

# Dental Electric Suction Machine

## User Manual

TR-YP606K

DF-S3、DF-S5、DF-S8、DF-S10



## **1. structural composition**

Dental electric suction machine is composed of suction machine, filter, valve, pipe and other parts.

## **2. Model and Specification**

DF-S3, DF-S5, DF-S8, DF-S10

## **3. The scope of application**

Used to provide negative pressure source for dental treatment equipment to achieve the function of driving device or suction.

It is suitable for the salivary aspiration of dental treatment, dental implant and other large operations.

## **4. Working environment Requirements**

Ambient temperature: 5 ° C to 40 ° C

Relative humidity: ≤80%

Power supply: 220V, 50Hz

Atmospheric pressure: 50.0kPa ~ 106.0kPa

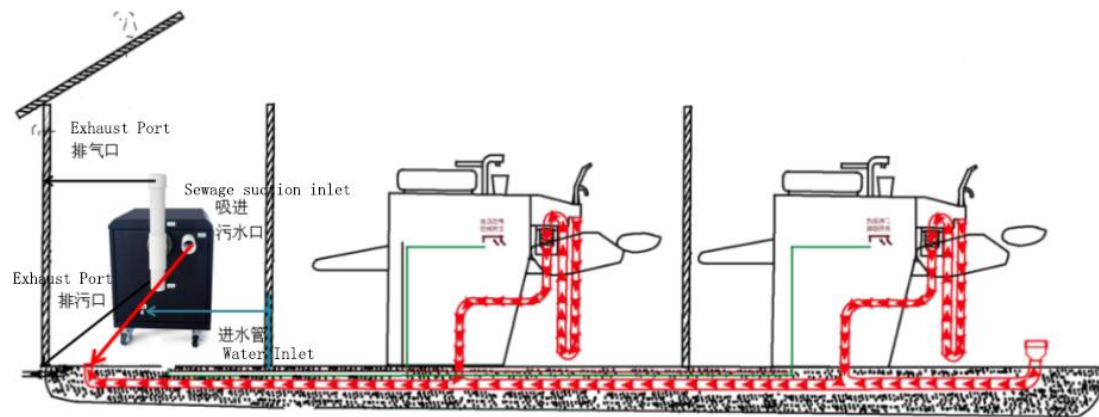
## 5. Machine Parts Description



- 1.Power operating indicator light
- 2.Water pressure indicator light
- 3.Start working indicator light
- 4.Control panel
- 5.Start transfer switch
- 6.The body shell
- 7.Universal Wheel
- 8.Negative Pressure Meter
- 9.Upward exhaust port
- 10.Sewage suction inlet
- 11.Sewage draining exit
- 12.Water import
- 13.Built-in motor
- 14.Power input
- 15.Signal Wire

Model	Exhaust pipe diameter	Sewage suction inlet pipe diameter	Inlet pipe diameter	Drain pipe diameter
S3	32mm	32mm	8mm	32mm
S5	32mm	32mm	8mm	32mm
S8	32mm	32mm	8mm	32mm
S10 Normal Type	50mm	50mm	8mm	50mm

## 6. Connection Diagram with Dental Chair



## 7. Operation Procedure Description

1. Ensure that there is 220V power input and the power indicator will be on after the power supply is powered on. The dental electric suction machine will perform an automatic inspection system and run automatically for about 10 seconds.
2. Ensure that there is water flowing into the cylinder of the negative pressure generator normally. If the water source indicator is off, the water source is not flowing in normally. Check whether the water supply is normal. Note: If the water indicator light is not on, it cannot be started normally.
3. Switch the start to the signal start state! If the signal cannot work normally under special circumstances, you can send the starting concern to the automatic starting position for emergency treatment, and contact the manufacturer or local dealer immediately to solve the problem.
4. After the normal operation of the dental electric suction machine, the user can adjust the appropriate negative pressure attraction through the knob of the control panel. Note: In addition to the negative suction value, do not change the factory Settings on the control panel.

## 8. Cleaning maintenance and maintenance methods

Dental electric suction machine regular maintenance and maintenance, can effectively reduce the occurrence of failure, make your equipment to maintain a good working condition, prolong the service life. Inspection and maintenance must be carried out once a year by professional and technical personnel.

## 9. Storage and transportation conditions

- A. Ambient temperature range: 4 ° C-40 ° C;
- B. Relative humidity range: relative humidity not more than 80%;

C. Prevent rain and vibration during transportation. Handle with care.

D The packaged equipment should be stored in a well-ventilated room with a relative humidity of no more than 80%, no corrosive gas.

## 10. Matters needing Attention

### 10.1 Electricity Safety

- The power supply of the product environment must be equipped with a good grounding device, and ensure that the product is well grounded.
- Before powering on the product, please confirm that the power supply you provide can meet the input power information marked near the power input port of the product.
- When maintaining/repairing or cleaning the product, please be sure to cut off the power supply to ensure that the product is completely powered off before operating.
- Regularly check the power cable for damage and make sure that the power cable is not squeezed by other objects.

### 10.2 Product Cleaning

Please keep the environment clean. Before cleaning the product, please disconnect the power supply, wipe the surface of the product with a soft cloth dipped in neutral detergent, and then clean the product with a soft cloth with low moisture.

Note: Do not use liquids or detergents containing flammable substances.

Warning: Do not damage the power cord when moving this product.

### 10.3 Other Security Information

Caution and Warning contain important information about safe operation and use of the device.

Do not operate the device until you have read and understood the manual. If you do not understand the risks, precautions, warnings, and operation instructions, contact the manufacturer or authorized service provider to avoid injury.

When using this equipment, the safety precautions must be followed, including the following contents:

1) The power switch is not a safe power switch, and the power plug is the only safe power cut device. It is a deliberately set isolation method, so it must be ensured that the operation of the power plug (pulled out from the wall power socket) is convenient.

Note: To avoid the risk of electric shock, only one power cable with protective grounding should be connected to the device. An incorrect grounding plug may cause electric shock.

2) Only trained and skilled medical personnel can operate the equipment. Improper use may cause serious personal injury.

3) The equipment should not be used together with inflammable and explosive materials.

4) Do not use the equipment under any of the following circumstances:

- The power plug cable is damaged.
- The equipment does not work properly.
- Equipment is damaged.
- Water enters the equipment.
- The equipment runs loudly or has a sharp and harsh sound, the output air is overheated, and

gives off a bad smell. Circuit diagram, parts list, product introduction, operating instructions, technical instructions and other useful information shall be provided by the technical personnel of the authorized service provider during maintenance.

- 5) The power plug should be pulled out when the operator leaves.
- 6) Do not use and store the device outside the specified environmental requirements
- 7) In order to avoid mechanical and electrical damage, strictly prevent accessories from falling.
- 8) In order not to affect the operation, it should be ensured that the power cord will not fall off during the treatment and ensure the safety of the power cord.
- 9) Please use the accessories recommended by the manual.
- 10) Install the equipment in a ventilated and dry place.

#### Periodic Security Check

Clean the power cord at least once a year. Too much dust on the power plug could cause a fire. The following items should be inspected at least once a year by personnel with relevant knowledge, experience or training:

- Check the mechanical and functional condition of equipment and accessories.
- Check whether the labels related to safety are clear.
- Check whether the fuse conforms to the rated current and the fuse characteristics.
- Check whether the performance of the equipment conforms to the description of the manual.

Fill in the measured data in the equipment operation diary. If the above experiment fails or the equipment cannot work normally, the equipment must be repaired.

## 11. Fault diagnosis and countermeasures

### Er.01-Overcurrent in acceleration

#### possible cause:

1. The acceleration time is too short
2. The torque increase is too high

#### countermeasure:

1. Extend the acceleration time
2. Reduce the torque raising voltage

### Er.02-Overcurrent in deceleration

**possible cause:** The deceleration time is too short

**countermeasure:** Increase deceleration time

### Er.03.-Overcurrent in operation

**possible cause:** Sudden change of load

**countermeasure:** Reduce load fluctuation

## **Er.04-Overpressure in acceleration**

**possible cause:** Input voltage is too high

**countermeasure:** Checking the Power Supply Voltage

## **Er.05-Overpressure in deceleration**

**possible cause:**

1. Slow down time is too short
2. The input voltage is abnormal

**countermeasure:**

1. Extend the reduction time
2. Check the power supply voltage

## **Er.06-Overpressure in operation**

**possible cause:**

1. The power supply voltage is abnormal
2. Load with energy feedback

**countermeasure:**

1. Check the power supply voltage
2. Install or re-select the brake actuator

## **Er.07-Overpressure during shutdown**

**possible cause:** Abnormal power supply voltage

**countermeasure:** Check the power supply voltage

## **Er.08-Undervoltage in operation**

**possible cause:**

1. The power supply voltage is abnormal
2. Human load starting in the grid

**countermeasure:**

1. Check the power supply voltage
2. Separate power supplies

## **Er.09-Frequency converter overload**

**possible cause:**

1. Overload
2. Acceleration time is too short
3. The torque increase is too high
4. The power grid voltage is too low

**countermeasure:**

1. Reduce the load or replace the inverter with a larger capacity
2. Extend the acceleration time
3. Reduce the torque and increase the voltage
4. Check the power grid voltage

## **Er.10-Motor overload**

**possible cause:**

1. Overload
2. Acceleration time is too short
3. The protection coefficient is too small
4. Torque increase is too high

**countermeasure:**

1. Reduce the load
2. Extend the acceleration time
3. Increase motor overload protection factor
4. Reduce the torque and increase the voltage

## **Er.11-Frequency converter overheating**

**possible cause:**

1. The air duct is blocked
2. The ambient temperature is too high.
3. The fan is damaged

**countermeasure:**

1. Clean the air duct or improve the ventilation condition
2. Improve ventilation conditions and reduce carrier frequency
3. Replace the fan module

## **Er.12-Secondary protection fault**

**possible cause:**

1. Signal interference
2. The overvoltage or overcurrent fault occurs

**countermeasure:**

1. Power off, stop and start again
2. Seek services from the manufacturer



## **Er.13-interference**

### **possible cause:**

A false action due to ambient electromagnetic interference

### **countermeasure:**

Add absorbing circuits to the interference sources around the frequency converter

## **Er.14-The output phase**

**possible cause:** The connection between the frequency converter and the motor is poor or disconnected

### **countermeasure:**

Check the wiring

## **Er.15-IPM fault**

### **possible cause:**

1. The output is short-circuited or grounded
2. The module is damaged

### **countermeasure:**

1. Check cables
2. Seek services from the manufacturer

## **Er.16-External device failure**

### **possible cause:**

The external equipment of the frequency converter is faulty

### **countermeasure:**

Check signal source and related equipment.

## **Er.17-Current detection error**

### **possible cause:**

1. The current detection device or circuit is damaged
2. Auxiliary power supply is faulty

### **countermeasure:**

Seek services from the manufacturer.