

60.00 mm

Low-speed Air Turbine Handpiece

Operation Instructions

【Specifications】

□202S1 □202S2 □202S3 □202S4
□202C1 □202C2 □202C3 □202C4 □202C5 □202C6 □202C7
□202C8 □202C9 □202C10 □202C11 □202C12 □202M1 □202M2 □202M3 □202M4
□202M5 □202M6 □202M7

Table 1 basic parameters

Descriptions	Contra angle handpiece/straight handpiece	Air motor
Spray Water	200kPa, $\approx$ 50mL/min	
Spray source	200kPa, $\approx$ 1.5L/min	
Motor source	-	200~400kPa, $\approx$ 65L/min
Taking bur means	Push button/Manual Operation	-
Bur applicable	$\varnothing$ 2.334~2.350 mm	$\varnothing$ 2.334~2.350 mm
Noise	$\leq$ 80dB	$\leq$ 80dB

Table 2 Speed

Air pressure (kPa)	Speed(r/min)	
	Clockwise	Counter clockwise
300	15000~20000rpm	15000~20000rpm

Symbol explanation

In order to let the user get the key point from this instruction simply, there are a lot of symbols appearing



1. Before you begin

Intended use:

Rotary processing of tooth substance and dental prostheses (crowns, inlays, bridges, etc.) by trained dental professionals.

Contraindications:

The Low-speed handpiece must not be used on patients who have soft-tissue injury in their oral cavity.

Target group:

This product is intended only for use by trained dental personnel.

1.1 Safety information

Read these operation instructions carefully prior to startup of the Low-speed handpiece and keep them handy for further reference.

** Low-speed handpiece should be sterilized after each patient to prevent any transmission of infective agents such as e.g. HIV or hepatitis B which might cause serious illnesses or even lead to death.

** Correct hygienic measures must be taken to prevent cross contaminations between patients and users.

** Before confirmed the bur is stopped securely, do not remove the bur or pull the bur out of the handpiece. A loose partially removed bur could detach itself from the head or break off and cause injuries.

** Do not disassemble the handpiece even it is stopped working. Improper repair will cause sudden failures and injuries to patients.

1.2 Instructions for safe operation

■ The Low-speed handpiece and accessories used on the patient must be sterilized prior to startup.

■ In case of operating more than 10 mins, the handpiece must be treated with dental handpiece spray in between.

■ The instrument must be stored in a dry, heated room.

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■ Approved or original replacement and accessory parts can prolong the life-span.



In case of malfunctions or damage, stop using and notify your agent or the manufacturer; if you have any questions, please also contact with your agent or the manufacturer.

Prior to each use, test whether the fitted instrument is firmly seated by pulling and turning it. Prior to the beginning of a workday and before each patient, purge the water paths and air channels for 10-20 s.

1.3 Service life of this instrument

Service life will be different as follows:

The total lifespan of Low-speed Air Turbine Handpiece is 2 years.

* No warranty claim can be inferred here, as wear may occur earlier or later than indicated above depending on use, frequency of sterilization and frequency of maintenance.

2 Technical description

The handpieces and the quick couplings comply with the latest regulations reflecting the current state of the arts.

Furthermore, users are obliged to use only faultless materials, to ensure correct application and to protect themselves, the patient against hazards.

The handpieces and the quick couplings are part of technical equipment of the dental practice.

The handpieces are used for driving dental instruments with an FG shank.

Technical data

Different head size:

Atomization air: 300kPa, Atomization pressure: 300kPa, Maximum no-load speed:

Clockwise 15000~20000/min, Counter clockwise 15000~20000/min. The speed of clockwise and counter clockwise shall be no more than $\pm$ 10%.

Handpiece in the pressure range specified in Table 1, the gas flow rate should be less than 65L/min.

Application: Chuck must be applicable shank corresponding to ISO 1797 Norms. Allowable maximum overall length of rotary instruments is 32mm and shank diameter is 2.345mm to 2.355mm. The indicated pressure can be checked by a service engineer with a special tester that is placed between the hose or the quick coupling.

The return airs from the handpieces are through the dental units supply hose, return air escapes at the hose connection.

The connector accord with requirement of ISO3964

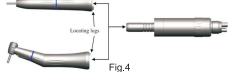
Rated torque

When air pressure 200kPa (2.0bar), air motor torque is $> 2.5N\cdot cm$

3 Operation

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Inserting
Insert the E-type handpiece into the motor and turning all the way until it click to stop.(Fig.5)
Removal
Grip both handpiece and motor respectively, pulling and separating (Fig.4)



3.4 Connector to handpiece tube

Connect Air inlet/outlet pipe (chip air pipe, water pipe, pins) on connector to handpiece tube.

then screw tightly.

3.5 Forward/Reverse Rotation

- 1) Forward Rotation: Turn the FWD/REV change ring to "F" as shown in Fig.5
- 2) Reverse Rotation: Turn the FWD/REV change ring to "R" as shown in Fig.6
- 3) When the FWD/REV change ring is positioned in the middle of "F" and "R", the drive air is interrupted and the motor does not rotate Fig. 7
- 4) When FEW/REV change ring is positioned in F or R, the rotation speed is maximum.



3.6 Handpiece head sprinker

When spray is required to cool, turning on the switch for spray water and chip air at dental unit, handpiece will spray.



Sufficient amount of cooling water ($\approx$ 50ml/min) must always be available. Insufficient cooling will leads to overheat and damage to the tooth.

Always operate only with filtered water, dirty substance will cause cooling spray blocked suddenly.

4 clean and sterilize

After each treatment, sterilizing handpiece in autoclave according to the following steps:

4.1. Pretreatment

- 1) After each treatment, wipe up any visible stains on the surface of the phone with a wet cottonball.
- 2) Remove the bur and motor, The doctor can install it before operation.
- 3) Put the handpiece in the recycling container of the contaminated equipment in the clinic.

The pretreatment need to be done after the treatment is finished immediately, Convenient for subsequent cleaning

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4.2 Cleaning

Manual external cleaning

The handpieces is reusable device, clean is recommended to perform manually

- 1) Place the handpiece in the flowing water for 1min to remove the surface contaminants.
- 2) Soak in distilled water for 2-5 minutes and then use the cleaning line to clean the nozzle and wet cotton balls to scrub the dismantled part for 5 times.
- 3) Use syringe to inject 35ml flowing water into the cavity for each time, repeat inject flowing water for 8 times.
- 4) Rinse the handpiece with distilled water for 2-5 minutes.
- 5) Use syringe to inject 35ml 75% ethanol into the cavity of the handpiece for each time, repeat inject 75% ethanol for 8 times, clean the external surface of the handpiece three (3) times with gauze soaked in 75% alcohol.
- 6) Use the rubber suction bulb to squeeze air and blow dry the surface of handpiece. With the surface does not have clear water bead is accurate.



Automatic cleaning not applicable.
Disinfection not applicable.

4.3 Sterilization

Handpiece is suitable for the moist heat sterilization in the autoclave.

The handpiece packaged into the sterilization pouch must be sterilized only in autoclave with purified water at 135℃ in 15 min. Holding time (204 kPa/29.59 psi overpressure).



Do not exceed 135℃ at all process.

Permissible: autoclaving that fulfill the requirements of EN 13060, class B or S.



Do not immerse the handpiece in cold water to speed up the cooling process. This would damage the handpiece permanently.



This handpiece can be capable of being subjected to a minimum of 250 cycles of sterilization without signs of deterioration.

During store, the sterilized handpiece cannot be removed from the sealed sterilization pouch. After sterilization, if the sterilization pouch had been opened, the handpiece is recommended to be used within four hours.

4.4 Replacing the cartridge

Before replacing cartridge, disassemble the handpiece from supply hose or quick coupling.

- Insert the test bur into the handpiece firstly.
- Turn the head cap counter-clockwise by the cap wrench.
- After loose, wrench the head cap by hand.
- Clean the handpiece head inside by spraying the dental handpiece lubricant.
- Push up the test bur upwards until it is removed from the head of handpiece.
- Align the small pin in the cartridge with the slot in the handpiece head.



Insert the cartridge into the head by thumb, make sure the cartridge and handpiece head is flat.

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■ Cover the head cap with handpiece head by hand clockwise until it is almost tighten.

■ Wrench up the cap wrench to make sure it is firm totally.



Only purchase the original cartridge from your local agent or the manufacturer to make sure the good performance from your handpiece. Do not open the cartridge if you are not a trained person.

4.5 Replacing the O-rings from the quick coupling



Once the water or air leaks from the gap between quick coupling and handpiece, check the O-rings wear or not to solve this problem.

Remove the all 3 pcs O-rings once you find one of them is defective.

Before inserting the O-ring, lubricate them by dental handpiece spray in advance to let the installation easier.

After replaced the O-rings, confirm it is connected with handpiece firmly.

O-rings kits coupling: SP-QD R (2 pcs of O-ring1, and 1 pc of O-ring2).



If you cannot replace the O-ring by yourself, do ask for assist from your local agent or from the manufacturer.

4.6 Replacing the sealing washer



Once the water or air leaks from the gap between supply hose and handpiece, check the sealing washer wear or not to solve this problem.

Remove the handpiece or quick coupling from supply hose.

Detach the old glass by tweezers.



Before replacing, make sure you have found out the two big diameter holes which will be matched with the handpiece or quick coupling pipes.

Push the sealing washer in once you confirm all holes can be matched well with the handpiece or quick couplings pipes.

Model name for sealing washer:



If you cannot replace the sealing washer by yourself, do ask for assist from your local agent or from the manufacturer.

Packaging

The packaging include of air motor one piece, straight handpiece one piece, contra angle one piece, wrench one piece, operating instruction one piece

5 Storage and transportation conditions

Temperature: -10~55℃

Humidity: 10~90% RH

Moisture proof, avoiding sunshine and heat source during transport

(Production date, the use of time)

See product label



Store the handpiece in a clean, dry place.

6. Disposal

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3.1 Connect with the supply hose

Before connecting handpiece with the supply hose, confirm you are using the correct model. 2-hole and 4-hole connectors cannot be compatible.

Attach the handpiece end to the supply hose; make sure the hose and handpiece touch tightly. Hold handpiece in still, and secure the cap nut with handpiece end by hand firmly.

3.2 Bur inserting & removal

1) Push-button Chuck

After bur stop, press the push button firmly and remove the bur (Fig.1)



Fig.1

Press the push button firmly and insert the bur in the segment of the rear of the head as far as it will go by turning it gently. Check the function of the chuck by pulling on the bur. (Fig.1).

2) Chuck

Turn the bur Lock Ring all the way in the direction of arrow marked "open" to open the chuck, remove out the bur. (Fig.2)

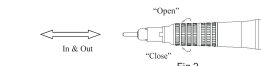


Fig.2

Turn the bur Lock Ring all the way in the direction of arrow marked "open" to open the chuck, insert bur into chuck, returning the bur Lock Ring in the direction of "close" until a click sound is heard (Fig.2).

3) Contra angle handpiece head
Loosen the union nut in the direction of arrow and separate the head (Fig.3).

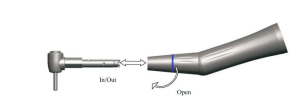


Fig.3

3.3 Handpiece inserting & removal

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To the best of our current knowledge, the products do not contain any substances which are hazardous to the environment.
The products must be sterilized before disposal.
Please observe the applicable national regulations regarding disposal.
[After-sale Service] BESTDENT FOSHAN MEDICAL EQUIPMENT COMPANY LIMITED