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Oil Free Air Compressor
Dental System
Operating and Installation Manual

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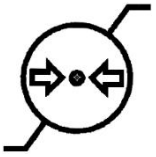
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1 General Information

1.1 Symbols

 **Handle With Care**	 **Keep Try**	 **This Way Up**	 **Cautions**
 **More Information**	 **Serial Number**	 **Atmospheric Pressure Limit**	 **Grounding Connection**
 **Temperature Limit**	 **Humidity Authority**	 **Hot Surface**	

1.2 Intended use

This equipment is designated for use in air compressor systems in dental clinics, which fulfill the functions of driving program or suction power. The ADS dental series oil-free air compressors output oil-free clean compressed air with low noise and stable performance.

1.3 Product Standard Lifetime: 5 Years

1.4 Product Classification

Safety Classification	I Class
Category	No application part
Enclosure Protection Class	IPX0
Operational Mode	Interval Running

1.5 System environmental conditions

1. Ambient Operating Temperature : 40° F~105° F.
2. Operating Relative Humidity 80%, no condensation.
3. Atmospheric Pressure Range : 700 hPa ~ 1060 hPa.
4. Storage and Transport Temperature:-4 ~ +131° F,

   Storage and Transport Temperature Relative Humidity: 10%~93%,

   Storage and Transport Atmospheric Pressure Range: 500hPa～1060hPa.
5. Portable and mobile radio frequency communication devices may affect the performance of Oil-free Air Compressor. Keep mobile phones, microwave ovens, etc.

1.6 Safety and Precautions

1. The operating status of this equipment is interval running.
2. This equipment should be installed in a separate room with good ventilation.
3. This is a normal protection phenomenon when the equipment is stopped due to an airless working environment or high ambient humidity.After the device temperature decreases, the device will automatically restart. (In this case, you should try to reduce the ambient temperature, for example: fan ventilation and heat dissipation.)
4. The phenomenon of the low voltage:

- The air compressor cannot start operation.
- The air compressor can operate normally after low voltage, low speed operation or termination after boosting.
- The air compressor is prone to overheating protection.

5. When the air compressor fails to start running, the overload protector (located at the bottom of the pressure switch) on the device will automatically pop up, and manual reset is required to restore power.When the air compressor cannot start running after manual reset, check whether the pressure is too low or whether the capacitor is damaged.
6. Unqualified technicians cannot disassemble each part of the air compressor, avoiding re-install error or damage.
7. Follow all local electrical and safety regulations to install air compressors, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).



Warning: This equipment is oil free lubricate environmental type, cannot fill the lubricating oil into the equipment.

1.7 Technical Specifications

Mode / Parameter	AT260	AT300	AT600	AT1000
Power Supply	AC 110±5% 60 Hz	AC 220±5% 50/60 Hz		
Power	1.5HP	2HP	4HP	6HP
Starting current/A	15	7	19.2	21
Rated current/A	9	7	12	9
Protection current/A	1			
Exhaust Volume @58PSI	3.5CFM	4.6CFM	9.2CFM	13.8CFM
Tank Volume (gal)	15Gal		29Gal	
Max Presure /PSI	116PSI			
On/Off Presure /PSI	72.5/116 PSI			
Environment Temperature /° F	40~105° F			
Dimensions H x W x D (IN.)	31.8*20.3*23.8		32.1*36*25.8	
MAX Users	2~3		5~6	9~10

2 Product Descriptions

2.1 Overview

1. Scope of delivery

The following items are included in the scope of delivery(possible variations due to country-specific requirements and/or import regulations):

Product name:

- Pressure vessel
- Compressor unit
- Fabric reinforced hose
- Hose nozzle
- Installation and Operating Instructions
- Collector tray

2. Special accessories

The following optional items can be used with the device:

- Pressure reducer

3. Wear parts and spare parts

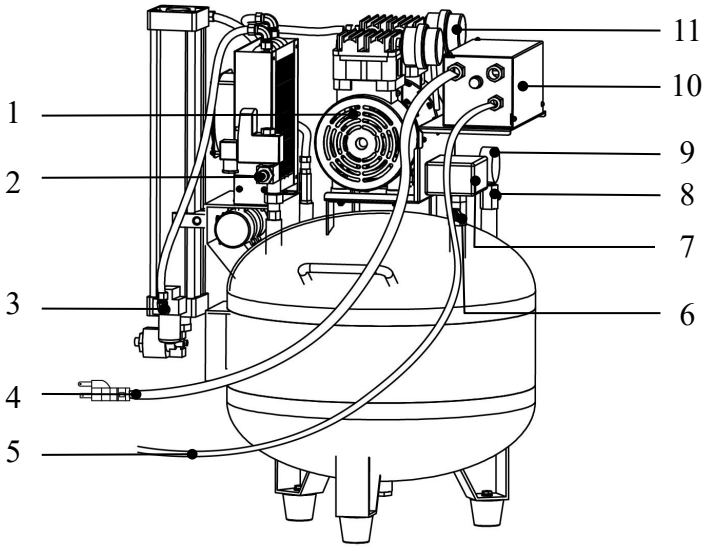
The following working parts need to be changed at regular intervals(refer to the "Maintenance" section):

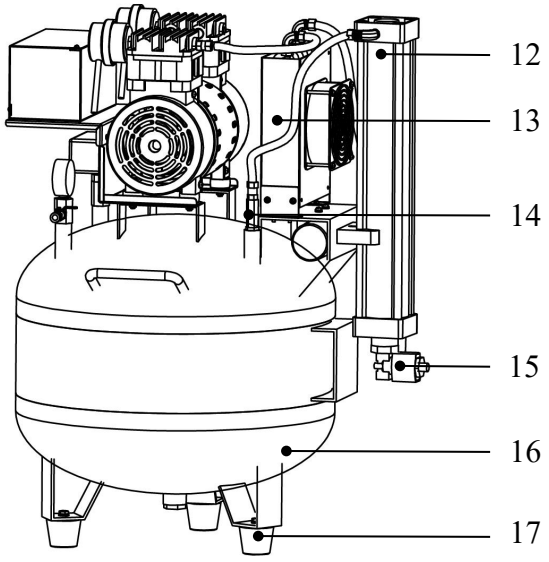
Product name

- Air intake filter
- Vibration damper set

2.2 Structure Diagram

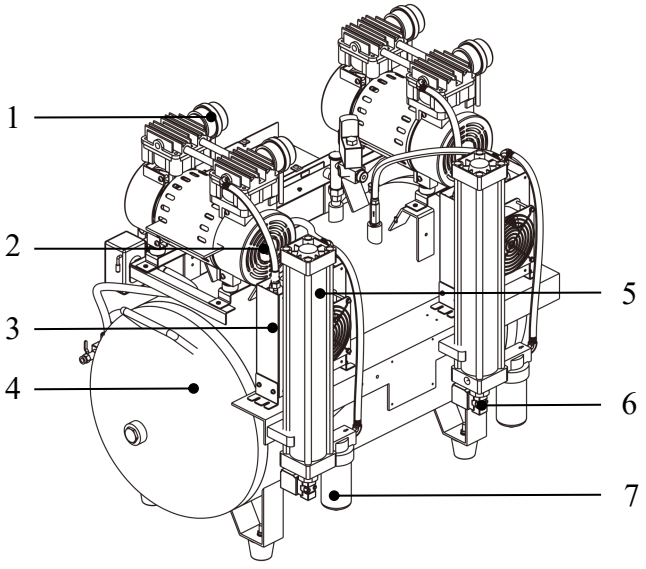
2.2.1 AT260/AT 300 Structure Diagram

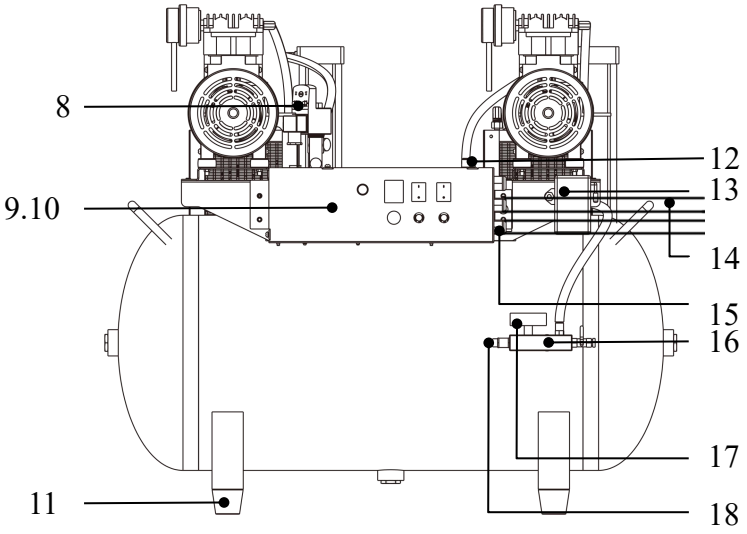




Serial Number	Component
1	Compressor Plug
2	Drain Valve
3	Filter
4	Electrical Cables
5	Signal line
6	Safety Valve
7	Pressure Switch
8	Vent Valve
9	Pressure Gauge
10	Remote control box
11	Noise Reducer Filter
12	Dry Filter
13	Cooler
14	Non-return Valve
15	Solenoid Valve
16	Air Storage Tank
17	Foot Cushion

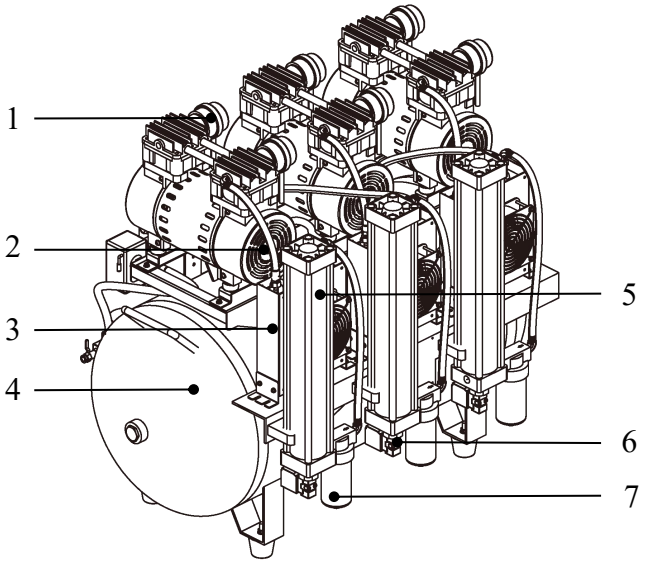
2.2.2 AT600 Structure Diagram

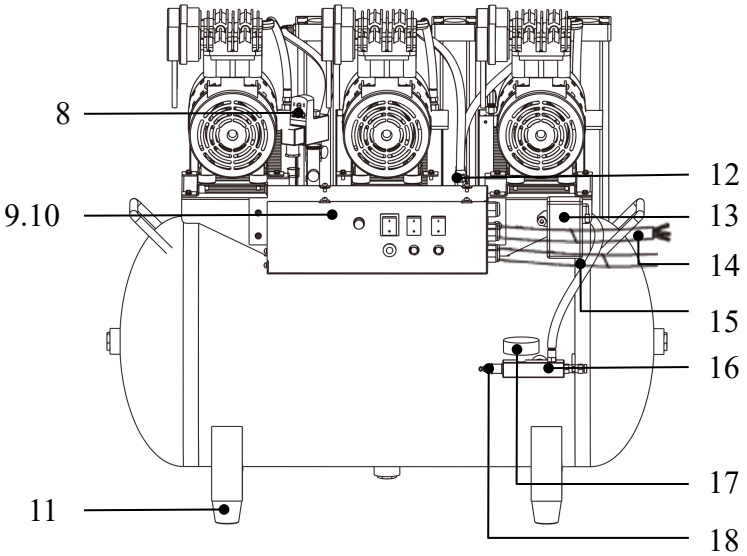




Serial Number	Component
1	Noise Reducer Filter
2	Compressor Plug
3	Cooler
4	Air Storage Tank
5	Dry Filter
6	Electromagnetic Valve
7	Filter
8	Drain Valve
9	Power Box
10	Remote control box
11	Foot Cushion
12	Non-return Valve
13	Pressure Switch
14	Electrical Cables
15	Signal line
16	Vent Valve
17	Pressure Gauge
18	Safety Valve

2.2.3 AT1000 Structure Diagram



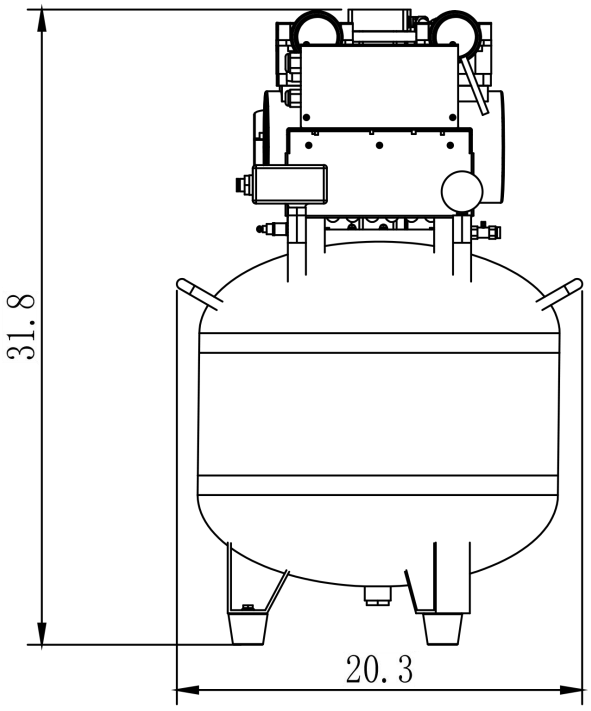


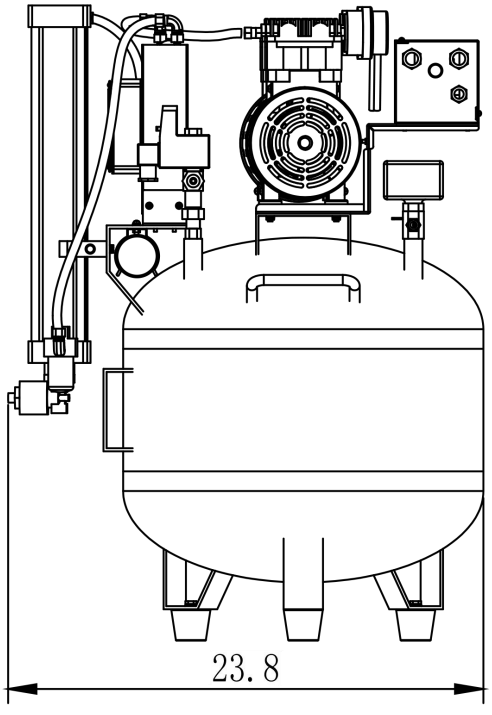
Serial Number	Component
1	Noise Reducer Filter
2	Compressor Plug
3	Cooler
4	Air Storage Tank
5	Dry Filter
6	Electromagnetic Valve
7	Filter
8	Drain Valve
9	Power Box
10	Remote control box
11	Foot Cushion
12	Non-return Valve
13	Pressure Switch
14	Electrical Cables
15	Signal line
16	Vent Valve
17	Pressure Gauge
18	Safety Valve

2.3 Dimension

2.3.1 AT260/AT300 Dimension

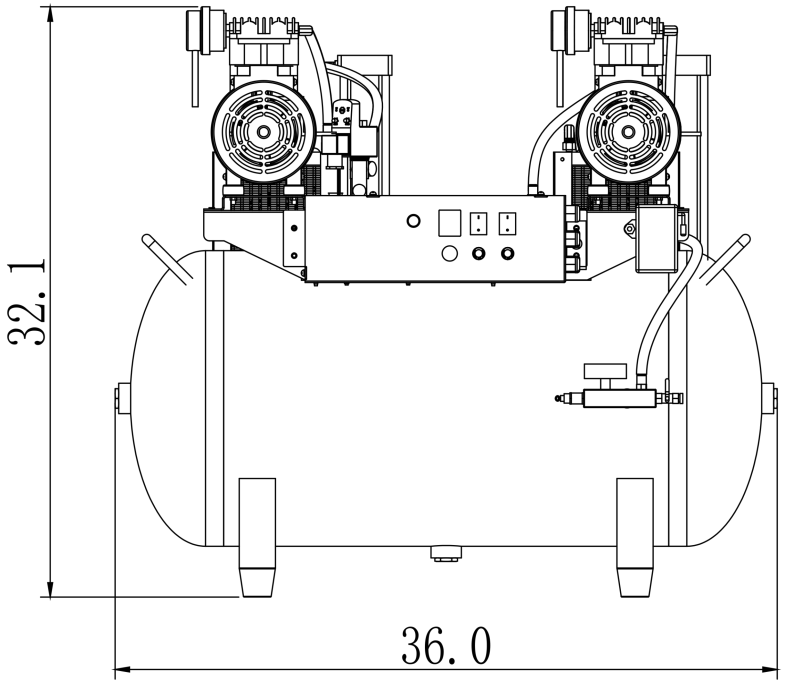
Unit: Inch

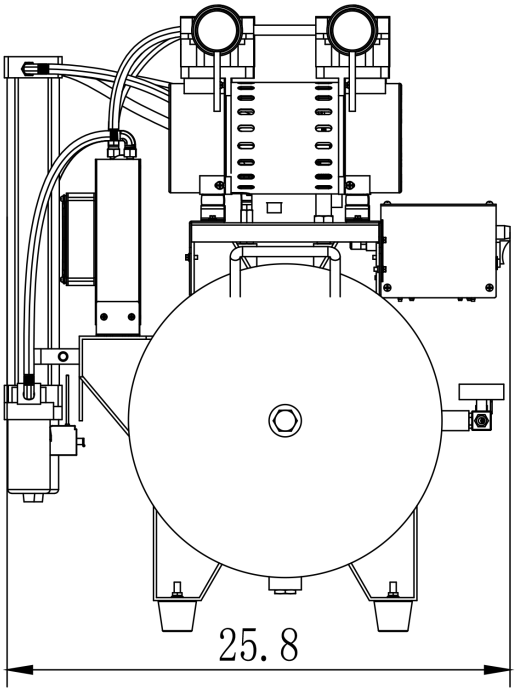




2.3.2 AT600 Dimension

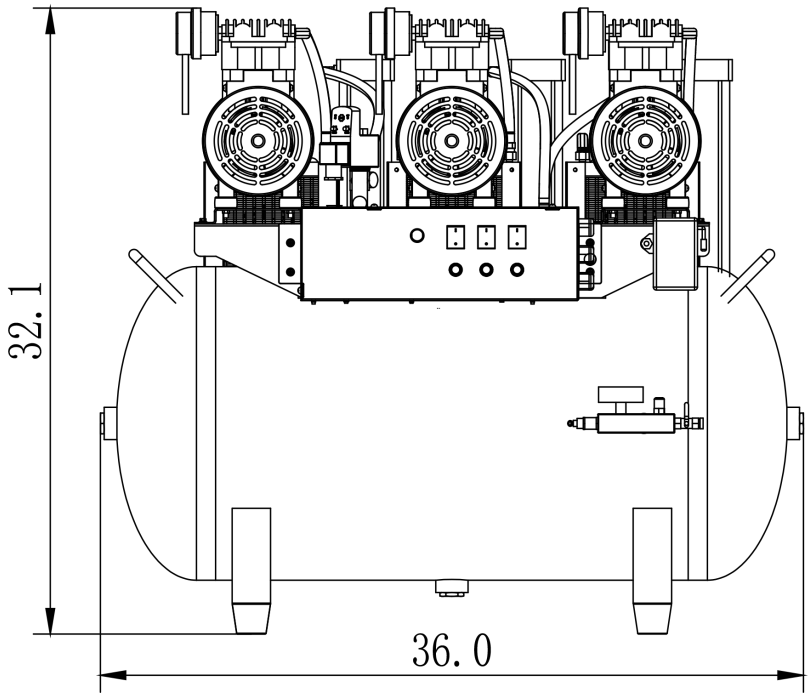
Unit: Inch

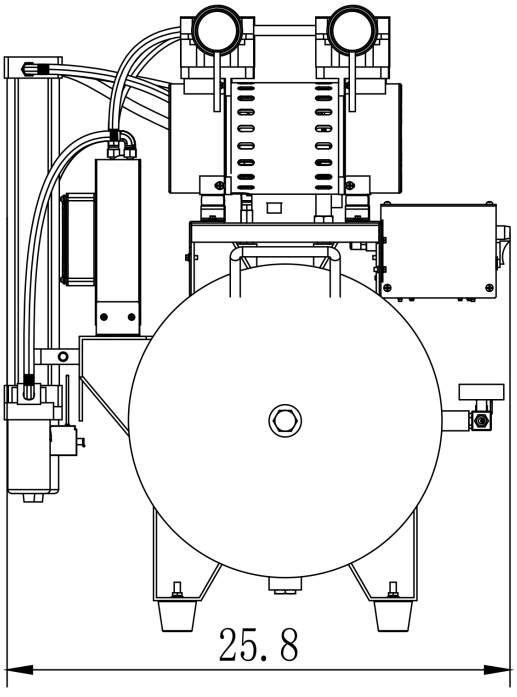




2.3.3 AT1000 Dimension

Unit: Inch





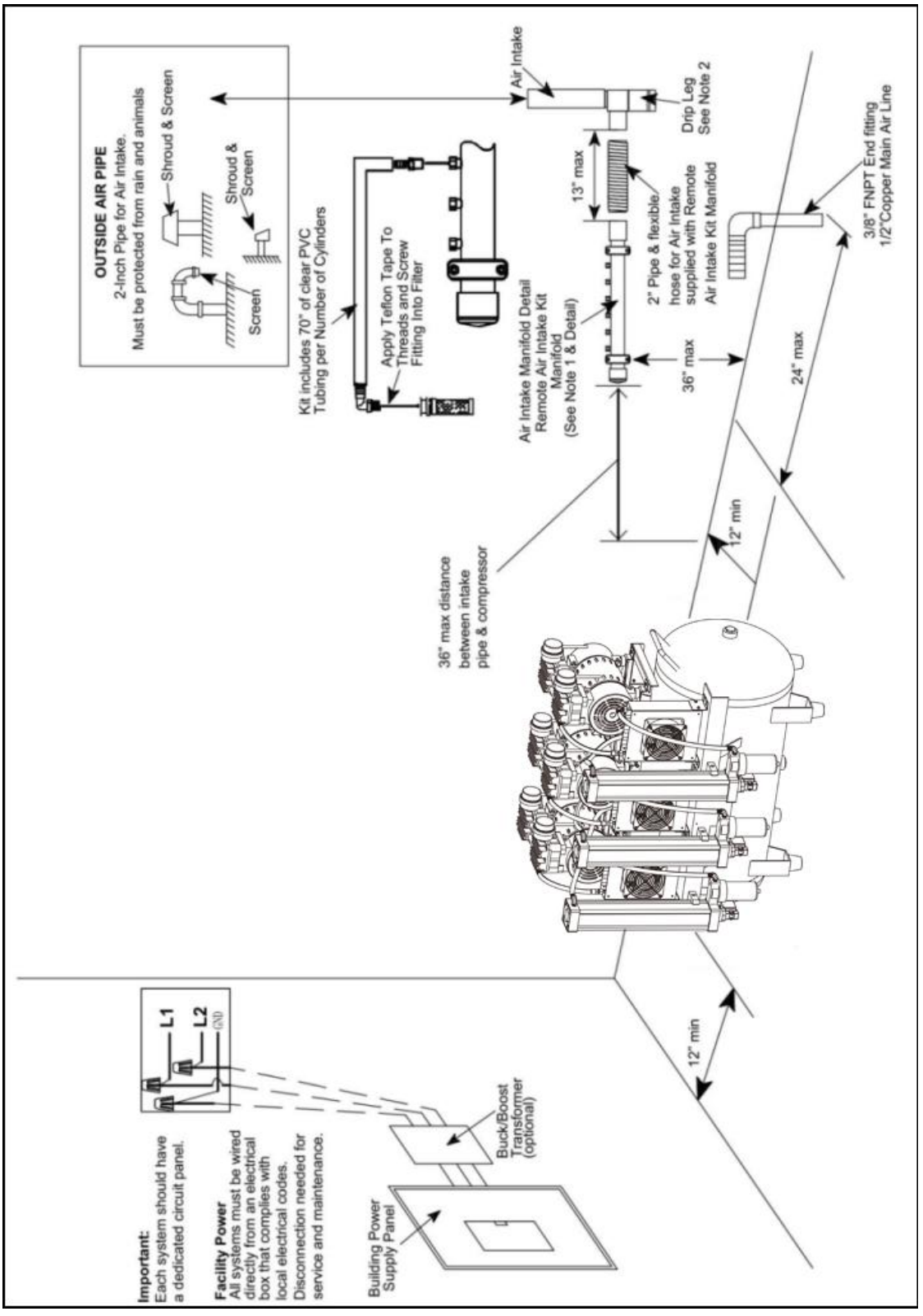
3 Product Installation

1. Please read carefully about this manual before installing and keep it safe for further checking.
2. Please select the specified components. Unsupported components may cause personal injury.
3. Maintenance work must be carried out by designated authorized technicians. Improper maintenance may cause danger.

3.1 Precautions Before Installation

1. Unpack the outer packing box and check whether the packing box is in good condition.Check whether the accessories and replacement parts are in good condition according to the contents of the packing list.If you have any questions, please ask the dealer or ADS for help.
2. This equipment should be placed in a place with good ventilation where is low humidity, less dust, no pollutants, light-filled,and easy to understand. Avoid to use under the environment such as high temperature, high humidity, and strong electromagnetic.
3. The feet of the air compressor must be placed on the same horizontal line, otherwise it will cause vibration and even a safety accident.
4. The air compressor must be kept away from flammable and combustible substances.
5. Ensure that there is enough installation space for the installation of this equipment, the space is 0.5 ~ 0.8 meters, easy to operate and maintain the equipment.
6. Ensure that the equipment is well grounded.
7. All electronic components and their connections should be installed by authorized technicians.

3.2 Installation Reserve Space

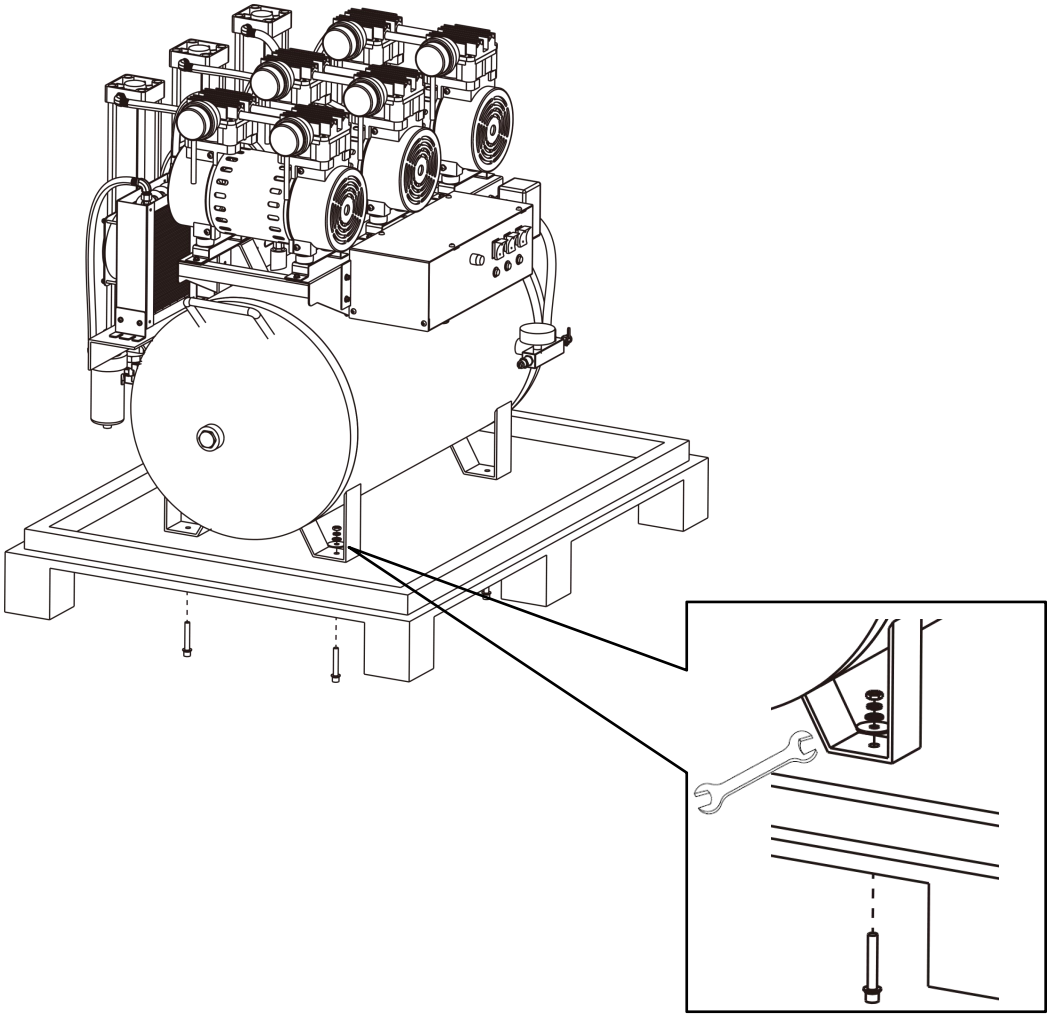


Warning: Do not position the equipment to make it difficult to operate the disconnection device.

3.3 Unpack

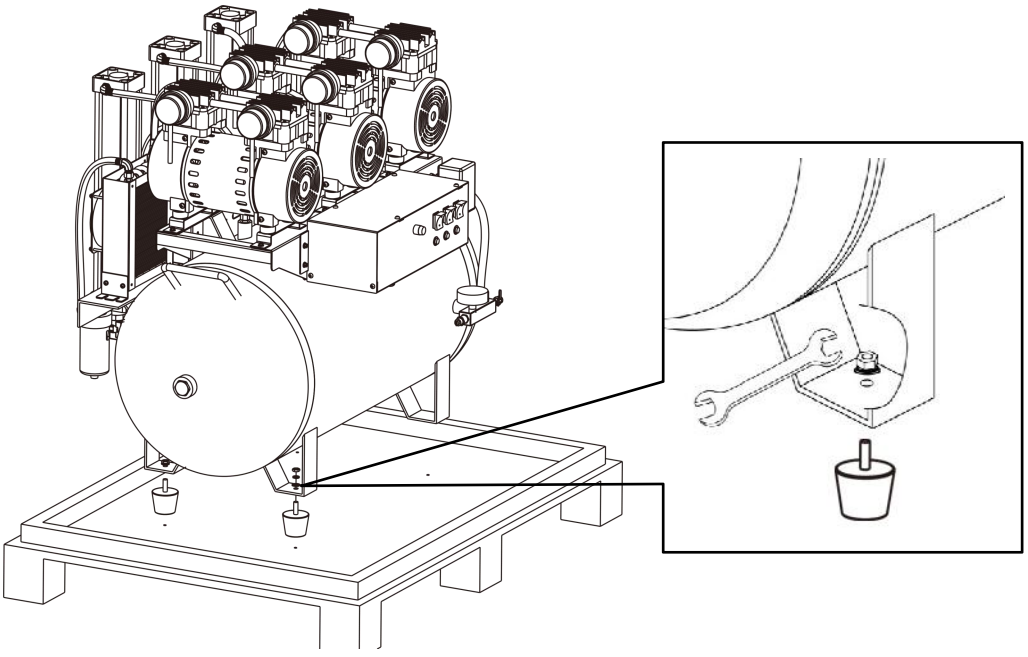
3.3.1 Remove the packaging

1. Remove the packing box
2. Remove the 4 fixing screws that lock the air compressor (only AT600 and AT1000 require this step).
3. Carried off the air compressor;



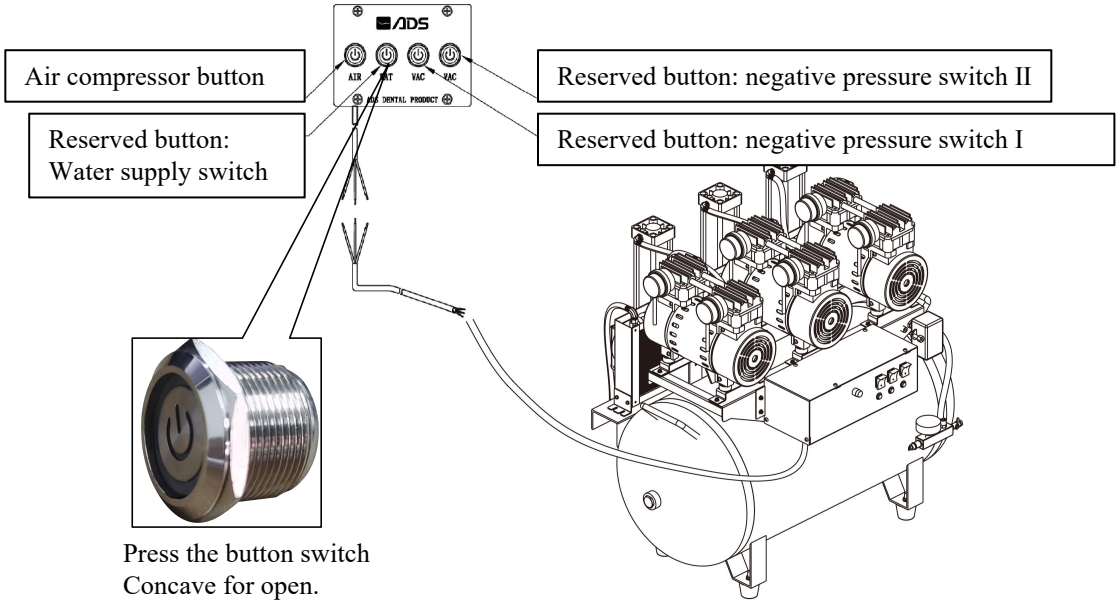
3.3.2 Foot Cushion Installation

Using the M8 screws, flat pads, and spring pads removed from 3.3.1, the foot pads were mounted on the four legs of the air compressor.



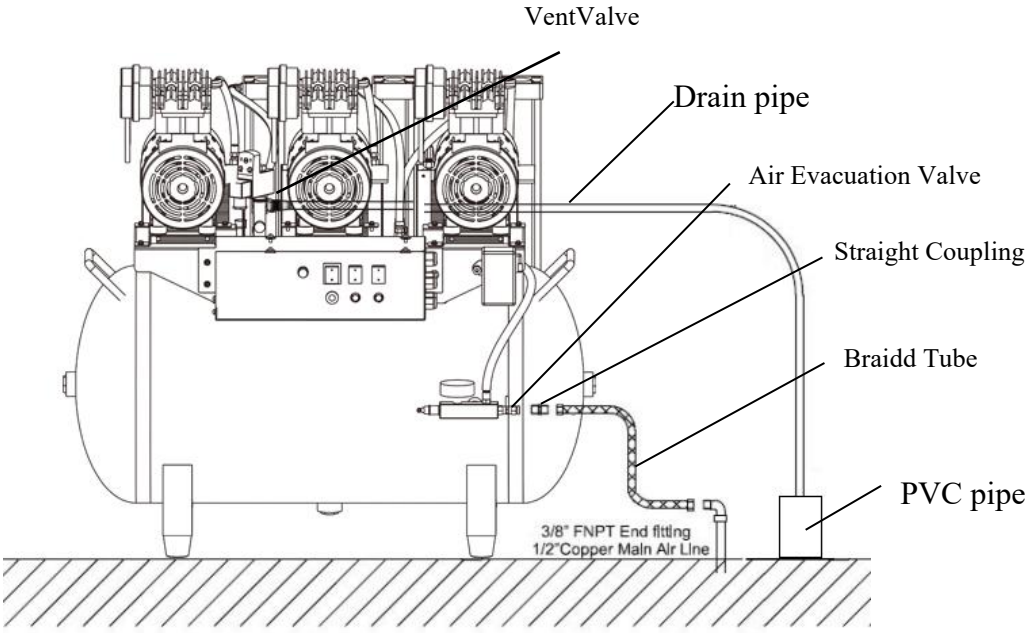
3.3.3 Wireless control box installation

Connect the air compressor signal wire and the remote control switch with an extension wire (18AWG).



3.3.4 Pipeline Connection

1. The connected pipe should be connected to the ball valve switch, the other side to the plug, and then to the ball valve switch reserved in the machine room.
2. Another drain-pipe connect to the drain-pipe of the machine room.

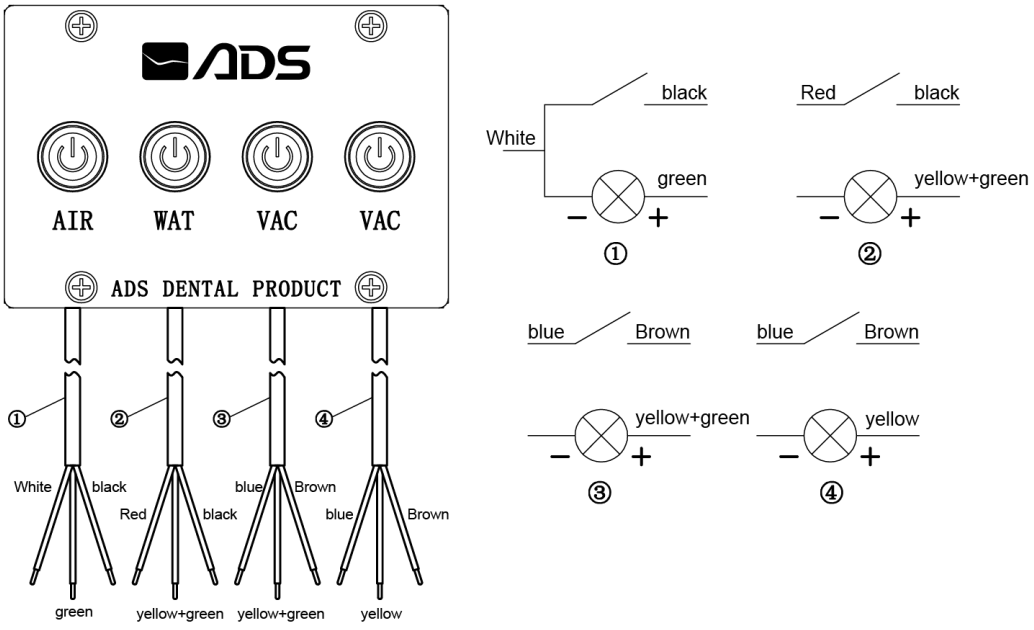


3.3.5 Button panel wiring

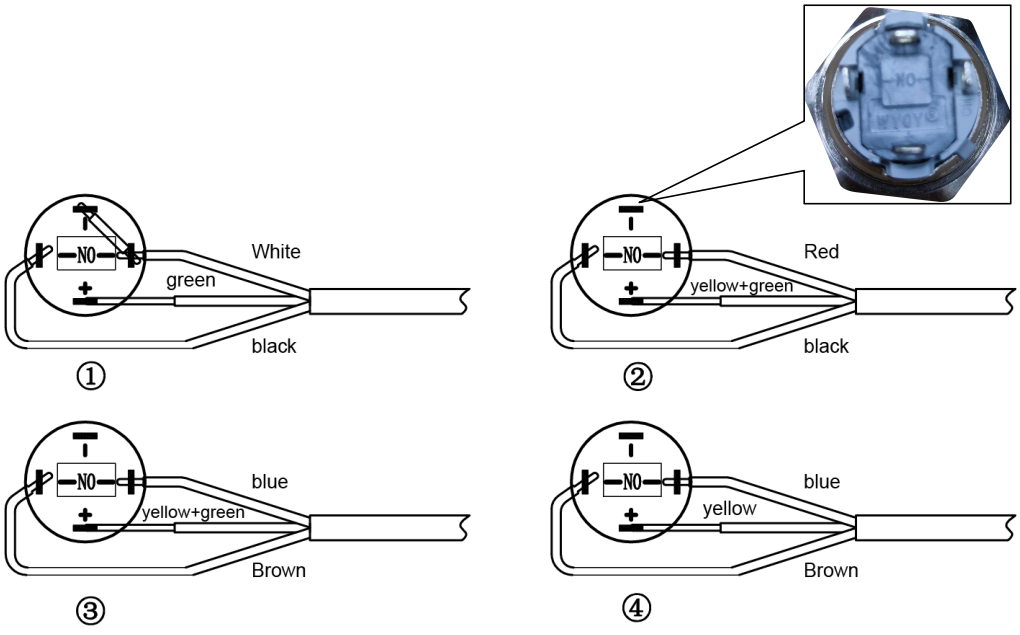
1. ① is connected with the core of the same color line of the air compressor signal line.
2. In ② Water Control line, if the red and black cores are connected, the button can achieve the switch function, but the indicator is off;
3. In ③ Vacuum control line I, with blue and brown cores, the button can achieve the switch function, but the indicator is off.
4. In ④ Vacuum control line II, with blue and brown wire cores, the button can achieve the switch function, but the indicator is off;

If the indicator is required to be on, AC24V power supply is needed between key "+" and "-" pins.

3.3.5.1 Wiring diagram



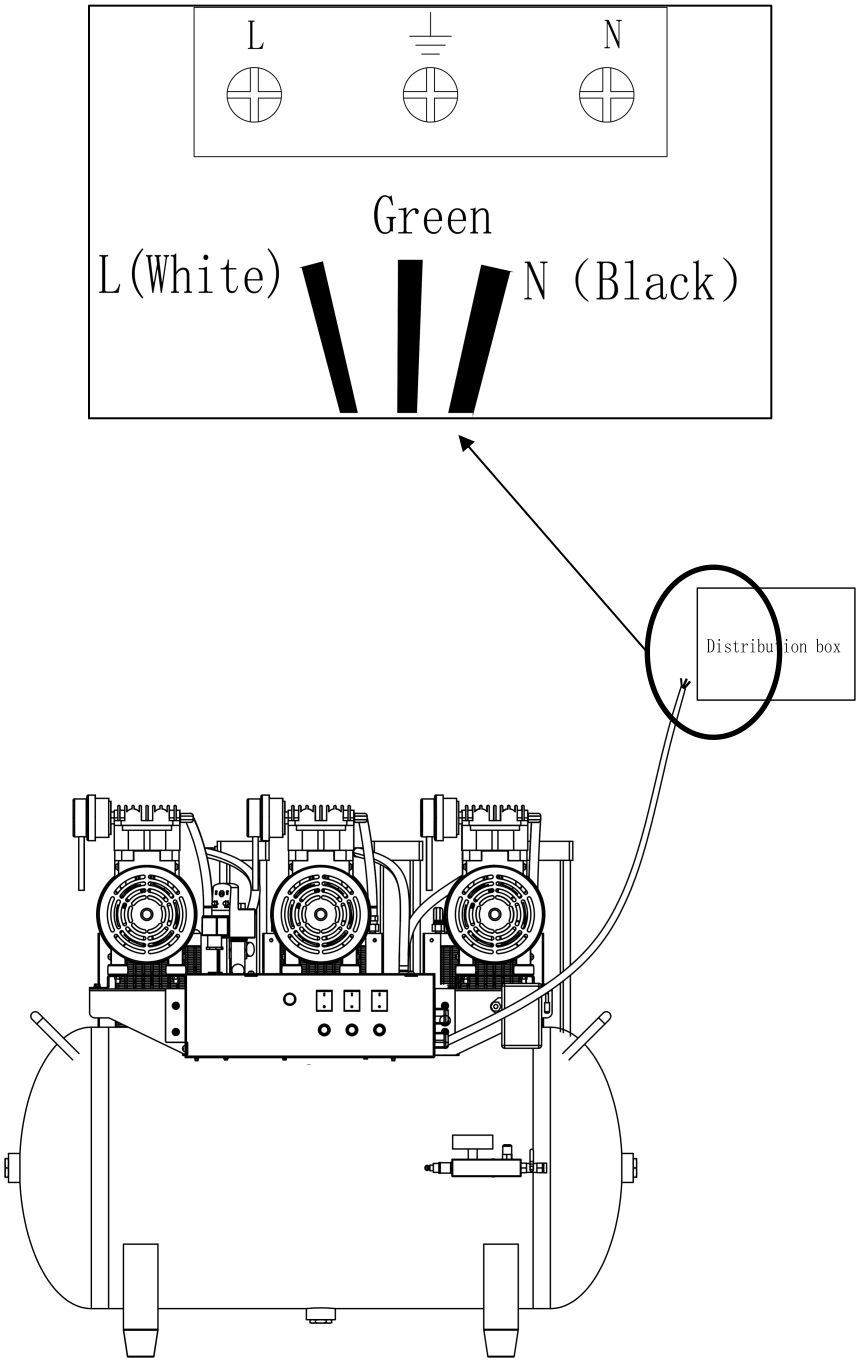
3.3.5.2 Welding diagram



3.3.6 Power cord connection

Connect the power cord to the distribution box according to the diagram, and the minimum supply current should be 30 A

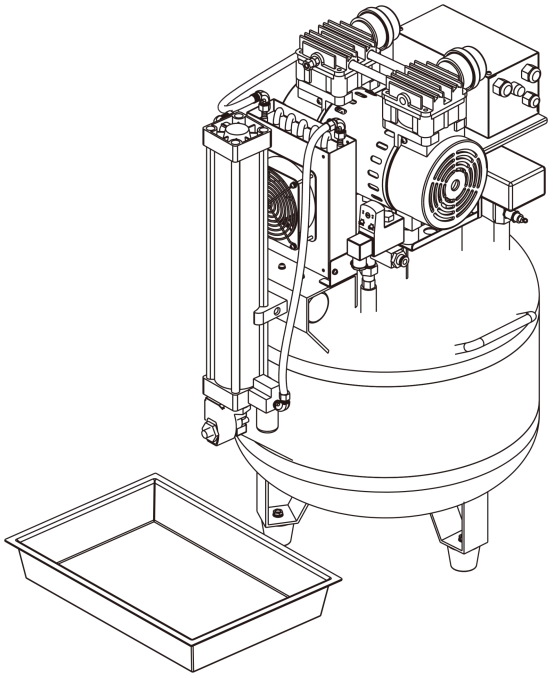
An overload protection switch is required for the electric box



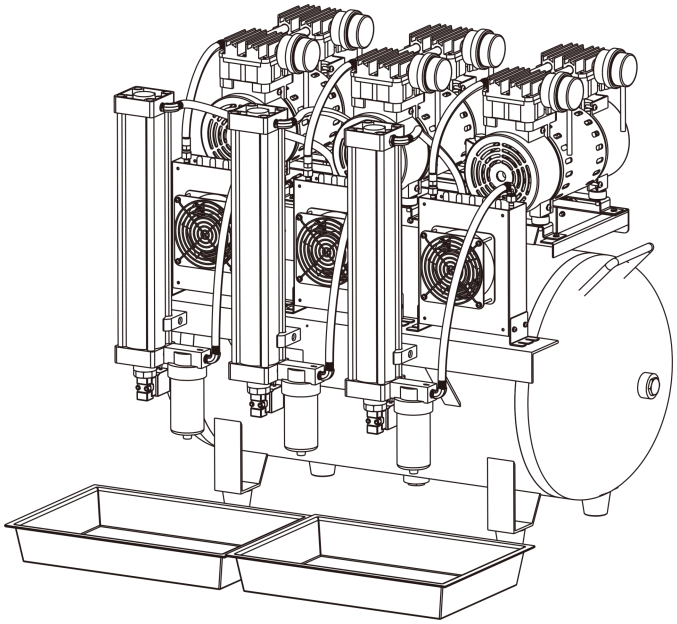
3.3.7 Position of water collection tray

Please place the water collection tray in the position shown before starting the machine.

1. Position of AT260/AT300 water collection tray



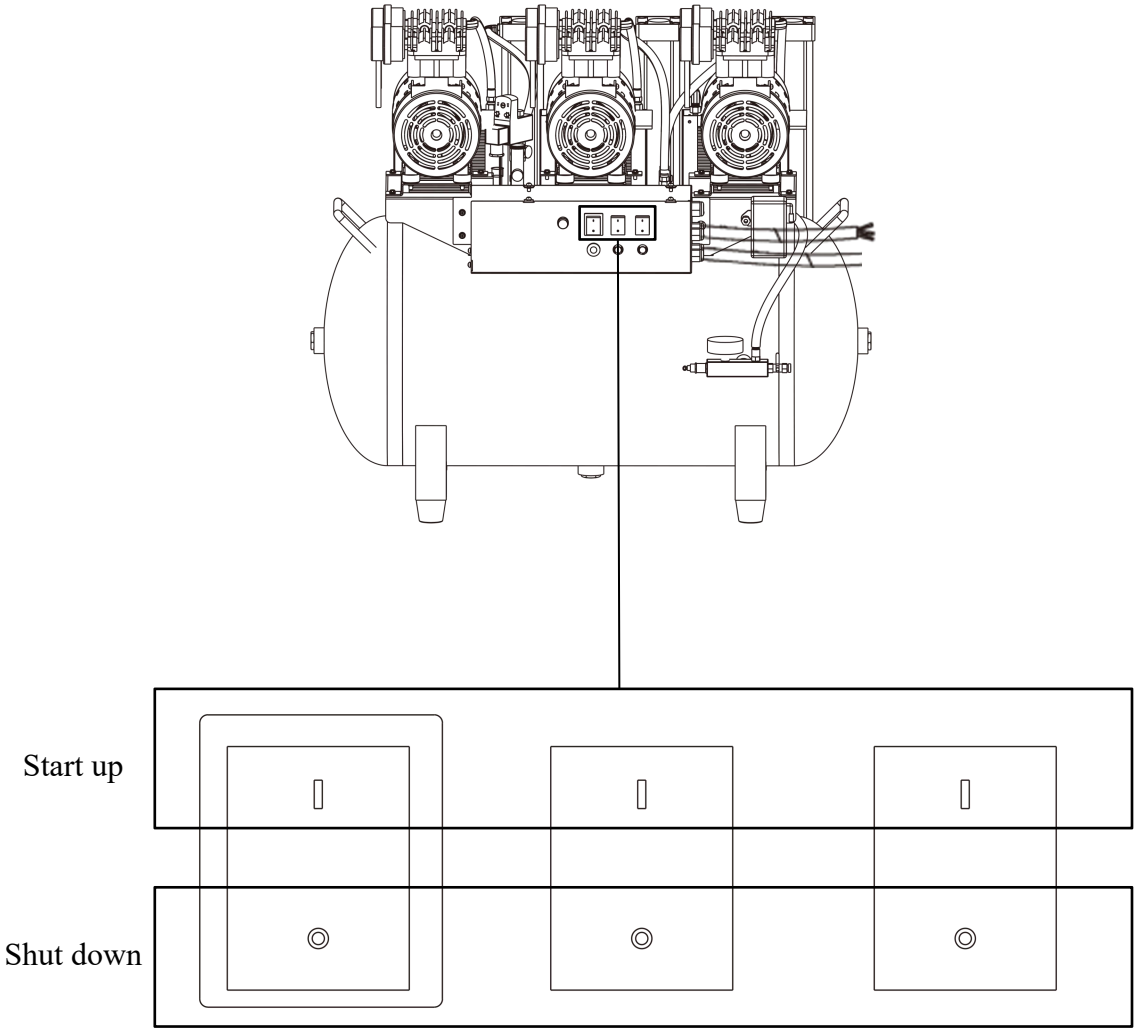
2. Position of AT600/AT1000 water collection tray



4 Instructions for use

4.1 Start up

The power supply start switch is located in the position shown, and the three switches start the corresponding three compressors respectively.



4.2 Debugging

1. After opening the package, check whether each component is damaged or loose due to transportation.
2. Please put the air compressor in a dry, well-ventilated and cool place.
3. Please put the air compressor in a dry, well-ventilated and cool place.
4. Connect to the power resource, activate the air compress, close the vent valve and drain valve, and check the air impermeability.(note: when the air compressor is started, the exhaust of the solenoid valve is a designated function of no-load start, and the equipment will automatically stop after the motor runs normally.)
5. When the system pressure rises to 0.8 Mpa, the pressure switch controls the closing of the equipment.When the pressure drops to 0.5 Mpa, the air compressor will automatically start to realize the automatic operation process.
6. Before the air compressor leaves the factory, the system pressure range and the relief pressure of the safety valve have been adjusted below the general quantitative value, and the user cannot adjust it aimlessly:
7. Pressure switch: the pressure range is 0.5~0.8Mpa
8. Adjustment method: Press the cover of the pressure switch and adjust the screws in the pressure switch;
9. Start pressure adjustment: turn the metal adjustment screw clockwise to start increasing the pressure, and vice versa;
10. Stop pressure adjustment: turn the plastic adjustment screw clockwise to increase the pressure during pause, and vice versa;
11. Note: First confirm the starting pressure to ensure that the pressure adjustment is suspended.
12. Safety valve: The overflow pressure is 0.9Mpa.
13. Adjustment method: Remove the ring pull ring and the plastic protective cover, and rotate to adjust the screw to increase the overflow pressure, and vice versa.

Note: It is forbidden to adjust the safety valve at will. If the overflow pressure is too large, the safety valve will lose its protection function.

5 Daily Maintenance

5.1 Drain the water in the air compressor tank

Method: Reduce the system pressure to below 0.3 Mpa, and then open the rear drain valve.

Note: Please use a container to hold water, and do not drain under high pressure to avoid splashing water. Advice once a week.

5.2 Clean the Noise reduction filter regularly

Method: open the filter cover, take out the filter and clean it well and dry. It is recommended to take three at a time.

6 Trouble-shooting

This trouble-shooting is carried out by qualified technicians only.

Problem	Reason	Remedy
Unit does not work	Mains supply is not connected Incorrect electrical connection or power source	Check mains power, fuses and reset circuit breaker if necessary
Unusual noise increased	Muffler installation is loose or damaged	Check and replace muffler
Excessive vibration	Shockproof rubber pad is loose or damaged	Check and replace Shockproof rubber pad
Unit is very hot	1. The working environment temperature is too high 2. Device running time is too long	Increase ventilation and heat dissipation
Motor overload	Low voltage	Check power source Check wire size and wire connections

7 Warranty Information

ADS obligation under the warranty is to provide the parts for the repair, or replacement of any defective part with one that is equivalent to the original in performance.

The ADS dental system does not represent the disinfection efficacy of any disinfection product. Questions about product efficacy should be directed to the specific manufacturer of that product. For any damage caused by the use of any disinfectant, we do not make any express or implied warranty.

The warranty period for the oil-free air compressor is five(5) years from the date of purchase, subject to qualifications for installation and maintenance.

8 Disposal of the equipment

The devices may be contaminated. Please inform the disposal company of this so that the necessary precautions can be taken.

Uncontaminated plastic components of the product may be recycled.

The built-in electric circuit board and other electric components should be disposed as electric scrap.

Other metal components may be disposed of as metallic waste.

If the product is returned to the local dealer all connections should be closed so that they are water-tight.

Please don’t dispose of the product in the household waste at the end of the its useful life. Please dispose of the equipment properly according to the effective local regulations.



9 Electro Magnetic Compatibility

Caution：

The ADS dental air compressor meets the requirements of standard IEC60601-1-2.
Users should install and operate the product based on the electromagnetic compatibility information in the document.
Portable and mobile radio frequency communication devices may affect the performance of this air compressor. Keep mobile phones, microwave ovens, etc. away from the equipment during use.
Refer to attachment for manufacturer's statement.

Warning:

1. Do not place the ADS dental air compressor in the vicinity of another device, nor should the equipment be stacked up. If it must be in the vicinity of other devices or stacked, be sure to test and observe that the equipment can run under current configuration.
2. For the ADS dental air compressor, use cables that are authorized by ADS only. Attempt to use cable or other components from unauthorized source could lead to electromagnetic irregularities.
3. The power cable length: 1.5 Meters.
4. The interval between pressing the remote switch button twice shall not be less than 2 seconds.

<table>
<tr><td colspan="3">Statement of Manufacturer—Electromagnetic Launch</td></tr>
<tr><td colspan="3">The dental air compressor is designed for electro magnetic environment described below. Be sure to apply.</td></tr>
<tr><td>Lauch Test</td><td>Comformance</td><td>Electromagnetic Environment</td></tr>
<tr><td>CISPR 11 RF Lauch</td><td>1 Group</td><td>The dental air compressor utilizes RF energy for its built-in functions only. Therefore, its RF transmit is very low. There is a low possibility that the equipment will affect other electronic devices in its vicinity.</td></tr>
<tr><td>CISPR11 RF Lauch</td><td>B Class</td><td rowspan="3">The dental air compressor is suitable for all facilities, including household facilities, and can be directly connected to low-voltage public residential power supply.</td></tr>
<tr><td>IEC61000-3-2
Harmonic Lauch</td><td>A Class</td></tr>
<tr><td>Voltage Fluctuation
/Scintillation Launch
IEC61000-33</td><td>Qualified</td></tr>
</table>

Statement of Manufacturer— Electromagnetic Immunity			
The dental air compressor is designed for electromagnetic environment described below. Be sure to apply.			
Electromagnetic Immunity Test	**IEC6061 Test Level**	**Test Level Conformance**	**Electromagnetic Environment**
Electrostatic Launch (ESD)IEC61000-4-2	±6 kV Contact Discharge±8 kV Air Discharge	±6 contact Discharge±8 kV Air Discharge	The floor should be of wood, concrete, or tile. If the floor is covered by synthetic materials, the relative humidity should be at least 30%.
Electrical Fast Transient Burst IEC61000-4-4	±2 kV to power wire	±2 kV to power wire	The power supply should reach the standard of typical commercial or hospital power supply.
SurgeIEC61000-4-5	±1 kV wire to wire±2 kV ground to ground	±1 kV wire to wire±2 kV ground to ground	The power supply should reach the standard of typical commercial or hospital power supply.
Voltage sags, short interruptions and voltage changes in power input lineIEC61000-4-11	< 5% U_t， lasting 0.5 Cycle (At U_t>95% Sag)40 %U_t， lasting 5 Cycles (At U_t,60% Sag)70% U_t， lasting 25 Cycles (At U_t,30% Sag) < 5% U_t， lasting 5s (At U_t,>95% Sag)	< 5% U_t,lasting 0.5 Cycle (At U_t,>95% Sag)40 %U_t， lasting 5 cycles (At U_t,60% Sag)70% U_t， lasting 25 cycles (At U_t， 30% Sag) < 5% U_t， lasting 5s (At U_t,>95% Sag)	The power supply should reach the standard of typical commercial or hospital power supply.If required to use the equipment during power blackout, it is recommended to use battery or uninterruptible power supply.
Power Frequency Magnetic Field (50/60 Hz)IEC61000-4-8	3 A/m	3 A/m	Power frequency magnetic field should be at the same level with PFMF in typical commercial or hospital environment.
Note:U_t refers to the AC network voltage before the test.			

<table>
<tr><td colspan="4">Statement of Manufacturer— Electromagnetic Immunity</td></tr>
<tr><td colspan="4">The dental air compressor is designed for electromagnetic environment described below. Be sure to apply.</td></tr>
<tr><td>Electromagnetic Immunity Test</td><td>IEC6061 Test Level</td><td>Test Level Conformance</td><td>Electromagnetic Environment</td></tr>
<tr><td>RadioFrequency Conduction IEC61000-4-6

Frequency Radiation IEC61000-4-3</td><td>3V(Effective Value) 150kHz～80MHz

3V/m80MHz～5GHz</td><td>3V(Effective Value) 3V/m</td><td>The isolation distance between portable and mobile RF communications devices and any part of the dental air compressor, including cables, should not be less than recommended isolation distance. The recommended isolation distance is calculated by a formula corresponding to the frequency ofthe transmitter. Recommended isolation distance formula:

d =

d = 80 MHz～800 MHz

d = 800 MHz～2.5 GHz

P—based on the transmitter's maximum rated output power provided by transmitter manufacturer, in watts (W);

d—Recommended isolation distance, in meters (m).
The field strength of the fixed RF transmitter is determined by surveying the electromagnetic field a, and in each frequency range dshould be lower than the compliance level. Interference may occur near the equipment marked with the following symbol. </td></tr>
<tr><td colspan="4">Note 1: At 80MHz and 800MHz frequencies, apply higher frequency band formula.Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and human bodies.</td></tr>
<tr><td colspan="4">The field strengths of fixed transmitters, such as: base stations for wireless (cellular/cordless) phones and terrestrial mobile radios, amateur radios, AM and FM radio broadcasts, and television broadcasts, cannot be accurately predicted theoretically. To assess the electromagnetic environment of fixed RF transmitters, surveys of electromagnetic sites should be considered. If the measured field strength of the dental air compressor is higher than the applicable RF compliance level above, the dental air compressor should be observed to verify that it can operate normally. If abnormal performance is observed, supplementary measures may be necessary, such as reorienting or repositioning the dental air compressor.In the entire frequency range of 150kHz to 80MHz, the field strength should be lower than 3V/ m.</td></tr>
</table>

Recommended isolation distance between portable and mobile RF communication devices and dental air compressor.

The dental air compressor are intended for use in electromagnetic environments where RF radiation disturbances are controlled. Depending on the maximum rated output power of the communication device, the purchaser or user can prevent electromagnetic interference by maintaining the minimum isolation distance between portable and mobile RF communication devices (transmitters) and dental air compressor as recommended below.

Transmitter's rated maximum output power	Isolation distance corresponding to different frequencies of the transmitter/m		
	150kHz～80MHz	80MHz～800MHz	80MHz～2.5GHz
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For the maximum rated output power of the transmitter not listed in the table above, the recommended isolation distance d is in meters (m), which can be determined by the formula in the corresponding transmitter frequency column, where P is the Maximum rated output power of the unit, in watts (W), provided by the transmitter manufacturer. Note 1: At 80MHz and 800MHz frequency points, the formula of the higher frequency band is applied. Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and human bodies.



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