1 Usage

This machine is convenient and reliable due to its multiple functions such as surface planer, press-planer, wood sawing, circular hole. Drilling. Square mortises chiseling as well as circular saw grinding and so on. **Because the spindle of sawing and planer is separated, the operation is convenient and safety.**

2 Primary parameters

Maximum planer width ................................................................. 300mm  
Maximum planer depth ................................................................. 3mm  
Scale of thickness of press-planer .................................................. 6-120mm  
Minimum length of press-planer ................................................... 150mm  
Maximum sawing thickness ........................................................... 85mm  
Maximum rabbet depth ................................................................. 10mm  
Maximum drilling diameter ........................................................... 13mm  
Maximum drilling depth ............................................................... 60×2=120mm  
Maximum width of square mortise ................................................... 16mm  
Rotation speed of planer tool spindle ............................................. 4290r/min  
Motor power ............................................................................. 2.2kW(220V 50Hz;380V 50Hz)  
Feeding speed ........................................................................... 6.5m/min  
Overall dimensions ...................................................................... 1800×2000×1170mm  
Net weight .................................................................................. 260kg

3 Structure

This machine is designed with a special structure of plate combined bench type, which is noted for its extremely convenience and reliability of installment, adjustment, application and maintenance. This machine is chiefly composed of front and rear bench planes, right and left housing sheets, front and back pillars, elevating bench of press-planer, mortise chiseling bench of circular saw, planer tool spindle, motor and transfer system for it. This machine can be accommodated to either one-phase motor or three-phase one. Automatic feed of wood piece during press planer has been achieved by making use of belt as well as gear and chain transfer mechanism. The inverse motion stopper guarantees security of operation.

4 Safety regulations

4.1 General suggestions

It is compulsory that the operator acquires the necessary training to use this kind of machine before starting any work and has the minimum age provided for by the law of the country in
which he is working. Before starting the machine, carefully read this manual.

- The use of any machine tool with electric drive can involve risks of damage to persons or things. It is therefore necessary to always pay the utmost attention.
- Make sure that the switches are in good conditions. Turn off the machine immediately if there is something wrong.
- Use the most suitable clothing for the working environment avoiding large sleeves around the wrists, scarves, necklaces, and keep your hair tied up.
- Wear headphones or ear plugs, masks, protection gloves, safety shoes.
- Check that the wood piece doesn’t have metal inserts, nails, or knots or dangerous cracks. Always machine the wood piece in the direction of the veins.
- The machine has been planned for the machining of wood and therefore it can not be used for other materials or scopes.
- Never machine too small wood pieces as they are dangerous, nor too big or heavy ones in respect of the features of the machine, nor too curved ones.
- To machine long wood pieces always install suitable supporters with in feed and out feed tables in order to balance the weight of the wood.
- Never introduce hands, arms, head or other parts of the body into the machine rotating part.
- The working area must be well-illuminated, without obstacles, clean and without persons in it. Never let keys, tools or wood piece on the machine.
- Before any cleaning or maintenance operation, turn off the general switch of the machine and disconnect the plug from the feeding line. Make sure that nobody may turn on the machine accidentally.
- Never leave the machine unguarded when it is on. At the end of work, make sure that no children in the working area.
- Never operate the machine if you are under the effect of alcohol, psychotropic medicines or drugs.

4.2 Operator’s risks prevention
Although the recommendations stated in part 4.1, the operator may be subjects to the following risks:
- During the adjustment, mounting and removal of the tools and cleaning the machine, use gloves and special tools.
- Turn-off the machine before the model selection of sawing and planer.
- During machining, don’t put yours hands on the tools when they are rotating, use the guards supplied, advance the wood piece slowly and carefully.
- Use the guards supplied, make sure that they are adjusted and stable, use goggles and assume suitable positions. Always make sure that mounted tools are fixed well, and keep dynamic balance.

5 Carriage & Installment
Carry and lay them slightly. Try to put the machine at a extensive and arid place and make it stable then fasten it.

On behalf of carriage, some of the machines are packed with small packing box; In this case, the customer must mount up the several dismounted parts in accordance with the stages and means showed below.

Mount up the front and back pillars as well as the transfer system as Fig.1 showed. Connect the front pillar 8 and the back pillar 18 with the pull rod 1. It is enough to screw down the nut for the moment. Mount the main body on the pillars, align the threaded hole, and then fasten them with bolts. Screw down the nuts on the two ends of the pull rod. Thus the distance between the two pillars at the free state can be determined.

Mount up the speed change mechanism 3 as Fig.1 showed, not to thread the bolts, fit chain 15, V-belts 9 and 4, be sure that the degree of the tightness of the belts is moderate. After that, keep the two vertical planes of bearing base of the transfer lean against the right pillar 10 closely, then thread the bolts to fasten the bearing base. Then fit the protective hood 2 on it.

Fig.1 Diagram of Pillars and Transfer System

As Fig. 2. Mount up the mortise bench, the stand and the planer sharpening slide way and so on. The micro-feed lead screw may be used only when the planer tool is being sharpened. So it should be dismounted if tool planer sharpening is not used.

The bolts on the three hinge joint point of the big control rod and the connecting rod should be turned tight lest parts of the machine would be damaged.

Circuit diagram of electrical is shown in Fig. 3. The voltage, frequency of supply source must be accordance with the specified ones of this machine. In order to avoid leakage of electricity and accidents of getting electric shock, the machine should be earthed dependably. Cut off the mains, when the machine needs to be repaired or not being used.
6 Adjustment and Application

To guarantee security of the operator as well as the machine itself and improve produces quality and production efficiency, it is imperative for the operator to master proficiently the techniques of adjustment and application of power off. The operator must check the validity and reliability of installment and adjustment before starting the machine.

- **Surface Planer**

  **Preparation:** Stop the machine, move the clutch bar to planning position.
  The edges of planer tools must be straight and sharp. The weight of three planer tools should be approximately equal. Shift the edges of blades to the same height as the back plane of the bench or 0.05mm higher than it. Adjust height of the front and back plane referring to the height indicating staff. The height deviation between two planes means the planer depth. Move the lead board to the right side of the bench and fix it during...
surface planer. The operator should sufficiently make use of the protecting board. Don’t dismount it willfully.

**Press-planer**

**Preparation:** Stop the machine, move the clutch bar to planning position.

The operator should sufficiently make use of the protecting board. Don’t dismount it willfully. The staff of the press-planer thickness must be calibrated frequently by the practical size of the test-planed wood piece. Before the change gear is put into gear, pull the V-belt with your hand; turn the handle so that the gears mesh each other in mobility. The planer depth must be determined correctly according to the quality and width of the wood piece to be planed, if the wood piece is fairly heavy, humid or hard, the operator is encouraged to pull the wood piece slightly to aid feed process. In case of lot production of the same wood piece, you had better fix the bench of press-planer. The transfer gears must be out of gear when press-planer process is over.

**Large Rabbet Cutting**

On both flanks of the planer tool body, the end edge of one of the three-planer tools should be shifted to the same height as the step face of the rabbet to be cut or 0. 05mm prolonged. Lower the front bench plane to height of depth of the rabbet desired. The lead board must be parallel to the step face. Dismount the left protecting board of planer tool if the desired rabbet is on the left side. Otherwise dismount the right one if the desired rabbet is on the right side. Meanwhile, dismount saw bench and saw blade, then mount series the base of circular saw, adjusting skims to the spindle of the tool planer and compress them with nuts.

**Sawing**

**Preparation:** Stop the machine, move the clutch bar to sawing position.

The separating tool must be aligned with the circular saw. Adjust hood of circular saw to a right position according to thickness of the work piece. Generally, you’d better move the bench plane of circular saw to a height 0.5mm to 1mm higher than back plane. You can make full use of the lead bar to guarantee sawing quality. Take proper feed speed and force according to thickness, humidity and hardness of the wood piece while sawing. Be careful to avoid over speed or force, lest the saw would be over burden the motor or other parts damaged.
■ Grooving

**Preparation:** Stop the machine, move the clutch bar to sawing position. Repeat sawing process by changing position of the single saw blade. The sawing depth can be determined by lifting up the bench of circular saw. Leading and locating can be achieved by making use of the lead bar. It may be fitted to the left or right side of the saw blade.

■ Rabbet & Chamfering

**Preparation:** Stop the machine, move the clutch bar to sawing position. Fit the rabbet tool, adjusting skims and the chamfering tool to the planer tool spindle consequently. Alter the distance between two tools through random combination of several adjusting skims. Vary the height of the circular saw bench to determine the cutting depth. Varying the distance between two tools, you can get various chamfers with different size. The lead board may be mounted on the left side as required. In special case, the supporting beam mounted at the middle part of the circular saw bench may be mounted inversely.

■ Square Mortise Chiseling

The square chiseling drill must be sharp enough. Keep certain gap between the back cone of the drill and inner cone of the hollow chisel while mounting up the square chiseling drill, and make sure that the drill and the spindle of the planer tool are in good coaxial. Move the mortise chiseling board so that it is vertical to the spindle of the planer tool. Feed the drill on both side of the wood piece. It is essential to feed the wood piece in stage. Withdraw the tool before further cutting. Be careful not to enter completely the chip room on the tail end into the wood piece. For convenience of removing the chip, the drill must be withdrawn frequently. The drill must be dismounted at once if other mortises are not desired.

■ Circular or Waist Shape Hole Drilling

Dismount the supporting stands of the square chisel. Adjust the mortise-chiseling bench to a desired height. Move the mortise chiseling leaning board so that it is vertical to the spindle of the tool planer. For
convenience of removing the chip, the drill must be withdrawn frequently.

■ Tool Sharpening

Lower the mortise-chiseling bench, dismount supporting stand of the square chisel, fix the special use grinding wheel shaft to the drill chuck tightly, and fit the grinding wheel to the shaft. Move the bench horizontal towards the grinding wheel. Mount up the micro feed lead screw used for tool grinding. Push the tool-grinding base with hand along the tool grinding slides way. Be careful to keep the rotational direction of the wheel alike with drilling direction. Do not feed too much at one time. The straightness of the blade may be testified by the bench plane. Keep your body away from the machine during tool grinding from beginning to end.

■ Saw Sharpening

Setting upright the special use saw grinding supporting board and turn the bolts tight to fit it. Adjust the height of bench of mortise chiseling and its horizontal position so that the extended line of saw teeth pass through center of the grinding wheel approximately. Hold the circular saw with hand tightly. Keep your body away from the grinding wheel from beginning to end.

■ Lead Board Adjustment

The lead board which is fixed to the back bench plane is not only used to for large rabbet cutting and vertical planer but also for guiding and locating while sawing. If the circular saw bench plane is the same height as the back bench plane or not greater than 1mm higher than it, the big lead board can be moved to the position of about 20mm away from the circular saw. The small guide fixed to the circular saw bench is a special use for rabbet, chamfering and chiseling. It can also be used for sawing small size wood. The lead boards maybe fit to the left or right side of rabbet tool, chamfering tool and circular saw.

For the convenience of large rabbet cutting and sawing, the lead boards can be inclined lengthwise towards the left or the right by adjusting two hex head bolts.

■ Grinding of the Inner Cone of the Hollow Chisel

Fix the cylinder oilstone whose front part is a taper of 50-60 degree to the drill chuck, Hold the hollow chisel and start grinding.
7 Maintenance & Attendance

Clear the wood flour and accumulations on the machine immediately after operating for service life of the machine and processing quality. Check and maintain the machine parts and electric elements periodically. Apply grease on two bearings on the two end of the plane tool spindle every 1000 working hours. Clear the face of every bench as well as the fit sliding surfaces, and up it at a arid place lest would rust. Check the motor on its insulation before using the machine once again. Keep the edges of the planer tools, saw blades and other tools sharp all the time. Sharpen them immediately if they are dulled. All the three tools must be sharpened simultaneously, so as to ensure the rotation steadily of the tool spindle and processing quality. Apply grease on every sliding surface for sliding mobility.

8 Tools to be Used

The following tools are to be used during adjustment and maintenance

<table>
<thead>
<tr>
<th>Name</th>
<th>Specification</th>
<th>Name</th>
<th>Specification</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat head screw driver</td>
<td>75×4</td>
<td>Double ends solid wrench</td>
<td>12×14; 8×10; 14×17</td>
<td></td>
</tr>
<tr>
<td>Cross head screw driver</td>
<td>100×80</td>
<td>Monkey wrench</td>
<td>250×30</td>
<td></td>
</tr>
<tr>
<td>Hex-socket wrench</td>
<td>8; 6; 5</td>
<td>Lead weight</td>
<td>0.5kg</td>
<td></td>
</tr>
</tbody>
</table>

9 Major Standardization Products & Fragile Parts

<table>
<thead>
<tr>
<th>Name</th>
<th>Specifications</th>
<th>Amount</th>
<th>Name</th>
<th>Specifications</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Ball Bearing</td>
<td>204</td>
<td>2</td>
<td>V-Belt</td>
<td>Z40&quot;(1038mm)</td>
<td>1</td>
</tr>
<tr>
<td>Radial Ball Bearing</td>
<td>60203</td>
<td>4</td>
<td>Planer Tool</td>
<td>310×30×3</td>
<td>3</td>
</tr>
<tr>
<td>Radial Ball Bearing</td>
<td>80100</td>
<td>1</td>
<td>Circular Saw</td>
<td>305×3×30</td>
<td>1</td>
</tr>
<tr>
<td>Radial Ball Bearing</td>
<td>80104</td>
<td>1</td>
<td>Square Chisel Drill</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Radial Ball Bearing</td>
<td>80105</td>
<td>3</td>
<td>Grinding Wheel</td>
<td>GZ60°ZR2PDX125 × 10×25</td>
<td>1</td>
</tr>
<tr>
<td>Radial Ball Bearing</td>
<td>80203</td>
<td>2</td>
<td>Rabbet Tool</td>
<td>104×14×18</td>
<td>1</td>
</tr>
<tr>
<td>V-Belt</td>
<td>Z44&quot;(1142mm)</td>
<td>2</td>
<td>Chamfering Tool</td>
<td>110×14×18</td>
<td>1</td>
</tr>
</tbody>
</table>
### 10 Machine Faults & Repairing Measures

<table>
<thead>
<tr>
<th>No.</th>
<th>Fault Description</th>
<th>Reason</th>
<th>Repairing Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The motor does not revolve although its switch is turned on</td>
<td>a) AC supply is not electrified or the fuse has been blown&lt;br&gt;b) The wire connecting the electric appliance is relaxed or broken&lt;br&gt;c) Contact fault of the switch</td>
<td>a) Check the power source&lt;br&gt;b) Check the switch&lt;br&gt;c) Check the motor</td>
</tr>
<tr>
<td>2</td>
<td>The motor is overheated</td>
<td>a) There are short circuits inside the motor&lt;br&gt;b) The motor is overloaded&lt;br&gt;c) AC supply is under voltage</td>
<td>a) Check the motor&lt;br&gt;b) Reduce the amount of feeding&lt;br&gt;c) Check the supply voltage</td>
</tr>
<tr>
<td>3</td>
<td>Bearing are overheated</td>
<td>a) Bearings are in poor lubrication&lt;br&gt;b) The bearing inside is dirty</td>
<td>Apply or exchange lubricant</td>
</tr>
<tr>
<td>4</td>
<td>Rotation is under speed</td>
<td>a) AC supply is under voltage&lt;br&gt;b) The belt is loose</td>
<td>a) Restore the supply voltage&lt;br&gt;b) Tauten the belt</td>
</tr>
<tr>
<td>5</td>
<td>Planer quality gets worse</td>
<td>a) The tool edge is dulled or there are gaps&lt;br&gt;b) Tools are fitted or adjusted improperly</td>
<td>a) Sharpen the planer tool&lt;br&gt;b) Refit the planer tool</td>
</tr>
<tr>
<td>6</td>
<td>The machine is charged</td>
<td>Insulation of certain parts of the electric system is damaged and electric leak away</td>
<td>Repair or replace them</td>
</tr>
</tbody>
</table>