YP Dental D500 Milling Machine Installation Guide

To Ensure Safe Use

Incorrect operation may cause injury			
	**Always unplug the power cord when attaching or removing parts and optional parts and when performing cleaning or maintenance that does not require the machine to be connected to a power source.** Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.		**Be sure to follow the operation procedures described in the user's manual. Never allow anyone unfamiliar with the usage or handling of the machine to touch it.** Incorrect usage or handling may lead to an accident.
	**Keep children away from the machine.** The machine includes areas and components that pose a hazard to children and may result in injury, blindness, choking, or other serious accidents.		**Conduct operations in a clean, brightly lit location.** Working in a location that is dark or cluttered may lead to an accident, such as becoming caught in the machine as the result of an inadvertent stumble.
	**Never attempt to disassemble, repair, or modify the machine.** Doing so may result in fire, electrical shock, or injury. Entrust repairs to a trained service technician.		**Never use a milling tool that has become dull. Perform frequent maintenance to keep the machine in good working order.** Inappropriate usage may result in fire or injury.
	**Never climb or lean on the machine.** The machine is not made to support a person. Climbing or leaning on the machine may dislodge components and cause a slip or fall, resulting in injury		**Never operate the machine while tired or after ingesting alcohol or any medication.** Operation requires unimpaired judgment. Operating with impaired judgment may result in an accident.
	**Never operate the machine while tired or after ingesting alcohol or any medication.** Operation requires unimpaired judgment. Operating with impaired judgment may result in an accident.		**Caution: sharp components.** This machine contains areas that are sharp. To avoid injury, exercise caution.

Danger of electrical short, electrical shock, or fire			
	**Connect to an electrical outlet that complies with this machine's ratings (for voltage, frequency, and current).** Incorrect voltage or insufficient current may cause fire or electrical shock.		**Never use the machine for any purpose for which it is not intended or use the machine in an excessive manner that exceeds its capacity.** Doing so may result in injury or fire.
	**Position so that the power plug is within immediate reach at all times.** This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.		**Never allow any foreign object to get inside the machine. Never expose the machine to liquid spills.** Inserting objects such as coins or matches or allowing beverages to be spilled into the ventilation ports may result in fire or electrical shock. If anything gets inside the machine, immediately disconnect the power cord.
	**Never use outside or in any location where exposure to water or high humidity may occur. Do not touch the power cord, plug, or electrical outlet with wet hands.** Doing so may result in fire or electrical shock.		**Never place any flammable object nearby. Never use a combustible aerosol spray nearby. Never use in any location where gases can accumulate.** Combustion or explosion could occur.
	**Connect to ground.** This can prevent fire or electrical shock due to current leakage in the event of malfunction.		**If the machine will not be used for a long period, disconnect the power cord.** This prevents an accident caused by unexpected electric leakage or unintentional start of the machine.
	**When using an extension cord or power strip, use one that adequately satisfies the machine's ratings (for voltage, frequency, and current).** Use of multiple electrical loads on a single electrical outlet or of a lengthy extension cord may cause fire.		**If sparks, smoke, burning odors, unusual sounds, or abnormal operation occur, immediately unplug the power cord. Never use if any component is damaged.** Continuing to use the machine may result in fire, electrical shock, or injury.

Danger of components flying off or becoming damaged			
	**Ensure that the supplied compressed air is not contaminated by water, oil, chemicals, or foreign objects.** The components may deteriorate or rupture, or the contaminants may be scattered, posing a hazard.		**Before attempting to attach or detach the air hose or optional items or before attempting to perform cleaning or maintenance that does not require the machine to be connected to a power source, stop the supply of compressed air and allow the pressure to escape.** Allowing the equipment to remain under pressure poses a hazard of flying components.
	**Never use in a location exposed to direct sunlight.** Components may deteriorate or rupture under the pressure of compressed air.		**Use an air hose of the specified diameter and having adequate pressure resistance.** Otherwise the article may come loose or rupture.
	**Keep the temperature of the installation area within the specified range. Never place a stove or heater nearby.** Components may deteriorate or rupture under the pressure of compressed air.		**Never strike or subject the object to impact.** Components may suffer damage or rupture under the pressure of compressed air.
	**Connect the air hose securely, so that it will not come loose.** A pressurized hose that comes loose may whip about uncontrolled, posing a hazard. Connect securely.		**When the machine will be out of use for a prolonged period, stop supply of compressed air and bleed off the air pressure.** This can prevent an accident.
	**Never damage the air hose or bend or twist it with excessive force. Never use an item that has deteriorated.** A damaged air hose may rupture.		

This is a heavy machine			
	**Unloading and placement are operations that must be performed by 4 persons or more.** Tasks that require undue effort when performed by a small number of persons may result in physical injury. Also, if dropped, such items may cause injury.		**Install the machine in a location that is level, stable, and able to bear the weight of the machine.** The total weight of the machine may reach 80 kg or more. Installation in an unsuitable location may cause a major accident, including tip over, fall, or collapse.

Danger of pinching, entanglement, and burns			
	**Never attempt operation while wearing a necktie, necklace, or loose clothing. Bind long hair securely. When performing operations while wearing gloves, exercise sufficient caution to prevent entanglement in the machine.** Such items may become caught in the machine, resulting in injury.		**Do not pull the adapter with excessive force when removing it.** Doing so may result in injury arising from your hand or arm hitting something.
	**Do not touch the spindle unit or the surrounding areas immediately after milling has ended.** Doing so may result in burns.		

YP Dental D500 Milling Machine

Delivery List

No.	Product Name	Specs	Quantity
1	D500 Milling Machine	D500	1
2	Power Cord		1
3	Air Filter		1
4	Air Hose	6mm	2
5	Tee	8mm to 6mm	1
6	Tee	6mm to 6mm	1
7	Air Valve	6mm	1
8	Air Valve	8mm	1
9	Brush		1
10	Vacuum Cleaner Hose		1
11	Hexagon Wrench	3mm	1
12	Screw	M4*12mm	20
13	Grease	450ml	1
14	Test Wax Disk	⌀ 98mm*10mm	1
15	Milling bur	R1.0*50L*4D	1
16	Milling bur	R0.5*50L*4D	1
17	Milling bur	R0.3*50L*4D	1
18	Dongle for layout software		Optional

Preparation before installation

YP Dental D500 is a dry-milling five-axis simultaneous dental milling machine with a compact body and easy operation. To ensure the full performance of this machine, be sure to observe the following important points. Failure to observe these points may not only result in loss of performance but may also cause malfunction or breakdown.

(1) **Site requirements:** The milling machine size is 580mm*570mm*520mm. The workbench where the device is placed can bear 200kg and there must be enough space to operate the machine. The area where the device is placed must be flat, clean and stable.

(2) **Environmental requirements:** The milling machine should be placed in a dry environment. Flammable and explosive items are not allowed to be placed around the milling machine;

(3) **Power requirements:** The milling machine uses a single-phase AC 220V 50/60Hz 10A three-plug power supply. The power supply voltage must be stable and must have a grounding wire (it is recommended to be equipped with a voltage stabilizer). The rated power of the power supply must be ≥5kW;

(4) **Air requirements:** This machine requires compressed air. User need to prepare a compressor separately. The total air source interface of the milling machine requires an 8mm diameter air hose, and the air pressure must be maintained above 0.6MPa and remain stable. This device is assembled with precision electronic components, and has high requirements for the cleanliness of the air source. The air needs to pass through an air filter to ensure that the air is clean and dry, otherwise it will reduce the life of the device components (It is recommended that users equip a separate air drying filter);

(5) **Vacuum cleaner requirements:** This machine requires a vacuum cleaner for sucking up milling waste generated from milling. The vacuum cleaner must meet the following conditions: static pressure ⩾4kPa， air flow ⩾2m^3/min， and the vacuum

cleaner can use the included vacuum cleaner hose (45mm diameter).

(6) **Software requirements:** Users need to purchase layout software. The layout software supported by the D500 milling machine includes Work NC, Hyperdent, and Millbox (WorkNC is recommended). User need to prepare a computer to install layout software. The configuration requirements are:

Operating system	Win10 or Win11 (64-bit version)
Memory	16G or more
CPU	i5 10th or i7 or above
Graphics card	GTX1660 or above
Processor	quad-core or above
Hard drive	500G or more solid-state drive

Device unpacking inspection

(1) The device should not be dumped during transportation. After the device arrives at the site, check whether the outer packaging of the device is in good condition and take photos for record;

(2) Use tools to disassemble the wooden box used for packaging. Pay attention to safety when disassembling the wooden boards to avoid hitting people and milling machines;

(3) After unpacking, check whether the appearance of the device is damaged, collided, or has paint peeling;

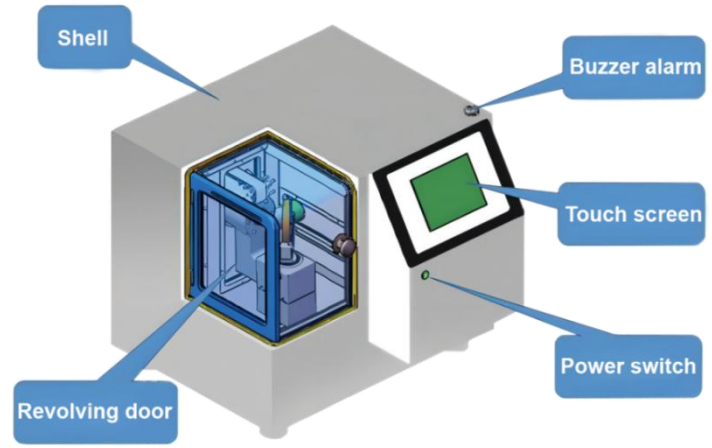
(4) Check whether the device model meets the purchase requirements;

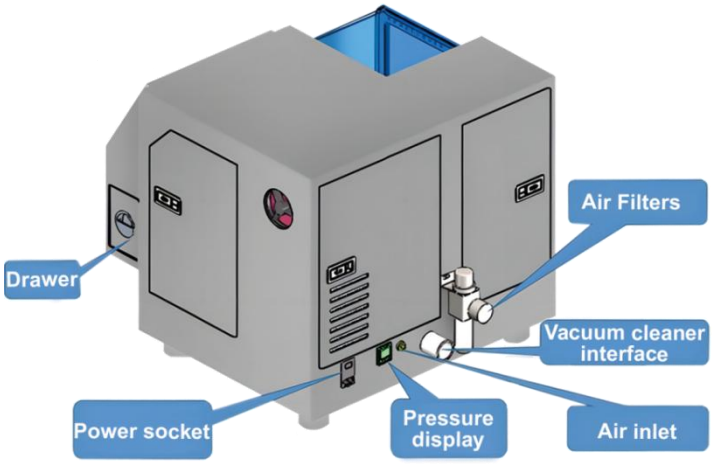
(5) Check the device, accessories, tools, manuals and other documents to see if they are complete and without any damage according to the device packing list;

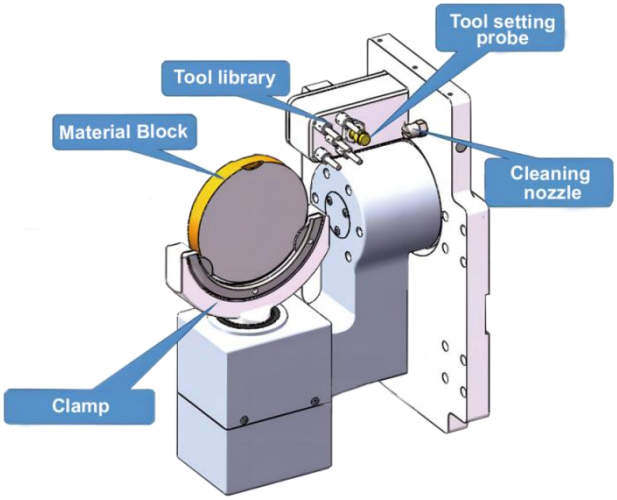
(6) If there are any problems with the device unpacking and acceptance, please contact YP Dental in time and we will solve them for you as soon as possible;

(7) After the device is unpacked and accepted, contact YP Dental in time for device installation guidance. The company has technical personnel responsible for the installation and commissioning of the device.

Device schematic diagram





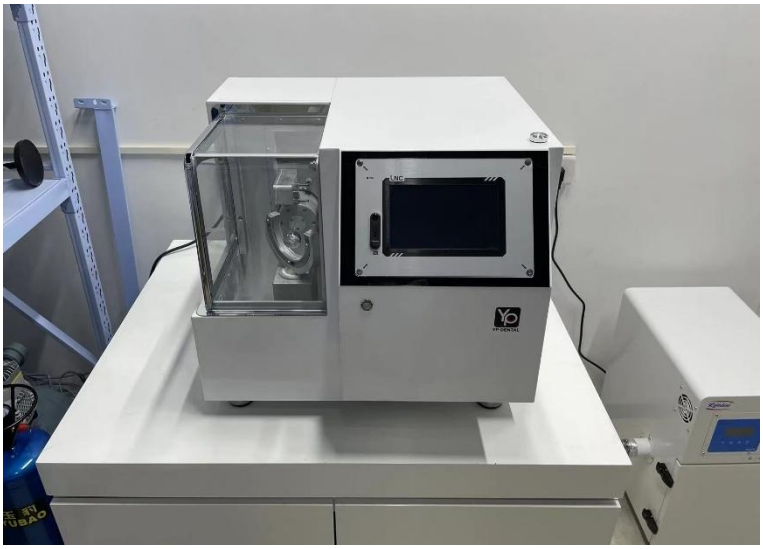


Device installation

Step 1: Place the device

(1) Place the milling machine on the workbench. Unloading and placement are operations that must be performed by 4 persons or more. It is strictly forbidden to move the device shell and movable door. Instead, the device base should be moved to prevent the device from falling or bumping during the transportation process;

(2) After the device is placed, check that the device and the workbench are not in a shaking state;



Warning:

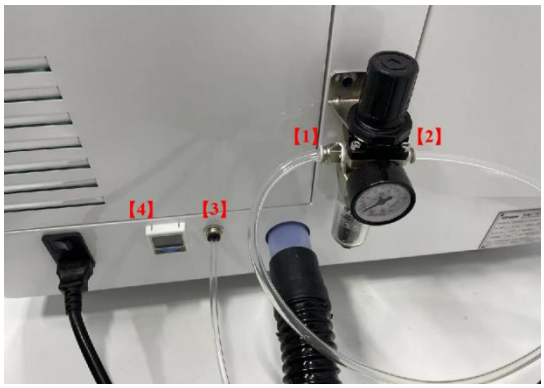
- Install the machine in a location that is level, stable, and able to bear the weight of the machine. The total weight of the machine may reach 80 kg or more. Installation in an unsuitable location may cause a major accident, including tip over, fall, or collapse.
- Never install the machine in a location exposed to open flame. Milling waste may ignite. Powdered material is extremely flammable.
- Never install the machine close to any flammable object or in a gas-filled location. Combustion or explosion could occur.
- Never install this machine outside or in any location where exposure to water or high humidity may occur. Current leakage may cause electrical shock or fire.
- Position the machine so that the power plug is within immediate reach at all times. This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.

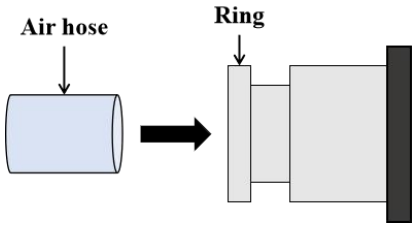
Step 2: Connect the air hose

(1) Install the air filter: The filter is fixed with 2 screws, and the 8mm diameter air hose of the compressor is connected to the filter inlet[1];

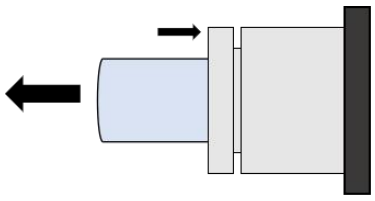
(2) Connect the air inlet hose: Use a 6mm diameter air hose to connect the filter outlet[2] and the device air inlet[3]. The air pressure must be maintained above 0.6Mpa[4];

(3) Securely insert the air hose as far as it will go. Lightly tug on the hose to make sure it does not come loose.





To attach: Securely insert the air hose as far as it will go



To detach: Press and hold the ring and pull out the hose.

Compressor:

- This machine requires compressed air. You will need to prepare a compressor separately.
- The compressor must meet the following conditions:
  a. Control pressure: Above 0.6Mpa;
  b. Air capacity: 50 L/min or more (per machine)
  c. Oil-free type: To prevent contamination of the compressed air by foreign material.
  d. Dryer-equipped: To prevent moist air that can cause rust.

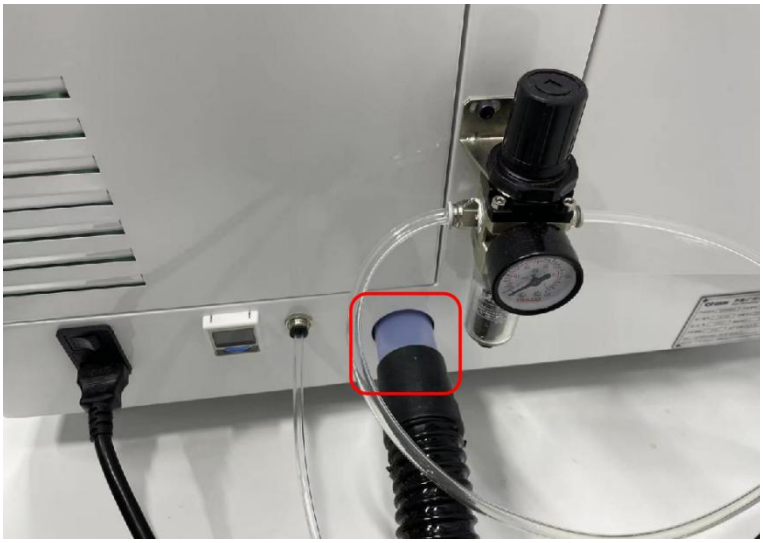
Warning:

- Ensure that the supplied compressed air is not contaminated with water, oil, chemicals, or foreign objects. The components may deteriorate or rupture, or the contaminants may be scattered, posing a hazard.
- Do not supply the compressed air until the air hose is connected securely. Failure to do so may cause an accident.

Step 3: Connect the vacuum cleaner hose

(1) This machine requires a vacuum cleaner for sucking up milling waste generated from milling. Milling cannot be performed without a vacuum cleaner.

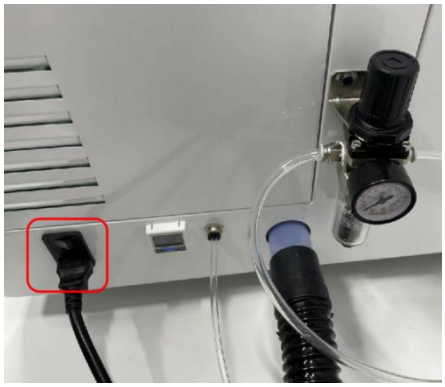
(2) Connect the vacuum cleaner: Firmly attach the vacuum cleaner hose to the vacuum hose interface of the device;



Step 4: Connect the power cord

(1) Connect the power cord: The power supply is single-phase AC 220V 50/60Hz. After the power cord is plugged in, turn on the power button [5]. The power supply must have a ground wire, otherwise the internal components of the device may be damaged.

(2) Open the rear cover of the device and use a multimeter to measure the voltage of the input power supply. If the power supply voltage is unstable, a voltage stabilizer needs to be added in front of the device to prevent the device from being damaged due to voltage fluctuations.



Warning:

- Connect to a power outlet that complies with this machine's ratings (for voltage, frequency, and current). Incorrect voltage or insufficient current may cause fire or electrical shock.
- Handle the power cord, plug, and power outlet correctly and with care. Never use any article that is damaged. Using a damaged article may result in fire or electrical shock.
- When using an extension cord or power strip, use one that adequately satisfies the machine's ratings (for voltage, frequency, and current). Use of multiple electrical loads on a single electrical outlet or of a lengthy extension cord may cause fire.
- Connect the machine to ground. This can prevent fire or electrical shock due to electric leakage in the event of a malfunction.

Step 5: Turn On the power switch

(1) Click the power button (ON/OFF) and the boot animation appears on the screen. Wait for 2-3 minutes for the power-on process;

(2) Check whether the D500 is turned on normally and whether the lighting in the processing chamber is working properly;

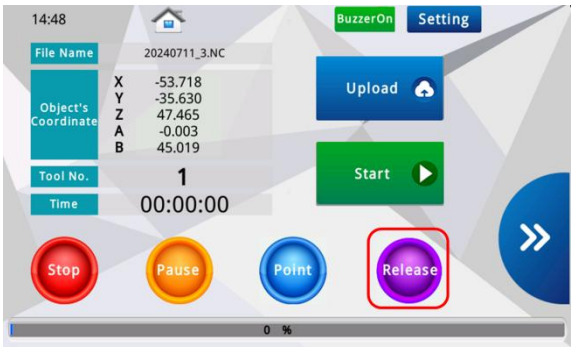
(3) Open the processing chamber door and check whether the processing chamber is clean and free of foreign matter;

(4) Check whether each processing axis is deformed and whether there are tools or metal rod on the spindle.

Step 6: Remove the spindle metal protection rod

(1) When the device is shipped, there is a metal rod inside the spindle to protect the spindle. The metal rod needs to be manually removed for the first use;

(2) Hold the metal rod with left hand to prevent it from falling, long press the【Release】with right hand to open the spindle chuck, remove the metal rod, and then release the【Release】to close the spindle chuck.



Step 7: Install tools

(1) Install the tools to the corresponding positions of the tool library according to the tool number. Make sure that the number of each tool is consistent with the tool library number. If the tool is placed in the wrong position, it will break during processing;

(2) The installation depth of the tool is shown in the figure, and the black positioning ring is kept flush with the edge of the tool holder.

Tool No.	Processing materials	Tool handle diameter	Tool length	Avoidance length	Tool specifications
T1	Soft materials	4mm	50mm	20mm	R1.0*20L*4D*50L
T2	Soft materials	4mm	50mm	16mm	R0.5*16L*4D*50L
T3	Soft materials	4mm	50mm	16mm	R0.3*16L*4D*50L
T4					
T5