Planeness of table surface</p>		<p>Part: 0.04 0.02/300</p>	
<p>G4</p>	<p>Parallelism of table surface to table movement a) Cross b) Longitudinal</p>		<p>a) 0.025/300 b) 0.025/300 Max: 0.050</p>	
<p>G5</p>	<p>Runout of spindle end a) Runout of spindle outer face b) Kick of spindle axial direction c) Kink of spindle nose face</p>		<p>a) 0.01 b) 0.01 c) 0.02</p>	



<p>G6</p>	<p>Runout of spindle bore axis  a) At the vicinity of the spindle nose  b) 300mm to the spindle nose</p>		<p>a) 0.01  b) 0.02</p>	
<p>G7</p>	<p>Parallelism of spindle axis to table surface</p>		<p>0.025/300</p>	
<p>G8</p>	<p>Parallelism of spindle axis to table cross movement  a) In vertical plane  b) In horizontal plane</p>		<p>a) 0.025/300  b) 0.025/300</p>	

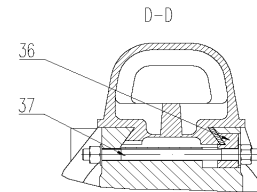
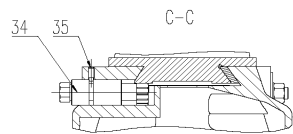
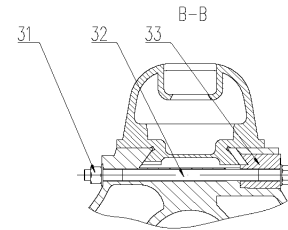
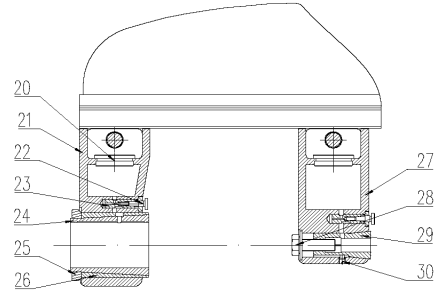
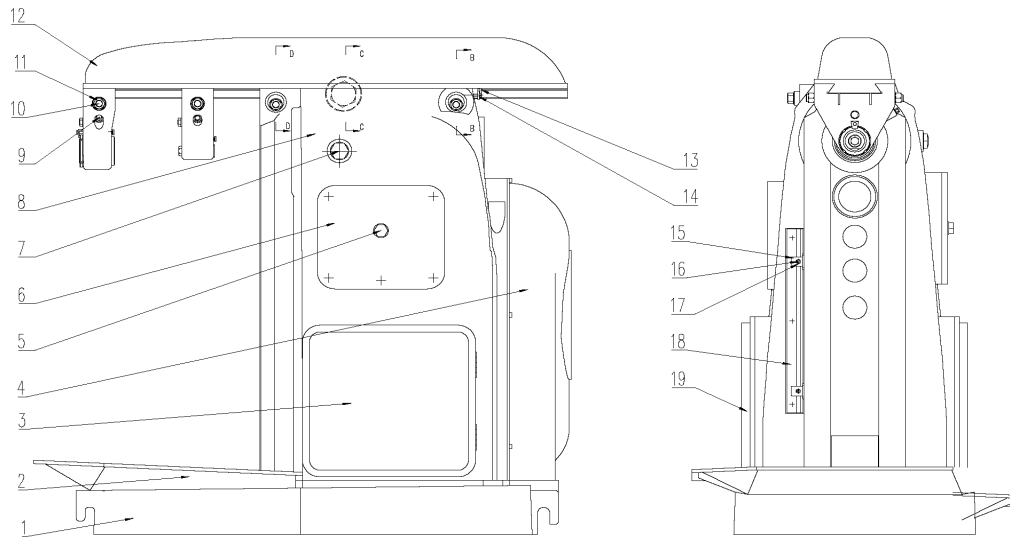
<p>G9</p>	<p>Linearity of datum T-slot</p>		<p>0.01/500 Max: 0.03</p>	
<p>G10</p>	<p>Squareness of spindle axis to datum T-slot</p>		<p>0.02/300 (distance between two bend plates is 300mm)</p>	
<p>G11</p>	<p>Parallelism of datum T-slot to table longitudinal movement</p>		<p>a) 0.015/300 Max: 0.04</p>	

<p>G12</p>	<p>Squareness of cross travel to longitudinal travel of table</p>	<p>a)</p>  <p>b)</p> 	<p>0.02/300</p>	
<p>G13</p>	<p>Parallelism of ram guide way to spindle axis  a) In vertical plane  b) In horizontal plane</p>	<p>a)</p>  <p>b)</p>  	<p>a) 0.02/300  b) 0.02/300</p>	

<p>G14</p>	<p>Coaxiality of cutter holder hole to spindle axis  a) In vertical plane  b) In horizontal plane</p>		<p>a) 0.03  (hole of cutter holder is lower than spindle axis)  b) 0.03</p>	
<p>P1</p>	<p>a) B side of every test piece should be flat  b) Height of test piece should be accordant  c) C side and A side, D side and A side should be mutually perpendicular, and C,A,D side are all perpendicular to B side</p>		<p>a) 0.02  b) 0.03  c) 0.02/100</p>	

**17. Exploded View & Part List**

**Exploded View for JHM-1253 MILLING MACHINE - OVERVIEW - 01**



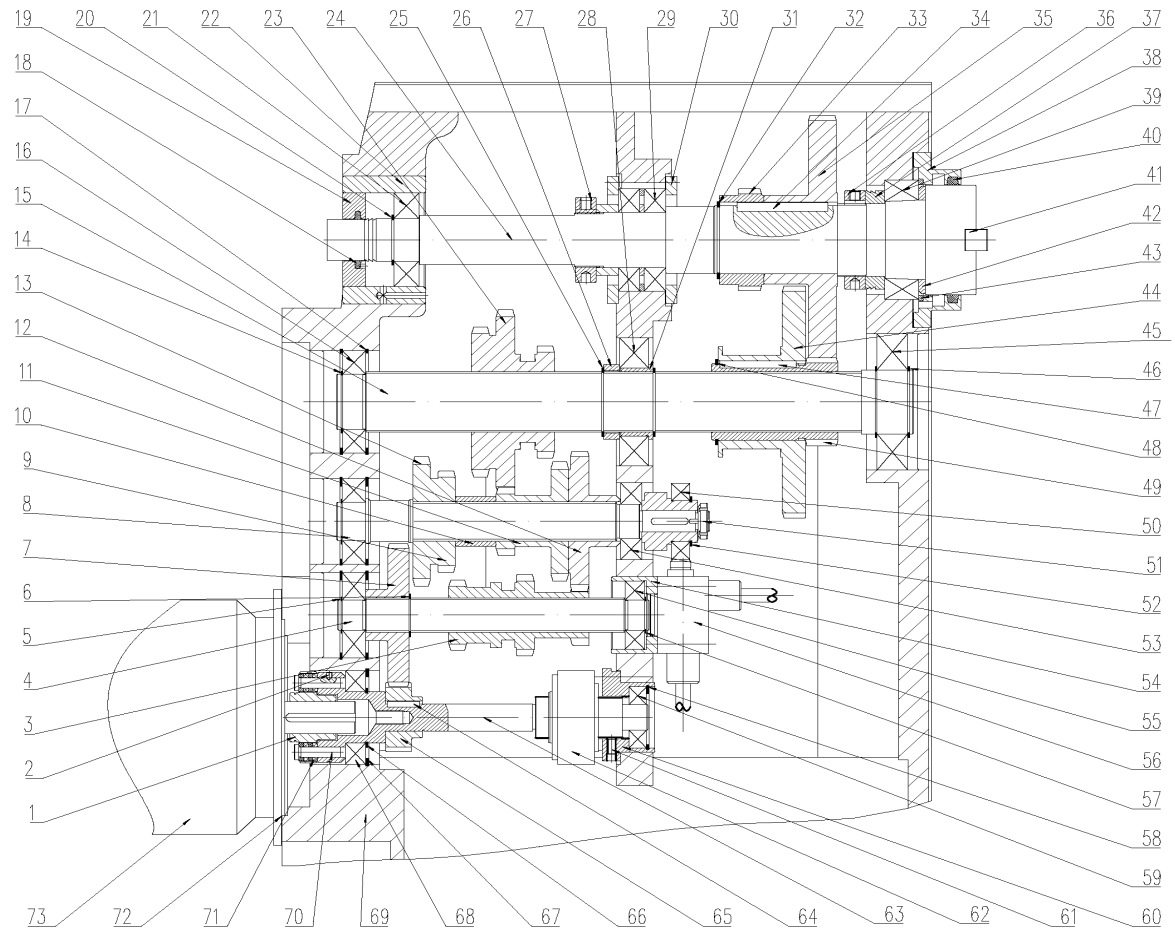
X6132-100



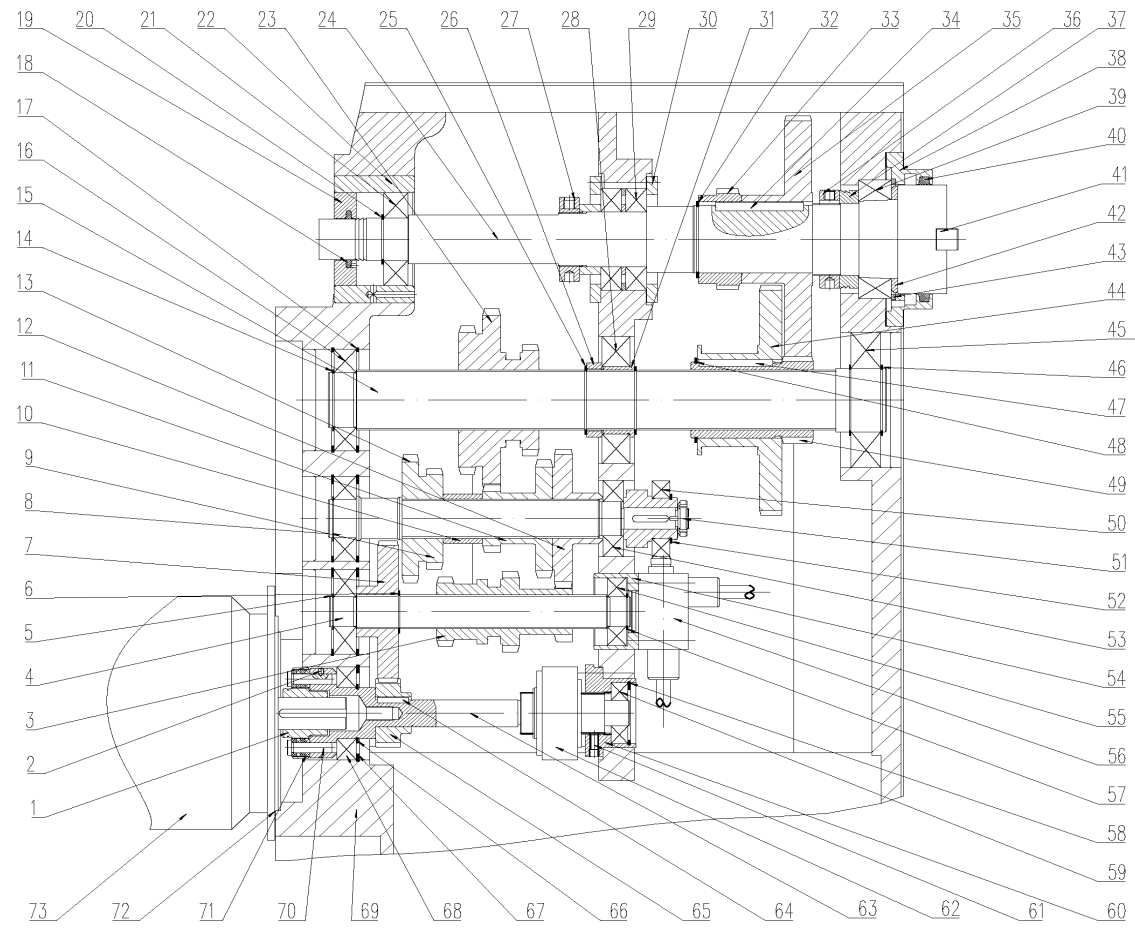
**Part List for JHM-1253 MILLING MACHINE - OVERVIEW - 01**

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	JHM1253-01-1	Base		1
2	JHM1253-01-2	Drip tray		1
3	JHM1253-01-3	Left door		1
4	JHM1253-01-4	Rear cover		1
5	JHM1253-01-5	Plug screw	M30x1.5	1
6	JHM1253-01-6	Cap		1
7	JHM1253-01-7	Oil mark	A32	1
8	JHM1253-01-8	Bed		1
9	JHM1253-01-9	Plug screw	M10x1	2
10	JHM1253-01-10	Pull rod		2
11	JHM1253-01-11	Nut	M20	2
12	JHM1253-01-12	Over beam		1
13	JHM1253-01-13	Wedge iron		1
14	JHM1253-01-14	Adjusting screw		1
15	JHM1253-01-15	Bump lock		2
16	JHM1253-01-16	Bolt	M8x25	2
17	JHM1253-01-17	Nut	M8	2
18	JHM1253-01-18	Through plate		1
19	JHM1253-1-19	Right door		1
20	JHM1253-01-20	Screw cap		2
21	JHM1253-01-21	Spindle bracket		1
22	JHM1253-01-22	Needle valve		2
23	JHM1253-01-23	Sleeve		2
24	JHM1253-01-24	Rear change gear cover		1
25	JHM1253-01-25	Nut	M72x2	1
26	JHM1253-01-26	Rear change gear cover		1
27	JHM1253-01-27	Spindle bracket		1
28	JHM1253-01-28	Nut	M16x45	1
29	JHM1253-01-29	Small change gear cover		1
30	JHM1253-01-30	Screw	M8x12	1
31	JHM1253-01-31	Nut	M20	4
32	JHM1253-01-32	Pull rod		1
33	JHM1253-01-33	Tension sleeve		1
34	JHM1253-01-34	Gear shaft		1
35	JHM1253-01-35	Screw	M10x25	1
36	JHM1253-01-36	Tension sleeve		1
37	JHM1253-01-37	Pull rod		1

**Exploded View for JHM-1253 MILLING MACHINE - OVERVIEW - 02**



X6132-300



X6132-300

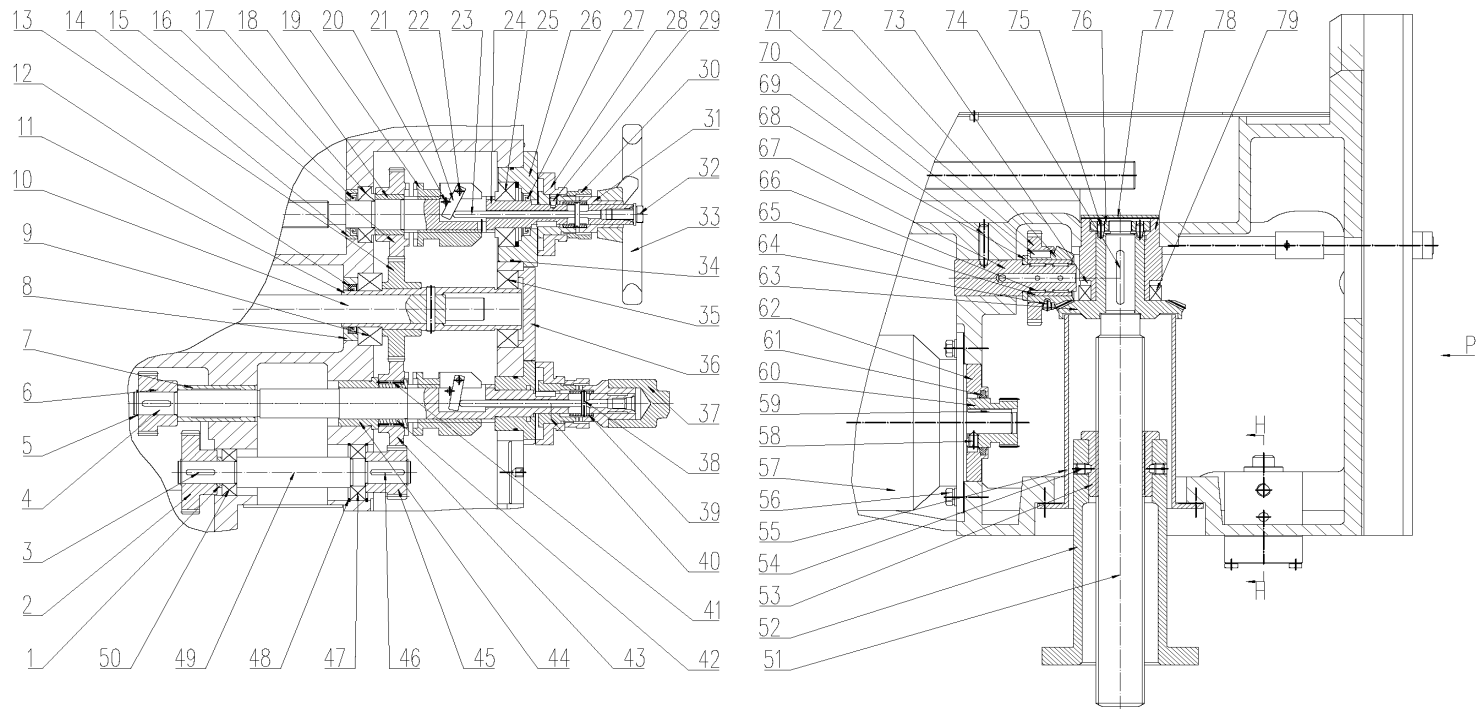
**Part List for JHM-1253 MILLING MACHINE - OVERVIEW - 02**

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	JHM1253-02-1	Sleeve		1
2	JHM1253-02-2	Screw	M6x8	6
3	JHM1253-02-3	Gear		1
4	JHM1253-02-4	Shaft		1
5	JHM1253-02-5	Shaft ring	35	1
6	JHM1253-02-6	Shaft ring	42	1
7	JHM1253-02-7	Gear		1
8	JHM1253-02-8	Shaft		1
9	JHM1253-02-9	Gear		1
10	JHM1253-02-10	Ring		1
11	JHM1253-02-11	Gear		1
12	JHM1253-02-12	Gear		1
13	JHM1253-02-13	Gear		1
14	JHM1253-02-14	Shaft ring	42	2
15	JHM1253-02-15	Shaft		1
16	JHM1253-02-16	Bearing	6309	2
17	JHM1253-02-17	Hole ring	100	6
18	JHM1253-02-18	Felt lining		1
19	JHM1253-02-19	Ring		1
20	JHM1253-02-20	Shaft ring	50	1
21	JHM1253-02-21	Bearing	6310	1
22	JHM1253-02-22	Sleeve		1
23	JHM1253-02-23	Gear		1
24	JHM1253-02-24	Spindle		1
25	JHM1253-02-25	Shaft ring	52	2
26	JHM1253-02-26	Ring		1
27	JHM1253-02-27	Nut		1
28	JHM1253-02-28	Bearing	6310	1
29	JHM1253-02-29	Bearing	7213AC	2
30	JHM1253-02-30	Flange		2
31	JHM1253-02-31	Sleeve		1
32	JHM1253-02-32	Shaft ring	80	1
33	JHM1253-02-33	Gear		1
34	JHM1253-02-34	Flat key	16x10x10	1
35	JHM1253-02-35	Gear		1
36	JHM1253-02-36	Nut		1
37	JHM1253-02-37	Sleeve		1

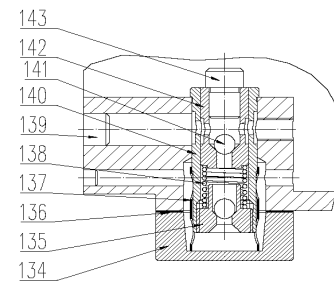
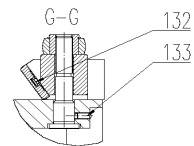
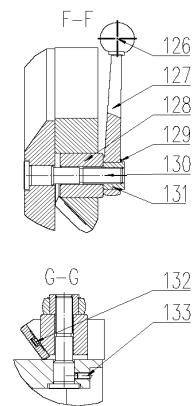
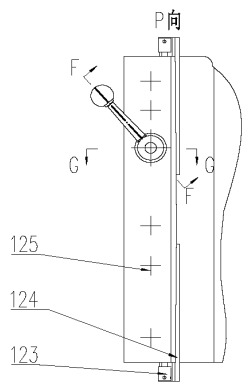
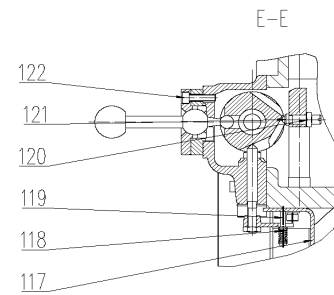
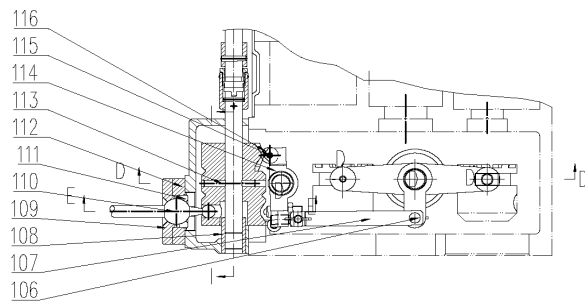
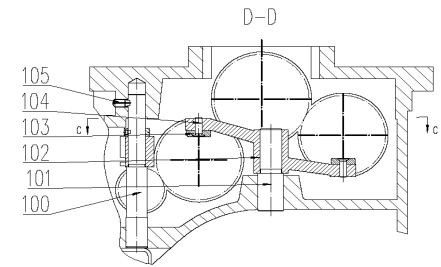
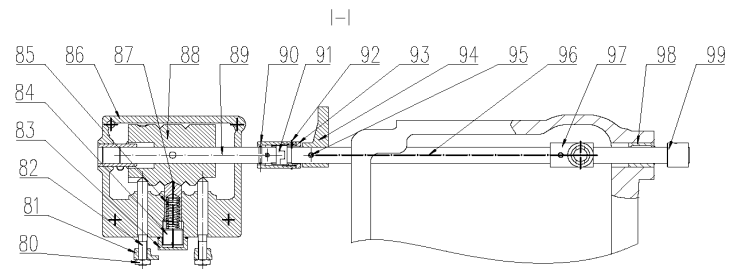
<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
38	JHM1253-02-38	Flange		1
39	JHM1253-02-39	Bearing	NN3018K/P5	1
40	JHM1253-02-40	Felt lining		1
41	JHM1253-02-41	End key		2
42	JHM1253-02-42	Adjusting ring		1
43	JHM1253-02-43	Adjusting pad		1
44	JHM1253-02-44	Gear		1
45	JHM1253-02-45	Bearing	6411	1
46	JHM1253-02-46	Shaft ring	55	2
47	JHM1253-02-47	Flat key	12x40	1
48	JHM1253-02-48	Shaft ring	70	1
49	JHM1253-02-49	Gear		1
50	JHM1253-02-50	Bearing	6210	1
51	JHM1253-02-51	Round nut and washer	M24x1.5	1
52	JHM1253-02-52	Shaft ring	50	1
53	JHM1253-02-53	Sleeve	6308	1
54	JHM1253-02-54	Sleeve		1
55	JHM1253-02-55	Bearing	6307	1
56	JHM1253-02-56	Oil pump		1
57	JHM1253-02-57	Shaft ring	35	1
58	JHM1253-02-58	Hole ring	72	1
59	JHM1253-02-59	Bearing	6306	1
60	JHM1253-02-60	Sleeve		1
61	JHM1253-02-61	Screw	M8x20	3
62	JHM1253-02-62	Clutch		1
63	JHM1253-02-63	Shaft		1
64	JHM1253-02-64	Flat key	8x35	1
65	JHM1253-02-65	Gear		1
66	JHM1253-02-66	Shaft ring	60	1
67	JHM1253-02-67	Hole ring	110	1
68	JHM1253-02-68	Bearing	6212	1
69	JHM1253-02-69	Bed		1
70	JHM1253-02-70	Small shaft		6
71	JHM1253-02-71	Ring		24
72	JHM1253-02-72	Felt ring		1
73	JHM1253-02-73	Motor		1



**Exploded View for JHM-1253 MILLING MACHINE - OVERVIEW - 03**



x6132-600-1/2



X6132-600-1/2

**Part List for JHM-1253 MILLING MACHINE - OVERVIEW - 03**

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	JHM1253-03-1	Sleeve		1
2	JHM1253-03-2	Gear		1
3	JHM1253-03-3	Key	6x30	1
4	JHM1253-03-4	Shaft		1
5	JHM1253-03-5	Shaft ring	25	3
6	JHM1253-03-6	Gear		1
7	JHM1253-03-7	Shaft sleeve		1
8	JHM1253-03-8	Ring		1
9	JHM1253-03-9	Bearing	32208	1
10	JHM1253-03-10	Shaft		1
11	JHM1253-03-11	Shaft sleeve		1
12	JHM1253-03-12	Seal ring	B40x55x8	1
13	JHM1253-03-13	Gear		1
14	JHM1253-03-14	Ring		1
15	JHM1253-03-15	Gear		1
16	JHM1253-03-16	Seal ring	B30x47x7	1
17	JHM1253-03-17	Bearing	30206	1
18	JHM1253-03-18	Sleeve		1
19	JHM1253-03-19	Clutch		2
20	JHM1253-03-20	Pin	5x20	2
21	JHM1253-03-21	Gate		2
22	JHM1253-03-22	Pin	5x30	2
23	JHM1253-03-23	Rod		2
24	JHM1253-03-24	Leadscrew		1
25	JHM1253-03-25	Bearing	7306E	1
26	JHM1253-03-26	Flange		1
27	JHM1253-03-27	Seal ring	B30x47x7	1
28	JHM1253-03-28	Dial		2
29	JHM1253-03-29	Screw	M8x10	2
30	JHM1253-03-30	Scale sleeve		2
31	JHM1253-03-31	Clutch sleeve		1
32	JHM1253-03-32	Screw	M12x25	1
33	JHM1253-03-33	Handwheel		1
34	JHM1253-03-34	Seal ring	95x2.65	1
35	JHM1253-03-35	Bearing	32209	1
36	JHM1253-03-36	Flange		1
37	JHM1253-03-37	Lifting handle		1
38	JHM1253-03-38	Fixed round pin		2

39	JHM1253-03-39	Ring		2
40	JHM1253-03-40	Clutch shaft sleeve		2
41	JHM1253-03-41	Needle roller	3x24	49

Index No.	Part No.	Description	Size	Qty
42	JHM1253-03-42	Shaft sleeve		1
43	JHM1253-03-43	Gear		1
44	JHM1253-03-44	Sleeve		2
45	JHM1253-03-45	Gear		1
46	JHM1253-03-46	Key	6x35	1
47	JHM1253-03-47	Bearing	6206	1
48	JHM1253-03-48	Hole ring	62	2
49	JHM1253-03-49	Shaft		1
50	JHM1253-03-50	Bearing	6205	1
51	JHM1253-03-51	Leadscrew		1
52	JHM1253-03-52	Socket		1
53	JHM1253-03-53	Shaft sleeve		1
54	JHM1253-03-54	Screw	M12x16	2
55	JHM1253-03-55	Cover		1
56	JHM1253-03-56	Bolt	M10x30	1
57	JHM1253-03-57	Motor		1
58	JHM1253-03-58	Screw	M10x16	1
59	JHM1253-03-59	Key	8x45	1
60	JHM1253-03-60	Motor gear		1
61	JHM1253-03-61	Felt ring		1
62	JHM1253-03-62	Sleeve		1
63	JHM1253-03-63	Bevel gear		1
64	JHM1253-03-64	Screw	M10x10	1
65	JHM1253-03-65	Sleeve		1
66	JHM1253-03-66	Needle roller	2.5x16	72
67	JHM1253-03-67	Small shaft		1
68	JHM1253-03-68	Pod		1
69	JHM1253-03-69	Screw	M10x45	1
70	JHM1253-03-70	Key	8x20	1
71	JHM1253-03-71	Gear		1
72	JHM1253-03-72	Bevel gear		1
73	JHM1253-03-73	Adjusting washer		1
74	JHM1253-03-74	Key	8x60	1
75	JHM1253-03-75	Screw	M8x14	1
76	JHM1253-03-76	Nut		1

77	JHM1253-03-77	Cap		1
78	JHM1253-03-78	Flange		1
79	JHM1253-03-79	Key	5112	1
80	JHM1253-03-80	Nut	M12	2
81	JHM1253-03-81	Small lever		2
82	JHM1253-03-82	Pin		2
83	JHM1253-03-83	Nut		1

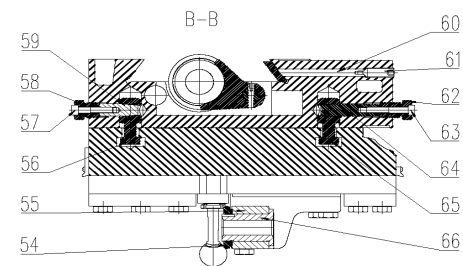
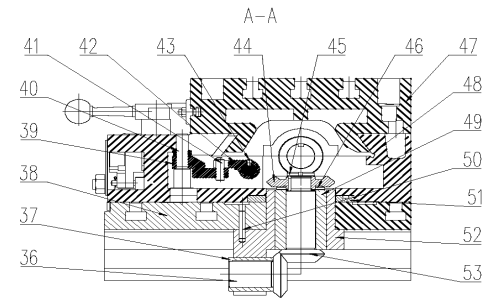
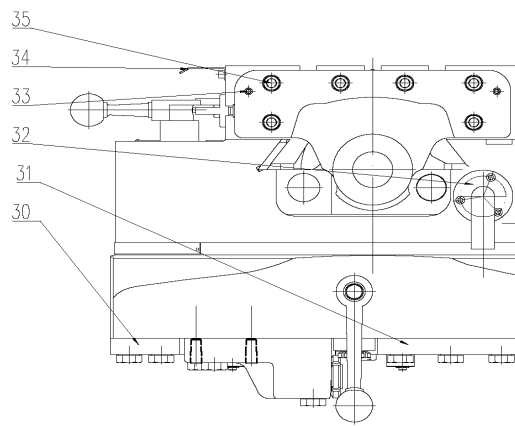
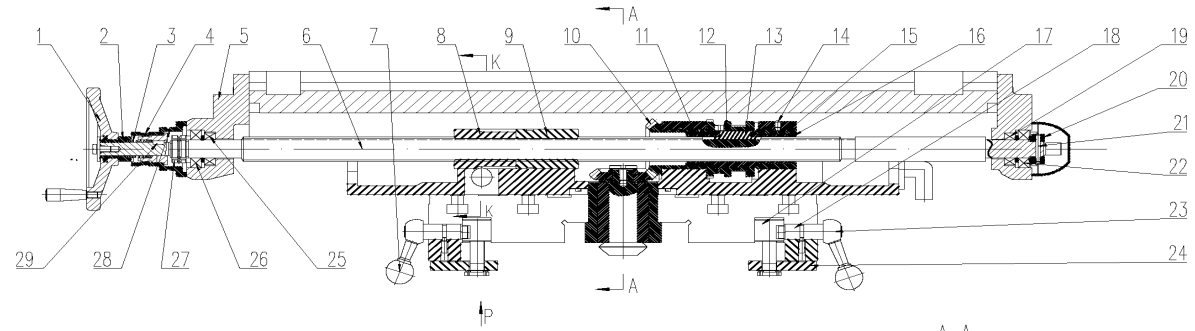
Index No.	Part No.	Description	Size	Qty
84	JHM1253-03-84	Plug screw		1
85	JHM1253-03-85	Spring	YA2.5x12.5x45	1
86	JHM1253-03-86	Gear box		1
87	JHM1253-03-87	Pin		1
88	JHM1253-03-88	Drum wheel		1
89	JHM1253-03-89	Shaft		1
90	JHM1253-03-90	Sleeve		1
91	JHM1253-03-91	Adjusting plug		1
92	JHM1253-03-92	Ring spring		1
93	JHM1253-03-93	Nut		1
94	JHM1253-03-94	Lever		1
95	JHM1253-03-95	Pin	6x30	1
96	JHM1253-03-96	Shaft		1
97	JHM1253-03-97	Shaft sleeve		1
98	JHM1253-03-98	Sleeve		1
99	JHM1253-03-99	Lever		1
100	JHM1253-03-100	Shaft		1
101	JHM1253-03-101	Pin		1
102	JHM1253-03-102	Connecting rod		1
103	JHM1253-03-103	Slider		2
104	JHM1253-03-104	Pin		2
105	JHM1253-03-105	Screw	M10x16	1
106	JHM1253-03-106	Pin		2
107	JHM1253-03-107	Small plate		1
108	JHM1253-03-108	Shaft sleeve		1
109	JHM1253-03-109	Cap		1
110	JHM1253-03-110	Handle		1
111	JHM1253-03-111	Ring		1
112	JHM1253-03-112	Flange		1
113	JHM1253-03-113	Pin	8x60	1
114	JHM1253-03-114	Plate		1
115	JHM1253-03-115	Pin	5x25	1

116	JHM1253-03-116	Small roller		1
117	JHM1253-03-117	Angle iron		1
118	JHM1253-03-118	Spring	YA1.2x9x28	2
119	JHM1253-03-119	Small pin		2
120	JHM1253-03-120	Nut	M12	1
121	JHM1253-03-121	Pin		1
122	JHM1253-03-122	Screw	8x35	3
123	JHM1253-03-123	Screw		2
124	JHM1253-03-124	Wedge iron		2
125	JHM1253-03-125	Guide plate		1

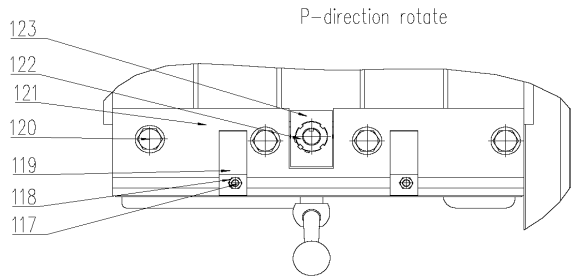
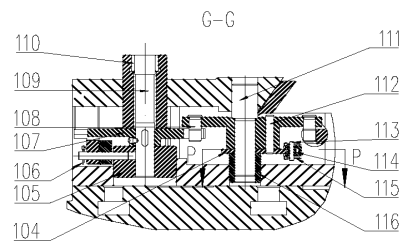
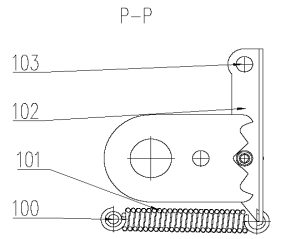
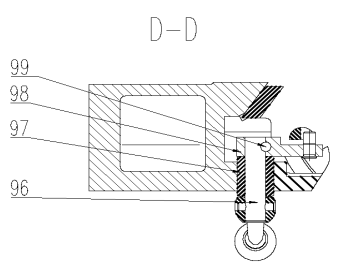
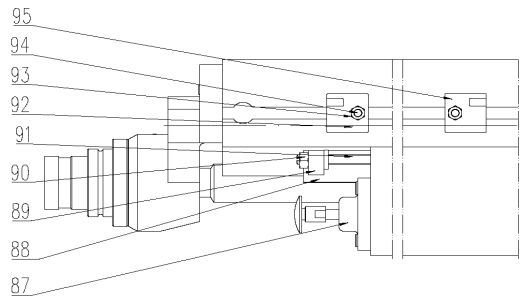
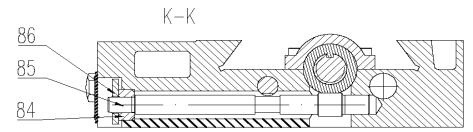
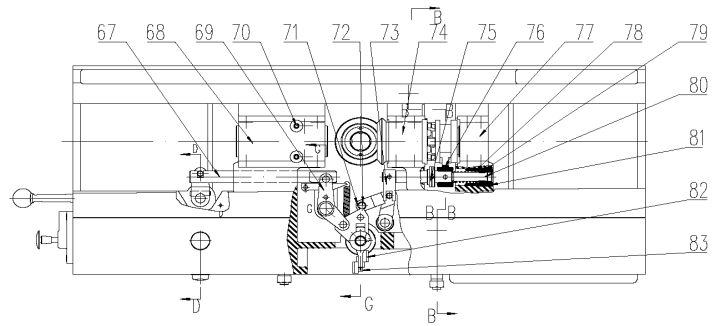
<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
126	JHM1253-03-126	Handle ball	M12	1
127	JHM1253-03-127	Handle		1
128	JHM1253-03-128	Tension sleeve		1
129	JHM1253-03-129	Shaft ring	35	1
130	JHM1253-03-130	Screw		1
131	JHM1253-03-131	Nut		1
132	JHM1253-03-132	Screw pin		2
133	JHM1253-03-133	Key	8x20	1
134	JHM1253-03-134	Flange		1
135	JHM1253-03-135	Plug		1
136	JHM1253-03-136	Base plate		1
137	JHM1253-03-137	Net		1
138	JHM1253-03-138	Spring		1
139	JHM1253-03-139	plug		1
140	JHM1253-03-140	Sleeve body		1
141	JHM1253-03-141	Steel ball	7/16"	2
142	JHM1253-03-142	piston		1
143	JHM1253-03-143	Short shaft		1



### Exploded View for JHM-1253 MILLING MACHINE - OVERVIEW - 04



X6132-700-1/2



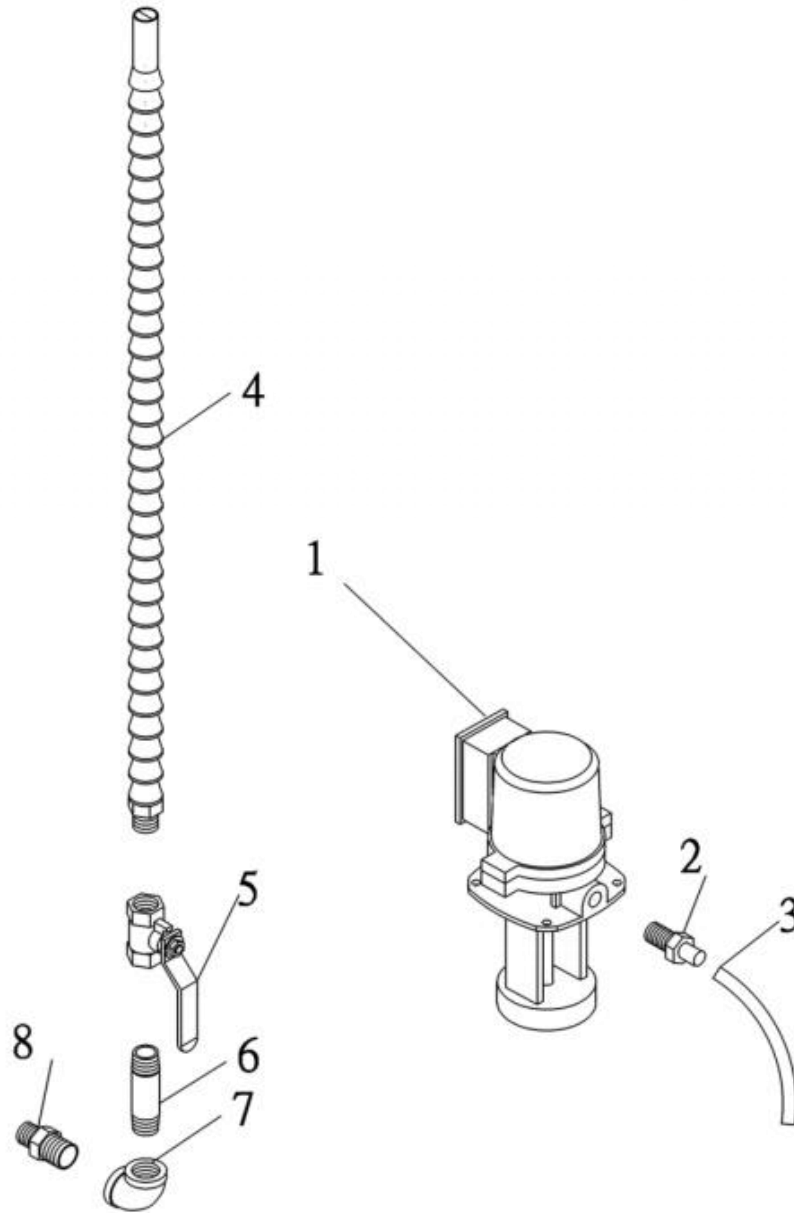
**Part List for JHM-1253 MILLING MACHINE – OVERVIEW – 04**

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	JHM1253-04-1	Large handwheel		1
2	JHM1253-04-2	Clutch sleeve		1
3	JHM1253-04-3	Spring	YA2.5x25.5x40	1
4	JHM1253-04-4	Scale sleeve		1
5	JHM1253-04-5	Left shaft bracket		1
6	JHM1253-04-6	Leadscrew		1
7	JHM1253-04-7	Handle ball		4
8	JHM1253-04-8	Sleeve nut		1
9	JHM1253-04-9	Sleeve nut		1
10	JHM1253-04-10	Clutch gear		1
11	JHM1253-04-11	Sleeve		1
12	JHM1253-04-12	Clutch		1
13	JHM1253-04-13	Key		1
14	JHM1253-04-14	Screw	M10x16	1
15	JHM1253-04-15	Sleeve		1
16	JHM1253-04-16	Socket		1
17	JHM1253-04-17	Screw		2
18	JHM1253-04-18	Eccentric shaft		1
19	JHM1253-04-19	Bearing	51206	1
20	JHM1253-04-20	Round nut		1
21	JHM1253-04-21	Pin	6x45	1
22	JHM1253-04-22	Bearing	6206	1
23	JHM1253-04-23	Handle lever		2
24	JHM1253-04-24	Pressure plate		2
25	JHM1253-04-25	Bearing	51206	1
26	JHM1253-04-26	Bearing	6206	1
27	JHM1253-04-27	Round nut and washer	M27x1.5	2
28	JHM1253-04-28	Dial		1
29	JHM1253-04-29	Key	6x16	1
30	JHM1253-04-30	Pressure plate		1
31	JHM1253-04-31	Pressure plate		1
32	JHM1253-04-32	Pipe connector		1
33	JHM1253-04-33	Pin	10x45	2
34	JHM1253-04-34	Protective plate		1
35	JHM1253-04-35	Screw	12x30	6
36	JHM1253-04-36	Bevel gear		1
37	JHM1253-04-37	Insert sleeve		1
38	JHM1253-04-38	Saddle		1
39	JHM1253-04-39	Swing arm		1
40	JHM1253-04-40	Pin		1
41	JHM1253-04-41	Pin		1
42	JHM1253-04-42	Swing arm		1

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
43	JHM1253-04-43	Screw	M8x20	1
44	JHM1253-04-44	Bevel gear		1
45	JHM1253-04-45	Fixed screw		1
46	JHM1253-04-46	Adjusting ring		1
47	JHM1253-04-47	Worktable		1
48	JHM1253-04-48	Rotary disc		1
49	JHM1253-04-49	Sleeve		1
50	JHM1253-04-50	Pin	10x50	1
51	JHM1253-04-51	Ring		1
52	JHM1253-04-52	Bracket		1
53	JHM1253-04-53	Bevel gear		1
54	JHM1253-04-54	Round nut and washer	M45x1.5	1
55	JHM1253-04-55	Bracket		1
56	JHM1253-04-56	Bolt		2
57	JHM1253-04-57	Screw	10x50	2
58	JHM1253-04-58	Screw		2
59	JHM1253-04-59	Bolt rod		2
60	JHM1253-04-60	Bolt		2
61	JHM1253-04-61	Screw	M6x45	2
62	JHM1253-04-62	Screw		2
63	JHM1253-04-63	Screw	M10x60	2
64	JHM1253-04-64	Bolt rod		2
65	JHM1253-04-65	Tight bolt		2
66	JHM1253-04-66	Sleeve nut		1
67	JHM1253-04-67	Connecting rod		1
68	JHM1253-04-68	Bearing cover		1
69	JHM1253-04-69	Swing arm		1
70	JHM1253-04-70	Pin	12x60	2
71	JHM1253-04-71	Small roller		1
72	JHM1253-04-72	Bolt		1
73	JHM1253-04-73	Swing arm		1
74	JHM1253-04-74	Bearing cover		1
75	JHM1253-04-75	Ring		1
76	JHM1253-04-76	Fork		1
77	JHM1253-04-77	Gland		1
78	JHM1253-04-78	Spring		1
79	JHM1253-04-79	Sleeve		1
80	JHM1253-04-80	Connecting rod		1
81	JHM1253-04-81	Nut		1
82	JHM1253-04-82	Swing arm		2
83	JHM1253-04-83	Shot shaft		1
84	JHM1253-04-84	Ring		1

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
85	JHM1253-04-85	Worm		1
86	JHM1253-04-86	Flange		1
87	JHM1253-04-87	Oil pump		1
88	JHM1253-04-88	Wedge iron		1
89	JHM1253-04-89	Ear pin		1
90	JHM1253-04-90	Nut	M10	1
91	JHM1253-04-91	Screw		1
92	JHM1253-04-92	Bump plate		1
93	JHM1253-04-93	Nut	M8	2
94	JHM1253-04-94	Bolt	M8x25	2
95	JHM1253-04-95	Bump plate		1
96	JHM1253-04-96	Short shaft		1
97	JHM1253-04-97	Sleeve		1
98	JHM1253-04-98	Swing arm		1
99	JHM1253-04-99	Taper pin	10x40	1
100	JHM1253-04-100	Small shaft		1
101	JHM1253-04-101	Spring		1
102	JHM1253-04-102	Swing arm		1
103	JHM1253-04-103	Short shaft		1
104	JHM1253-04-104	Positioning plate		1
105	JHM1253-04-105	Sleeve		1
106	JHM1253-04-106	Cotter pin	2x12	1
107	JHM1253-04-107	Swing arm		1
108	JHM1253-04-108	Short shaft		3
109	JHM1253-04-109	Handle components		1
110	JHM1253-04-110	Bearing	K20x26x17	1
111	JHM1253-04-111	Short shaft		1
112	JHM1253-04-112	Pin	8x40	1
113	JHM1253-04-113	Short shaft		1
114	JHM1253-04-114	Small roller		1
115	JHM1253-04-115	Cotter pin	1.5x10	2
116	JHM1253-04-116	Sleeve		1
117	JHM1253-04-117	Bolt	M8x25	2
118	JHM1253-04-118	Nut	M8	2
119	JHM1253-04-119	Stop		2
120	JHM1253-04-120	Bolt	M16x35	4
121	JHM1253-04-121	Pressure plate		1
122	JHM1253-04-122	Nut and pad	M20x1.5	2
123	JHM1253-04-123	Pressure plate		1

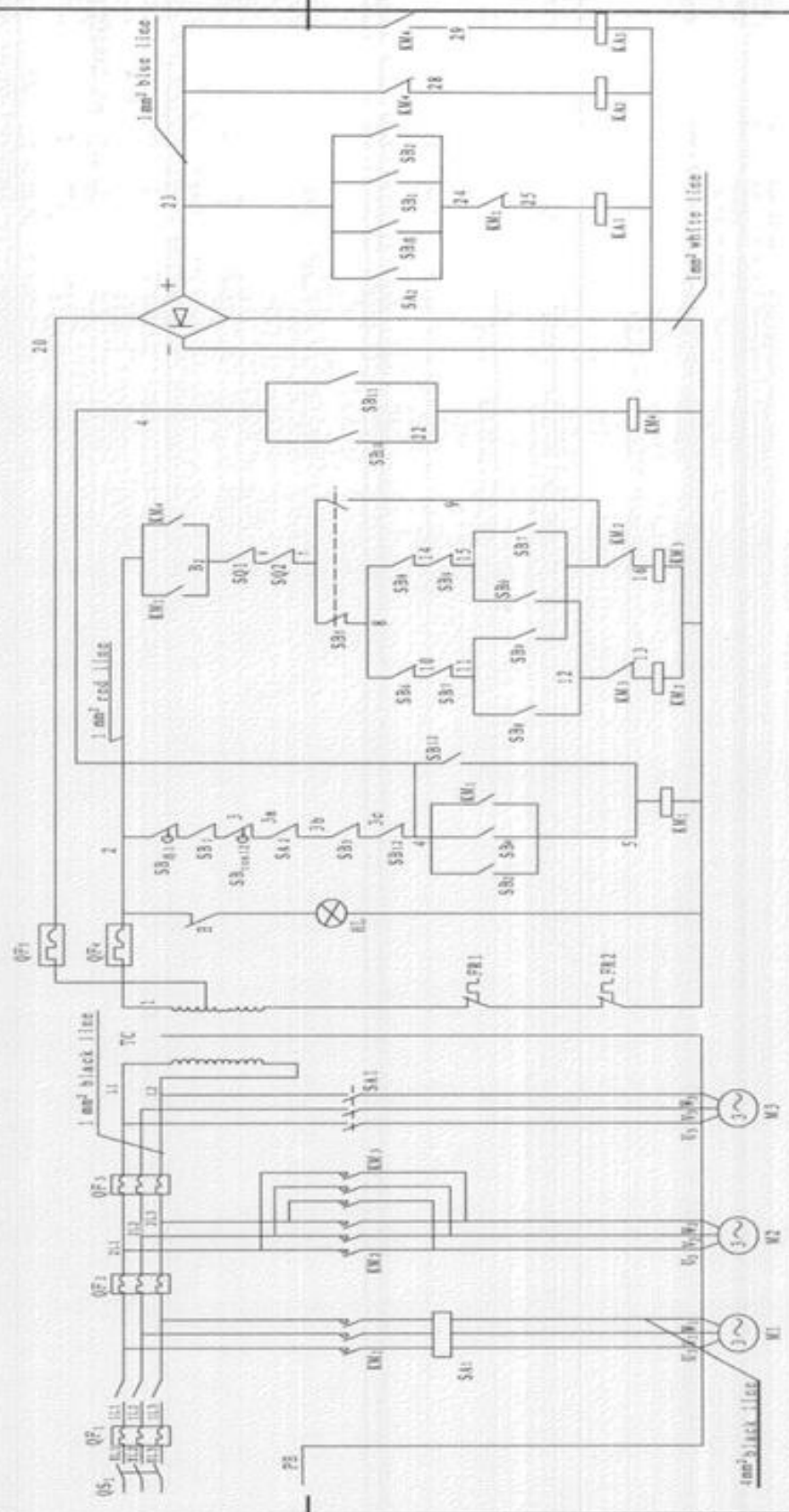
**Part List for JHM-1253 MILLING MACHINE–Coolant Pump Assembly G**



Index No.	Part No.	Description	Size	Qty.
01	JM125-F-001	Coolant pump	400V-50HZ-90W	1
02	JM125-F-002	Connect Elbow		1
03	JM125-F-001	Hose		1
04	JM125-F-004	Nozzle		1
05	JM125-F-005	Valve		1
06	JM125-F-006	Extend Elbow		2
07	JM125-F-007	90° Joint		2
08	JM125-F-008	Connect Elbow		1

**Exploded View for JHM-1253 MILLING MACHINE – Electrical diagram**

POWER	Spindle motor	See-TYPE MOTOR (Cooling)	transformer	motor	Spindle	Keentype-CK/CCV				Spindle trip	Table
						CF	CK	CK	CK		
							rapid button	Reltifier		Low	High



Electrical drawing

### Part List for JHM-1253 MILLING MACHINE - Electrical diagram

Part code	Part name		Qty
3040160	voltage transformer	LBK5-250VA 380V/400V/415V- 220V50VA/28V100VA/24V100VA	1
3040091	Schneider motor thermal magnetic circuit breaker	GV2-ME32C 13-18A	1
3040082	Schneider motor thermal magnetic circuit breaker	GV2-ME05C 0.63-1A	1
3040087	Schneider motor thermal magnetic circuit breaker	GV2-ME14C 6-10A	1
3040064	Schneider circuit breaker	OMSC32N1D3 1PD3A	1
3040065	Schneider circuit breaker	OMSC32N1D6 1PD6A	1
3040097	Schneider AC contactor	LC1-D50B7C	1
3040092	Schneider AC contactor	LC1-D09B7C	3
304343	rectifier bridge	KBPC5010	1
3040144	grounding copper bar	JDM4*6	1
3040139	terminal block	TB10I	6
3040138	terminal block	TB2.5BI	60
3040141	ground terminal	TB10B-PEI	3
3040140	ground terminal	TB2.5B-PEI	3
3040169	combination switch	HZ5B-10/2	1
3040170	power cut off switch	HZ12D-40/2	1
3040172	CAM switch	LW5D-16/B 16A	1
3040173	travel limit switch	BYDX1-11DSC3	2
3040171	travel limit switch	BYDX7-131LA	2
3040174	travel limit switch	LX3-11K	2
3040179	auxiliary contact module	LAD11C	3
3040127	Schneider red emergency stop button	ZB2-BS54C	2
3040113	Schneider red button	ZB2-BA4C	2
3040112	Schneider green button	ZB2-BA3C	2
3040111	Schneider black button	ZB2-BA2C	2
3040128	Schneider black two position knob	ZB2-BD2C	1
3040462	work lamp	LED50F-4 (9 heads)	1
3230795	bracket	XZ6328103	1
3040122	Schneider button seat	ZB2-BZ105C	9



## Packing List --Main machine, Accessories and tools

No.	Name	Specification	Qty	Remark
1	Horizontal milling cutterarbor subassembl	φ27	1 set	
2	Horizontal milling cutterarbor subassembl	φ32	1 set	
3	7: 24 Taper	7: 24 ISO50/MS4	1 piece	
4	Double head wrench	17×19	1 piece	
5	Double head wrench	22×24	1 piece	
6	Double head wrench	27×30	1 piece	
7	Double head wrench	32×36	1 piec	
8	Single head spaner	14	1 piece	may replace with 11×14
9	Inner hexagon spanner	5	1 piece	
10	Inner hexagon spanner	8	1 piece	
11	Machine-to-adjust-Sizing-Block	4	4 piece	