SILENT OILLESS
AIR COMPRESSOR

USER MANUAL

Thank you for purchasing the Silent Oilless Air Compressor, one of the best in the industry for low noise air compressors with clean air.

This product is manufactured to high quality standards and they are safe and fit for purpose at time of sale, but all tools can be dangerous if the correct precautions are not taken.

Warning!

When using compressors, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury.

Read all these instructions before attempting to operate this product.

Keep these instructions with the compressor.

Save these instructions for future reference.

⚠ ***Read this manual***

In order to ensure working safety read this manual and thoroughly understand how to turn the compressor on and off and to control the airflow.

2. ⚠Operational Safety

What You Must Not Do

Do not eat, drink or smoke in the work area.

Do not eat, drink or smoke while using this machine or in the work area.

Do not touch the compressor cylinder head.

During operation the cooling fins of the cylinder head and the delivery pipe will become very hot. Even after use these will remain hot for some time.

Avoid coming into contact with these. Do not leave inflammable objects near the compressor.

Do not let children or pets in the work area.

Do not let children or pets come into contact with the compressor, high-pressure hose, air tools, main cable or work area.

Do not use the product for excessive time periods.

It will work better and safer at the rate for which it was intended. See *section 5 Maintenance, Care and repair* Please note that these compressors are designed for dental apparatus, medical care, scientific research, industrial production and daily life.

Do not abuse the hose/cable

Never pull the compressor by the air hose or electrical cable.

Keep hose/cable away from heat and sharp edges.

Do not touch the metal plug pins when connecting or removing the electrical plug.

Do not run the compressor in damp conditions.

The compressor should never be used in an area where it could be exposed to water or excessively damp conditions.

Do not make any alterations to the air receiver (tank)

The air receiver (tank) is made to conform to the relevant European safety standards and under no circumstances should the air receiver be altered by welding or any other means.

What You Must Do

Disconnect the compressor from power supply when maintaining.

Before carrying out any maintenance on the compressors. Always switch off and unplug the compressor from the power supply. Ensure that all the compressed air has been released from the air receiver.

Maintenance of electrical components

You must ensure that a suitably qualified person carries out repairs and maintenance of electrical components.

Avoid unintentional starting of the compressor.

When the machine is not in use please depress the pressure switch, to ensure that it doesn't start up unexpectedly.

WARNING! Use recommended high-pressure hoses and couplings

High-pressure hoses, fittings and couplings are important for the safety of the appliance. Use only hoses, fittings and couplings designed for usage with air compressors. If in doubt please consult the local dealer.

Before disconnecting the air hose from the compressor

For safety close the pressure switch and discharge residual pressure in the air hose before disconnecting.

Guard against electric shock

Use a RCD (residual current device) to provide protection against electrical shock.

Before moving the compressor

The compressor air receiver must be discharged before the machine is transported.

Keep work area clean

Cluttered areas invite injuries.

3. Setting up the Compressor

Important:

Use the compressor only for the purpose for which it was designed.

The compressor is designed for use under its air flow capacity; do not attempt to use it exceeding its own technical specifications. The manufacturer assumes no responsibility for any damages resulting from improper use for non-compliance with the instructions described in this manual.

The compressor is for use by competent persons only.

Before Operation

Check package contents

Check for damage

Before using this item check each part is undamaged. Check all pipes are firmly connected. Inspect the air receiver (tank) to ensure that it has not been damaged.

Save packaging

Save major packaging for return of product in the event of service or repair.

Electrical supply

Before using the air compressor please check that you have a suitable electrical supply to support the requirements of the motor unit. Please

ensure your mains power supply corresponds to the power rating on the data label on the machine.

Electrical Cables

Ensure that all cables are damage free before connecting to the power supply.

Using extension cables

Use an extension cable, which is no more than 10metres long and has a conductor cross-section of at least 1.5mm^2 i.e. a heavy-duty cable. Using an excessively long or thin-wired extension cable will cause severe damage to the motor. Always fully unwind extension cables. If using extension cables outdoors always use a cable, which is marked for outdoor use.

Always maintain a clear area around the compressor

It is very important that the compressor is positioned so that there is an adequate airflow around the machine. The compressor should be situated so that it has 50cm of obstacle free space around its air receiver (tank) and pump/motor unit.

Ensure that the compressor draws clean air

For the correct function and longevity of your air compressor it is important that the air, which is drawn into the compressor is clean. The compressor

should not be used in an area, where the air is contaminated with dust

Place the compressor on flat ground

Ensure that the compressor is placed on ground, which is flat and does not have an incline greater than 15^o. If the

compressor is placed at an angle greater than 15º in any direction, damage to the pump unit will result.

Do not operate the compressor without the air filter installed.

Operating the compressor without the air filter will cause severe damage to the pump unit.

Cleaning

Clean the items with a soft brush or a wiper moistened with a suitable biodegradable solvent. Do not use inflammable liquids like petrol or alcohol, they are a fire risk and will damage the finish and plastic parts. Ensure that the cooling fins on the pump body are kept clean. Fins, which are heavy with dust, have poor cooling properties and the compressor will over heat and damage will occur.

Faults

Have the air compressor repaired by a competent person.

Use only genuine replacement parts, which are available from the authorized dealer or distributor.

Do not use modified or non-genuine parts

Maintain air compressor with care

Keep the air compressor clean for better and safer performance.

Follow instructions for changing accessories.

Inspect the air compressor and extension cables/hoses occasionally; have them repaired by a qualified person or authorised service body.

Check for damaged parts.

Do not use the air compressor with damaged parts, before further use a damaged air compressor must be carefully checked by a qualified person to determine that it will operate properly. Check for breakage of parts, mountings and other conditions that may affect its operation. An authorised service centre should properly repair a damaged part, unless indicated otherwise in the instruction manual.

4. Brief introduction

Our air compressor features compact structure, stable performance, large flow rate, easy operation and maintenance. Particularly the machine can contain any oil fume: air can be obtained. Because the air for dental apparatus must not contain any oil, this machine can be used as an independent air supply machine for dental therapeutic apparatus:; also can be used in other areas such as medical care, scientific research, industrial production and daily life where clean air in demanded.

5. Structure of air compressor

Fig.1 Air Compressor

1.Air intake	5 Name Label	9 Air regulator and filter
2 Compressor	6 Air Tank	10 Pressure gauge
3 Rubber foot	7 Rubber foot	11 Ball valve
4 Protector	8. Pressure Switch	12 Quick coupling

The structure of oil-less air compressor is shown in Fig.1 . All units in the machine sit on a cylindrical pressure vessel called air tank. Compressor machine is main part of the air compressor, A motor drives directly the eccentric wheel-connecting bar system making the piston move reciprocally. The piston is made from high temperature resistant and abrasion resistant non-metal material and is able to work without lubrication for a long time. Compressed air discharge enters in the air tank; a pressure meter displays the pressure in the tank. When the pressure inside rises to 8 bar, power is automatically cur off by a pressure control switch, the compressor is shut off. When the pressure inside lowers to 6 bar, power is turned on by the pressure switch, the compressor starts again and the pressure in the tank gradually rises again.
This happens repeatedly. The high quality compressed air can be supplied to dental therapeutic instrument. In addition, check valve, drain valve, safety valve and solenoid valve are installed on the air tank.

6. Main Technical Specification

Model	Power (W)	Air flow (L/min)	Pressure (Bar)	Tank volume(L)	N.G (Kgs)
	1680	260	6~8	80	70
	1100	260	6~8	60	55

7. Transportation and storage

The machine should be transported and stored in following condition:

Ambient temperature:-40℃-55℃
Relative humidity:≤95%
Atmosphere pressure: 500Hpa-1060Hpa

8. Installation, test and operation

(1) Installation

a. The machine should be operated in the room with temperature of 5-40℃ and relative humidity of greater than 80%. Surrounding area of the machine should be clean, dry, free of corrosive gas, well ventilated and direct sunlight.

★ **Note: Special power line for the machine is recommended with short circuit protection and reliable grounding device. The section area of power cable and melt current of fuse are as follows:**

b. After unpacking check the machine for any missing parts and damages, check accessories and spare parts and technical document supplied together with the machine according to the packing list.

c. Connection of air pipes: connect air supply pipe with the quick coupling(See Fig.1-12 or Fig 2-12)

d. Check if drainage valve is off(See Fig.1-16 or Fig.2-16) and pressure switch is at the position of “off”(Switch off position).See Fig.1-3 or Fig.2-3

e. Electrical connection: Check if power supply is normal. Insert the plug for the machine into power supply socket. Installation of the machine is completed.

(2) Test run of the machine

a. Close drainage valve (See Fig.1-16 or Fig.2-16)and air supply value (Fig.1-11 or Fig.2-11). Check if the reading of pressure gauge (Fig.1-4 or Fig.2-4) is below 6 bar. Turn the operation handle of pressure switch to “ON” (Fig.1-3 or Fig.2-3) the machine will start immediately. The reading of pressure gauge will slowly rise with increasing pressure inside the air tank. When the reading of pressure gauge reaches 8 bar, pressure switch activates, the power supper is cut off, machine stops running. At the same time the solenoid valve(See Fig.1-18) activates to release high pressure in the cylinder of compression machine so that the machine can be started again;

b. During the period when the machine stops running observe if the reading of barometer is decreasing. If there is no leakage of air in the machine, open air supply valve to begin supply of compressed air. When the pressure in

the air tank decreases to 6 bar, pressure switch resets and power supply resumes, the machine starts running again. The pressure in air tank increases again. If the machine can automatically stop and start, the machine works normally.

c. Turn the operation handle for pressure switch to “off” position (Switch off position), then pull out the plug of the machine. Test run is completed.

(3) Operation

a. To operate BD series oilless air compressor correctly and safely read carefully this operation instruction.

b. Insert the plug of the machine in power socket of single-phase 10A/16A/20A .Open ball valve (See Fig.1-11 or Fig.2-11), turn the operation handle for pressure switch to “ON” position, the machine will run in a normal condition.

Note: When selecting this series oillless air compressor suitable type of air compressor should be chosen based on air consumption

9. Maintenance

(1). Draining of air tank

The frequency for draining is depended on environment condition and operation time, but usually once every 2-3 days. The way to drain off the condensate is as follows:

Put the drain pipe connecting drain valve quick coupling (See Fig.1-17 or Fig.2-15) in a container, with compressed air in the air tank slowly turns counterclockwise the knob on the drain valve to drain off the water in the air tank until all accumulated water comes out from the pipe. After that turn tightly clockwise the knob to ensure no leakage.

(2). Change of filter

An air filter is installed on air inlet of the air compressor (see Fig.1-1 or Fig.2-1) to prevent the dust in the air from entering the air compressor and reduces noise. After used for a period of time the filter core in the air filter will get clogged. In a result sucking capacity of the air compressor will be reduced, therefore the filter core must be replaced regularly. The way of replace is as follows; open the lid on the air filter, take out the old filter core, put in a new one, and then close the lid.

(3) Adjustment of pressure switch

Pressure switch is used for controlling the stop and start of the air compressor to ensure correct pressure of compressed air in the air tank. If the pressure of compressed air in the air tank is found not to be in the range set by the manufacturer (set valve: the pressure at which the air compressor will stop running is 8 bar +/-0.2 bar; the pressure at which the air compressor will start running is 6 bar +/-0.2 bar) the pressure switch must be adjusted again to set correct activation valve.

The way to adjust is as follows. Open the casing for the pressure switch (See Fig.1-3 or Fig.2-3); adjust the setting screw for maximum pressure (Turning clockwise makes activation pressure higher, so the pressure at which the air compressor stops running will be higher) and the setting screw for pressure difference. (Turning clockwise makes larger pressure difference, that is, the difference between the pressure at which the air compressor starts and the pressure at which the air compressor stops large is larger) respectively. Careful adjustment will make the activation pressures within the range set by the manufacturer.

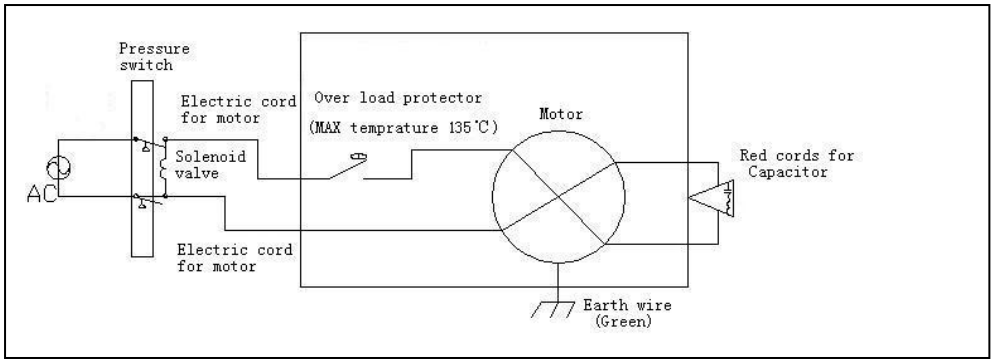
10. Trouble Shooting

FAULT	PROBABLE CAUSE	REMEDY
Pressure Drop in the tank.	Air leaks at connections	Let the compressor build pressure in the tank; to the maximum pressure if possible. Brush soapy water on air connections and look carefully for air bubbles. Tighten leaking connections. If the problem persists contact the saler for further advice.
The solenoid valve leaks when the compressor is idle.	Non-return valve seal defective.	Let the air in the tank flow out until all the pressure is released. Then remove the non return-valve plug and clean the valve seat. If necessary replace the seal and then re-mount all the components.
The compressor stopped and does not start.	Overload cut-out operated because of motor overheating.	Check that the mains voltage corresponds to specifications An extension cable, which is too thin, and tool long can cause a voltage drop and cause the motor to overheat. Leave to cool down. Use heavy duty extension cables Ensure that the compressor is plugged into a socket as near to the consumer unit/ fuse box as possible
	Motor Windings burnt out	Contact the help-line
The motor does not start and makes a humming noise	Capacitor burnt out	Replace starter capacitor.
The motor does not start or starts slowly.	Low voltage supply to the motor.	Check that the mains voltage corresponds to specifications An extension cable, which is too thin, and tool long can cause a voltage drop and cause the motor to overheat. Leave to cool down. Use heavy duty extension cables Ensure that the compressor is plugged into a socket as near to the consumer unit/ fuse box as possible.
The compressor is noisy with metallic clangs.	Compressor head gasket broken or valve faulty.	Stop the compressor and contact the dealer.
The compressor does not reach the maximum pressure.	Compressor head gasket broken or valve faulty.	Stop the compressor and contact the dealer.
The compressor doesn't seem to provide as much air as it did when new and the compressor cuts off within a much shorter time period.	The pressure switch needs adjusting.	Stop the compressor and contact the dealer.
The compressor doesn't seem to provide as much air as it did when new and the compressor cuts off within a much shorter time period.	The tank is full of water due to condensation.	Open the ball valve and release the pressure. Open the drain valve and release the water within the tank.
The motor pump unit does not stop when the tank pressure reaches its maximum working pressure (116PSI) and the safety valve vents air.	Pressures switch defective or needs adjusting.	Stop the compressor immediately and contact the help-line.

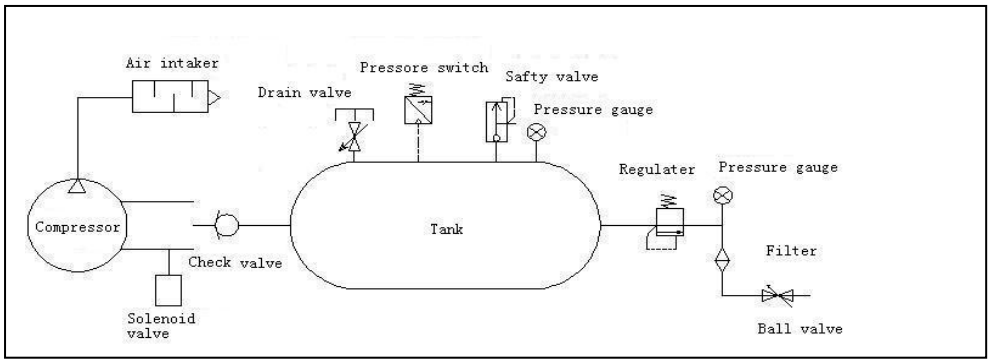
11. Packing list

1. Air compressor, 1pc
2. Brochure, 1pc

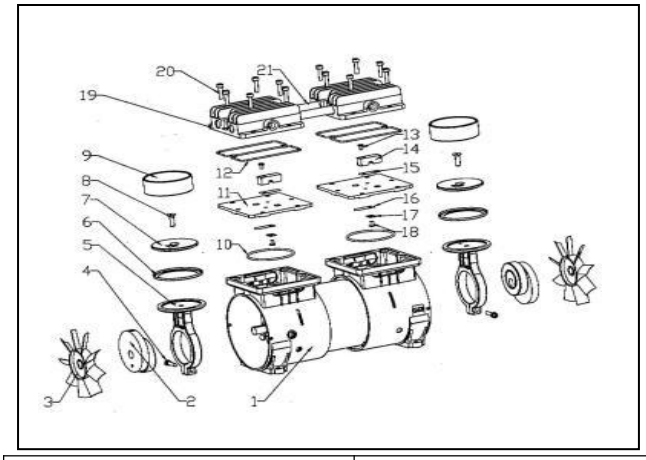
12. Electrical circuit



13. Air passage drawing



14. Split-up drawing of motor



1 Cast Alu shell units	8 Screw of plate	15 Air outlet valve
2 Eccentric wheel units	9 Cylinder Jacket	16 Air inlet valve
3 Fan	10 Gasket of cylinder jacket	17 Valve gasket
4 Screw of connecting rod	11 Plate valve	18 Screw of valve
5 Connecting rod	12 Gasket of cylinder jacket	19 Cylinder head
6 Piston ring	13 Screw of plate valve	20 Screw of cylinder head
7 Plate	14 Fix plate	21 Connecting pipe