Necessary instrument and wires: laser gradienter, hydraulic car, monkey wrench, cross-shaped screwdriver, multimeter, socket head wrench, five cores 6mm<sup>2</sup> electric wire, 2.5mm<sup>2</sup> four- core electric wire

Installation process:

1. Check whether the appearance has any damage. After open the package, check the parts in the package: foot margin, vacuum pump, air tube, water cooling sink, tool kits box.

2. Check the tools and parts in the tool kits box:chuck, sealing rubber strip, tool changer wrench, socket head wrench, vacuum hole plug and filter screen.

3. Install the control panel: set upright the control panel against the supporting seat, and lock the screw.

4. Install the vacuum pump: prepare 2.5mm<sup>2</sup> four-core electricity wire including three firing line and one ground electrode. Connect the wiring position of motor and binding post position of vacuum pump. Fill water to 2/3 tank, connect with air tube and switch on the air valve.

5. Connect the power supply wire: Check whether the wires in the controlling cabinet became loose or dropped out. Connect 4P air switch with 380V, 5 Cores 6mm<sup>2</sup> electric wires. Connect 3 firing wire, one null wire and one ground wire by 380V onto the corresponding position. Before power on, test by using multimeter whether the wires are connected correctly and the voltage is right.

6. Press the green power-on button to enter the system. Move the machine head by manual mode to the middle position of X and Y axis. Click "all return" button by reference point mode to return the three axis to reference point, then the reference point icon of three axis appears. When the process of returning the reference point finishes, switch to manual mode and three axis will be moved slowly. During moving process, check whether has any strange sound. Starting-up finished.

7. Horizontal direction adjustment: Laser gradienter, tape, wrench, hydraulic car are required in this process. Open the dust hood of X axis on the both side of beam to show the guideway. Open the laser gradienter, move the beam forward and backward. Measure the relative distance between of four corners X axis guideway and laser wire. Adjust the machine foot margin to make machine moved up and down and the relative distance of four corners same. Install the X axis dust hood on the both side of beam and the horizontal adjustment is finished 8. Install the water cooling sink: fix the water inlet of water absorption tube into the inter sink and be cautious that the water inlet in the bottom of sink. Fill the tank by a ratio of the emulsion and water. Move the sink under the corresponding position of machine.

9. Check the positive and negative diversion of vacuum pump: Press "lubricate" button to power on the vacuum pump and Check whether the motor diversion is rotated by the direction of arrow. If the motor is rotated by negative, change any two firing wires position of vacuum pump in the electric control cabinet.

Press "cutting fluid" button to power on pump and check whether the motor diversion is rotated by the direction of arrow. If the motor is negatively rotated, change ant two firing wires position of vacuum pump in the electric control cabinet. Notice: If the motor is in negative rotating, power off the motor to avoid any pump damage and the wiring position exchange should be executed under power-off status.

10. Open the cutting fluid to check whether the cooling liquid is sprayed normally or leaked.

If not sprayed, check whether the water inlet is located in the cutting liquid or filtering net is jammed. Under pump power-off status, twist-off the pump screw, fill water and twist-on the screws to check whether the problem is solved. If the joint position is leaked, pls seal it in time. Switch on the vacuum pump to check whether the vacuum holes has any suction. If no suction, check whether the vacuum tube is fallen off.

11. Start the spindle and check whether the spindle is turned in the direction of arrow.