

DENTAL SUCTION UNIT

OPERATION MANUAL

(Please read the operation manual before maintaining or repairing equipment, the manual is only for guidance, our company have the right to improve the design.)

Thank you for choosing to use our company's GS series of dental suction unit! In the first installation and use of dental suction unit, please make sure to read all the information supplied firstly, in particular the installation information in this manual and other terms mentioned in the note. This will help you to make better use of products.

Disclaimer

For the product specifications and configuration, please refer to the related products with agreement, packing list, or directly consult the product dealer.

In the preparation for manual process, has sought to correct and complete content, but because of technical and technological advances, relevant laws and regulations changed, suction machine and operate manual will be changed accordingly. Therefore, we have the right to revise this manual description of product and the contents of this manual at any time, without notice.

Limited warranty

If the product comes with the details of service documents, we will provide you the service according to this detail service. If the product does not come with service rules (warranty file), it indicates that your after-sales service will be executed according to the written agreement of the product provider and the product receiver, it is not suitable for service conditions (warranty documents), and it do not contain any ostensive or implicit warranty, in this situation, you can not get the after-sales service, if you are willing to accept our product, you should require the organizations or persons who provides you the products to provide you with their service according to their commitment.

These products are only in accordance with local laws and regulations of the national and regional sales.

The maximum extent permitted by law, we will not bear any responsibility for the company in the following cases:

- 1, Third-party claims against you;
- 2, Incidental or indirect damages and economic losses;
- 3, Due to your own configuration and all damages caused by the economic loss;
- 4, Because you are not required in the environment in this guide use of this product, or any damage and economic loss caused by the failure of this method of operation under the guidance;
- 5, All damage and economic loss caused by force majeure.

Sign flag



Note: There are likely to lose parts and material document.



Note: That can damage equipment or cause equipment not working properly.

Marginal data



Reading the specification carefully



Ground protective



On



Off



Product serial number



Manufacturer



Production date



European Union representative

6. Version information

Operation Manual No. GS-A/0

Contents

- 1. Brief introduction**
- 2. Technical data**
- 3. Structure and installation**
- 4. Functions of main parts**
- 5. Maintenance**
- 6. Split-up drawing of ring blower**
- 7. Troubleshooting**
- 8. Working principle overview**
- 9. Safety precautions**
- 10. Drawing of air connection and electrical circuit**
- 11. Symbol definitions**
- 12. Packing list**

1. Brief introduction

Thank you for purchasing our dental suction unit. It is our company well-developed multi-purpose mechanical and electrical integration of energy-saving product with small, mobile, good appearance, less power consumption, free maintenance, safe and durable etc. In order to be convenient for you to operate the unit, please read the manual carefully.

1.1 Contents of the manual

The operation manual includes brief introduction, technical data, installation and test, maintenance, split-up drawing of ring blower and so on. You can get help in according to the contents.

1.2 Performance and structure

The dental suction unit consists of drain bottle, filter, ring blower, DC water pump and case.

1.3 Usage

The suction unit is applied in the process of oral cavity treatment as it can pump foreign objects attached with germina, such as oral secretion and dirty blood, as well as protecting environment since the objects can be dealt with before being pumped. It is mainly used for clinics and hospitals in the treatment of oral health.

1.4 Safety Information

1.4.1 Electric safety

- To make sure that the plug of this unit is three-phase with good grounding.
- Before connect the power plug, please ensure the power voltage consistent with the named voltage which this unit required.
- To avoid unsteady voltage, please do not use the power socket together with other electric equipment.
- Before maintain or repair the unit, please unplug that electric wire firstly.
- Please check the electric wire and plug regularly to avoid the damage or extrusions.

1.4.2 Cleaning

Please keep the environment around the product clean. To unplug that electric wire before cleaning the unit. The process of cleaning as follows: firstly wipe the outer surface with a soft cloth stained with neutral detergent, and then use a soft cloth to clean the machine again.

Notice: Do not use liquid or detergent containing flammable substances.

1.4.3 Other safety information

When using this unit, please strictly operate it in according to the following rules:

1) Please note that the power plug is designed as the safety device, not power switch. It is necessary to ensure the power plug can be unplugged from the socket without extrusions.

Warning: The good grounding is necessary to avoid the risk of electric shock.

2) Unit cannot be used in flammable mixture environment.

3) Unit cannot be used in anesthetic and air, oxygen, nitrogen mixture environment.

4) Don't put the unit together with oxygen cylinder.

5) Please do not operate the unit or replace the accessories when the following situations occur:

- Damage of the power plug;
- Unit cannot work normally;
- Breakdown of the unit;
- Water inlet of the unit;
- Loud or shrill noise, overheating outlet air or foul smells during operation.

When above situations occur, please contact the manufacturer or local agent. In order to be convenient for us to offer after sale service, please offer drawing of electrical circuit, air and water connection diagram, packing list and other useful information when necessary.

6) Please use original or qualified disinfectant.

7) Turn off the power when the operator left.

8) Dispose of waste liquid and waste solid according to the local health regulations.

9) Do not use and store the unit outside the specified environment.

10) Keep accessories from dropping to avoid damages.

11) Keep the electric wire from loosening in the process of treatment.

12) Please use accessories from original manufacturer.

13) Keep the equipment in a solid and horizontal level.

1.5 Product information

Name: Dental Suction Unit

Model: GS-XX

Configuration: refer to enclosed Packing List

Models of dental suction units: GS-01; GS-02; GS-03.

1.6 Edition information

Operation Manual Number: GS-A/0.

2. Technical data

2.1 Product data:

No.	Model	Voltage V/Hz	Power (VA)	Air flow (L/min)	Max. Negative Pressure (Kpa)	Noise (dB)	Fuse (A)
1.	GS-01	220/50	750	300	-12	≤60	10
2.	GS-02	220/50	1100	600	-13	≤60	15
3.	GS-03	220/50	1300	900	-14	≤60	20
4.	GS-M2 50	220/50	250	100	-12	≤60	10



Warning:

Please operate the unit strictly under the named supply voltage, because the unsteady current can cause injuries to the unit.

Please install power voltage regulator when supply voltage is unsteady, and the rated power is no less than **2000VA**.

2.2 Product Classification

2.2.1 Classification of air flow: High volume suction system.

2.2.2 Classification of suction method: semi-dry system.

2.2.3 Classification of dental equipments management: Oral equipments and instruments (code 6855), **Type I management**.

2.2.4 Classification of electric shock protection: Type I equipment.

2.2.5 Classification of electric shock guarding: Type B equipment.

2.2.6 Classification of waterproof: Normal equipment (IP20).

2.2.7 Classification of working frequency: intermittent duty.

2.3 Transportation, storage and condition of usage

2.3.1 Condition of transportation.

The unit should be transported according to specific requirements of signed contract.

2.3.2 Condition of storage.

The unit should be stored in the place with relative humidity not greater than 80%. Surrounding area of the unit should be clean, dry, and free of

corrective gas, well ventilated and indirect sunlight.

2.3.2 Condition of usage.

Ambient temperature: 5°C~40°C

Relative humidity: ≤80%

Atmosphere pressure: 86Kpa ~106Kpa

Warning: The unit can not be used in an area where the air is contaminated with the flammable anaesthetic, which the explosion may occur.

2.4 Condition of installation

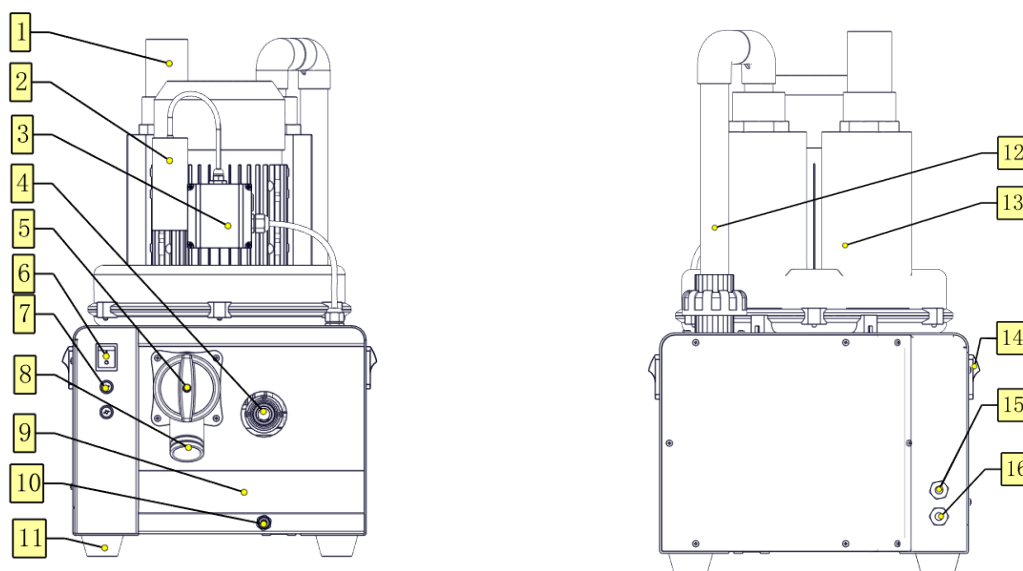
Installing the machine in a solid and horizontal level with, and does not have an incline greater than 2°.

2.5 Condition of power

Voltage range: a.c.220V 50HZ

3. The Unit Structure

3.1.1 GS-01 structure



1. Air-Out	2. Capacitor	3. Control Box	4.Drainage
5.Filter	6. Power Switch	7. Fuse	8.Air Intake
9. Cabinet	10. Sewage outlet	11.Rubber Feet	12.Air Intake Pipe
13. Ring Blower	14.handle	15.Signal Line	16.Power Cord

3.2 Procedures of installation

3.2.1 Installation:

(1) Check after unpacking.

Ensure that every component of the unit is intact after opening the box and check that spare parts are intact according to packing list. In case of doubt, please contact our company or your local agent.

(2) Precautions of installation.

The electric units should be installed by competent person only.

(3) Condition of installation.

a. Ambient temperature: 5°C~40°C

b. The unit should be well positioned to ensure there is an adequate airflow around the machine.

(4) Method of installation.

a. Install the unit close to treatment unit, and ensure mounting level of suction unit lower than treatment units. Please note that the door of suction unit should not be opened freely for safety.

b. The suction unit should be well situated to ensure it has 25cm space free of obstacle around two sides of case.

(5) Specifications of connecting pipes.

a. Pipe connects suction unit with dental treatment unit:

Material: PPR or PVC

Air-Inlet Inner diameter: $\phi 32$.

Length: $\leq 5m$

Height of installation: 0.5m higher than bottom of suction unit

b. Pipe connects air outlet with outdoor pipeline:

Material: PPR or PVC

Inner diameter: $\phi 32$

c. Pipe connects drain water exit with outdoor waste processing pipeline:

Material: PPR or PVC

Inner diameter: $\phi 20$.

Height of installation: lower than bottom of suction unit

(6) Electrical requirements

Power: when install the power socket, please ensure the power voltage consistent with the named voltage and frequency which this unit required.

3.2.2 Test:

Take up saliva ejector from clip-on instrument holder of dental treatment unit, and the suction unit will start automatically. During the first testing or using, please put saliva ejector into clean water, and check whether water can be drained from drain water exit. Then put saliva ejector back to clip-on instrument holder, the power of suction unit will shut off. Please note that suction unit will continue to work for 5~10 seconds to clean the foreign objects inside tubes because of time delay unit installed in the electric board.



Warning: To avoid unsteady voltage, please do not use the power socket together with other electric equipment.

4. Functions of main parts

4.1 Filter: mainly used to separate solid particles (such as teeth fragments, silver amalgam particles) from dirty blood and oral secretion, as well as protecting environment since they will be collected and dealt with before being pumped. (please clean solid particles inside the filter regularly)

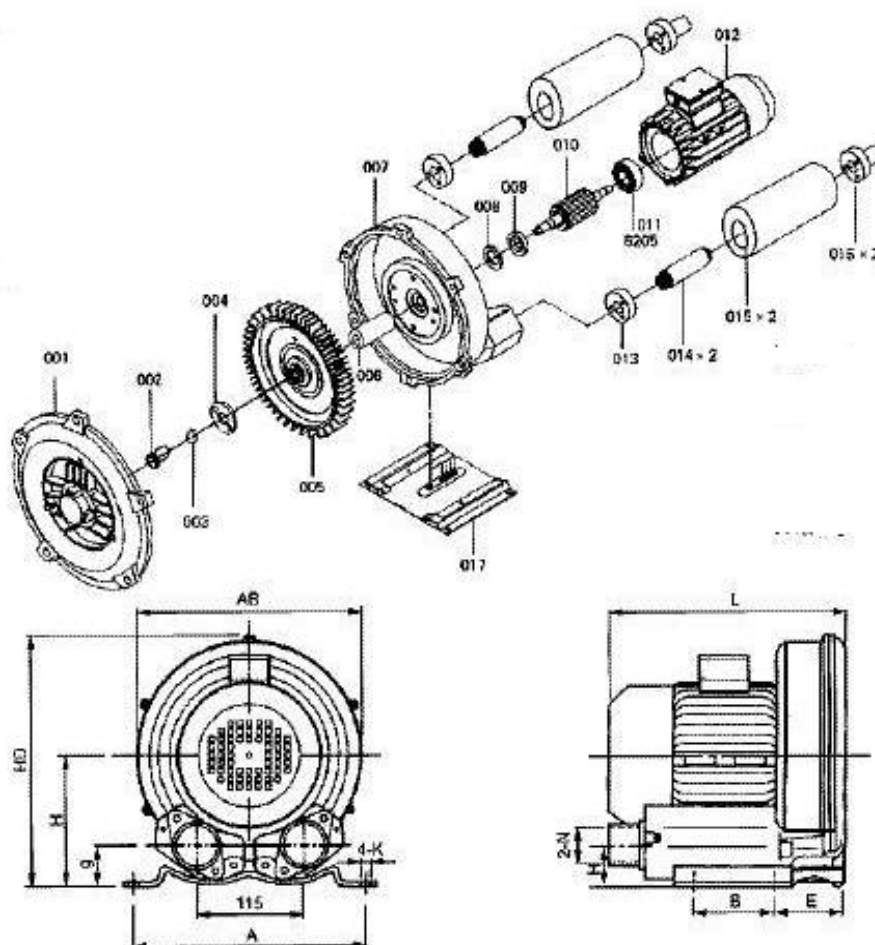
4.2 Air & Liquid separator: with centrifugal effect, air will separated from blood and oral secretions, all liquid will drain out automatically, keep dry for ring blower, and keep longer service life of the suction unit.

5. Maintenance

1. Clean the suction tubes everyday by sucking clean water twice (1 liter each time) after use.
2. Clean the drain bottle and filter weekly.
3. Clean the tubes every three months.

6. Split-up drawing of ring blower

001 Wind cover	006 Bushing block	011 Bearing	016 Connector
002 Screw	007 Wind barrel	012 Electric motor	017 Foot
003 Spring-pad	008 Bearing	013 Rubber gasket	
004 Impeller plate	009 Bearing block	014 Core	
005 Impeller	010 Rotor	015 Flue pipe	



7. Trouble shooting

	Problem	Reason	Check
1	Cannot work with very weak suction	The air inlet is blocked	Check the air inlet
		The filter is blocked	Check the filter
2	Too much shake and noise	The voltage is too low	Check voltage or add a voltage regulator
3	The pump cannot work.	The power is not switched on	Check if the power supply is connected correctly
		A fuse is blown	Check if the fuse is blown, or replace a new one.

8. Working principle overview

Ring blower working principle: Ring blower's impeller contains numerous blades in its edge and it is special designed for a high air pressure. When the impeller is rotating, air between the impeller would be accelerated along the direction of the fan blades and due to rotating movement, after air enters outside air layer, it comes back to the base of the fan blades due to the effect of the differential pressure, the cycle will repeat several times to make the air run spirally so as to increase the pressure. The air will expel quickly because of the pressure there bigger than the pressure in the system when the air runs through the outlet.

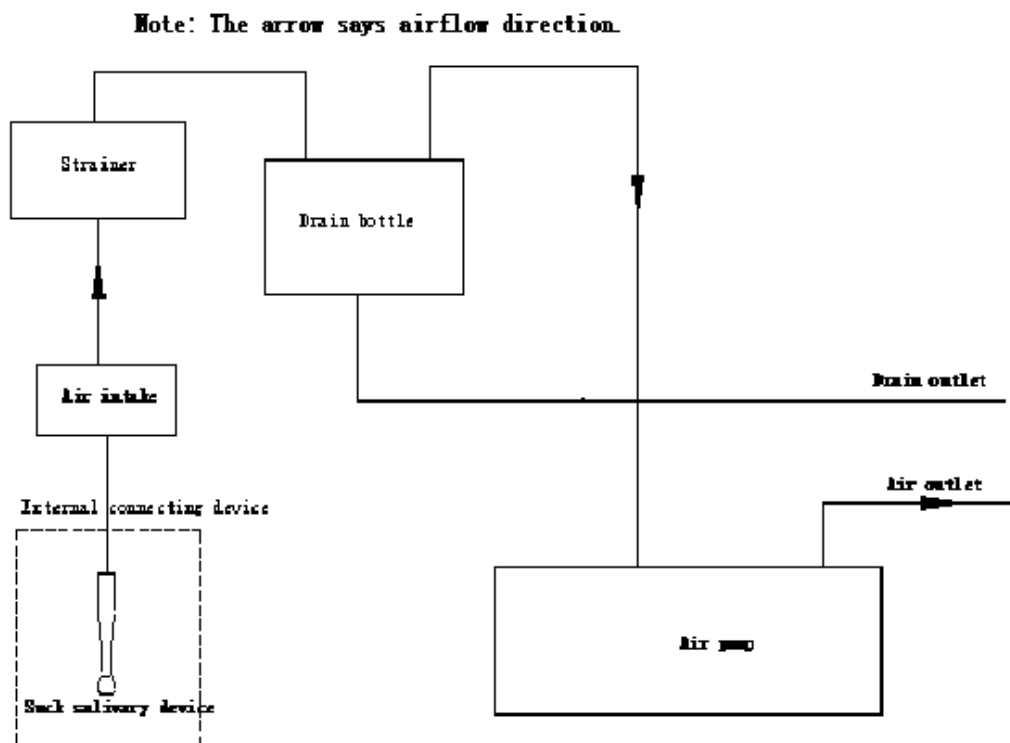
Operating principle: Connect the suction unit with dental treatment unit, take up saliva ejector from clip-on instrument holder of dental treatment unit, and the suction unit will start automatically to suck foreign objects attached with germina (such as oral secretion and dirty blood) into filter, the filter will separate solid particles (such as teeth fragments, silver amalgam particles) from dirty blood and oral secretion (please clean solid particles inside the filter regularly). The filtered dirty blood and oral secretion will be sucked into drain bottle, the air and water separator will separate the air from dirty blood and oral secretion to ensure the air offered for ring blower is clean and prevent the impellers from corrosive damage.

9. Safety precautions

1. When dental suction units working, please make sure that there will be no goods can be touched the unit.
2. Clean the filter regularly.
3. To change the electrical parts timely, but must turn off the power.
4. When to clean and maintenance the suction units, please to turn off the power.
5. After setting up the suction units, do not move the unit too often, avoid to affecting its working conditions.
6. To forbid the unprofessional person to use the suction unit, avoiding to operating wrong.
7. When to maintenance the suction units, it must be some person who is very qualified.
8. Do not let the olds, children come into contact with the unit, avoiding resulting harm.
9. When to use the suction units under knowing there will be result of harm, to forbid using the suction units.
10. When the dental suction units are retired, the capacitor and electrical components should be available to the local law and regulation.

10. Drawing of air connection and electrical circuit

10.1 Drawing air connection



12: Packing list

No	Name	Quantity
1	Suction unit	1 pc
6	Power supply wire	1 pc
7	Fuse	3 pcs
8	Operation manual	1 pc