



# **How to Maintain & Extend the Life of Your Handpieces**

We recommend that you follow these guidelines for Sable products.

LIT-0460 Rev A



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*Dear Customer,*

The Dental Handpieces that you work with everyday are precision instruments designed to last for many years when cared for properly. At Sable we recommend that you follow the instructions and directions for use that each manufacturer provides for cleaning, lubricating and autoclaving.

We have designed this booklet to include the information that you will need to practice daily, to keep your handpieces performing at their best.

Thank you very much for supporting Sable. We will continue to make every effort to address your needs, and exceed your expectations.

Regards

Riley Nick  
Sales Manager  
Sable Industries Inc.

# General Practices to Follow

- A high speed handpiece should be operated only with a bur securely in place
- Do not depress the push button of a push button high speed handpiece during operation. This will damage the chucking mechanism and the bur may be expelled from the rotating turbine within the handpiece
- Do not use the push button handpiece to retract the patient's cheek or other soft tissue. Excessive heat will be generated if the cap is depressed when turbine is running
- Always use the Manufacturer's tools supplied with the handpiece or your warranty could be voided
- Carefully read all the manufacturer's directions for use ( DFU)
- Air pressure should not exceed the PSI listed on the manufacturer's direction for use. Increasing air pressure will not increase handpiece performance, it will only cause damage to the turbine
- If you are finding the water spray is unsatisfactory you will need to make adjustments to your WATER or CHIP AIR settings

## **To Adjust Chip Air**

On your Dental Unit locate CHIP AIR, Increase/Decrease Knob and slowly Decrease CHIP AIR until Water Spray is Satisfactory.

# Cleaning

At Sable we recommend that all handpieces be cleaned by using mild germicidal detergent/cleaner or use any handpiece cleaner available in today's marketplace, prior to sterilization.

This includes

- High speed handpieces
- Slow speed handpieces
- Prophy handpieces
- Straight attachments/nosecones
- Contra angles and heads
- Air motor

Any excess lubricant remaining on the surface of the handpiece should be cleaned with a 2 x 2 gauze sponge.

Never wash or immerse the handpiece in ultrasonic unit cold sterilant or chemical disinfectants containing alcohol base phenols, chlorines or glutaraldehydes. They may damage the internal components and/or corrode some metals.

Use isopropyl alcohol on a cotton swab to clean fiber optic surfaces.

# Lubrication

## Slow Speed

### **Air Motor**

- Remove motor from air hose
- Apply lubricant into drive air tube
- Attach handpiece to air hose
- Run handpiece at normal speed for 10 seconds
- Wipe off excess oil from motor

### **Contra Angle**

- Remove attachment from air motor
- Remove Head from attachment
- Apply lubricant into both ends of attachment and reapply to air motor
- Run air motor and attachment at normal speed for 10 seconds
- Wipe off excess oil from attachment surface

## High Speed

- After the bur stops rotating, press the push-button firmly and remove the bur
- Remove handpiece from coupler. Insert the lubrication nozzle into the rear of the handpiece. Apply an aerosol lubricant for no longer than 2 seconds
- Insert bur until it stops, then press push-button firmly and slide bur into the rest of the chuck
- Run handpiece to normal speed for at least ten seconds or until excess lubricant is expelled from the handpiece
- Lubricate chucking mechanism at least once a week to remove any debris

# Infection Control

The Dental Handpiece touches the mucous membranes and is a semi critical instrument.

Any dental device that is connected to the dental system and enters patients' mouths should be run to discharge water, air, or a combination for a minimum of 20 to 30 seconds after each patient.

When autoclaving or chemiclaving, Please refer to Manufacturer's Directions for Use.

Do not autoclave the handpiece, nosecone or latch head with the bur in place. Remove the bur before sterilizing. Leaving Burr in place could impact sterilization process.

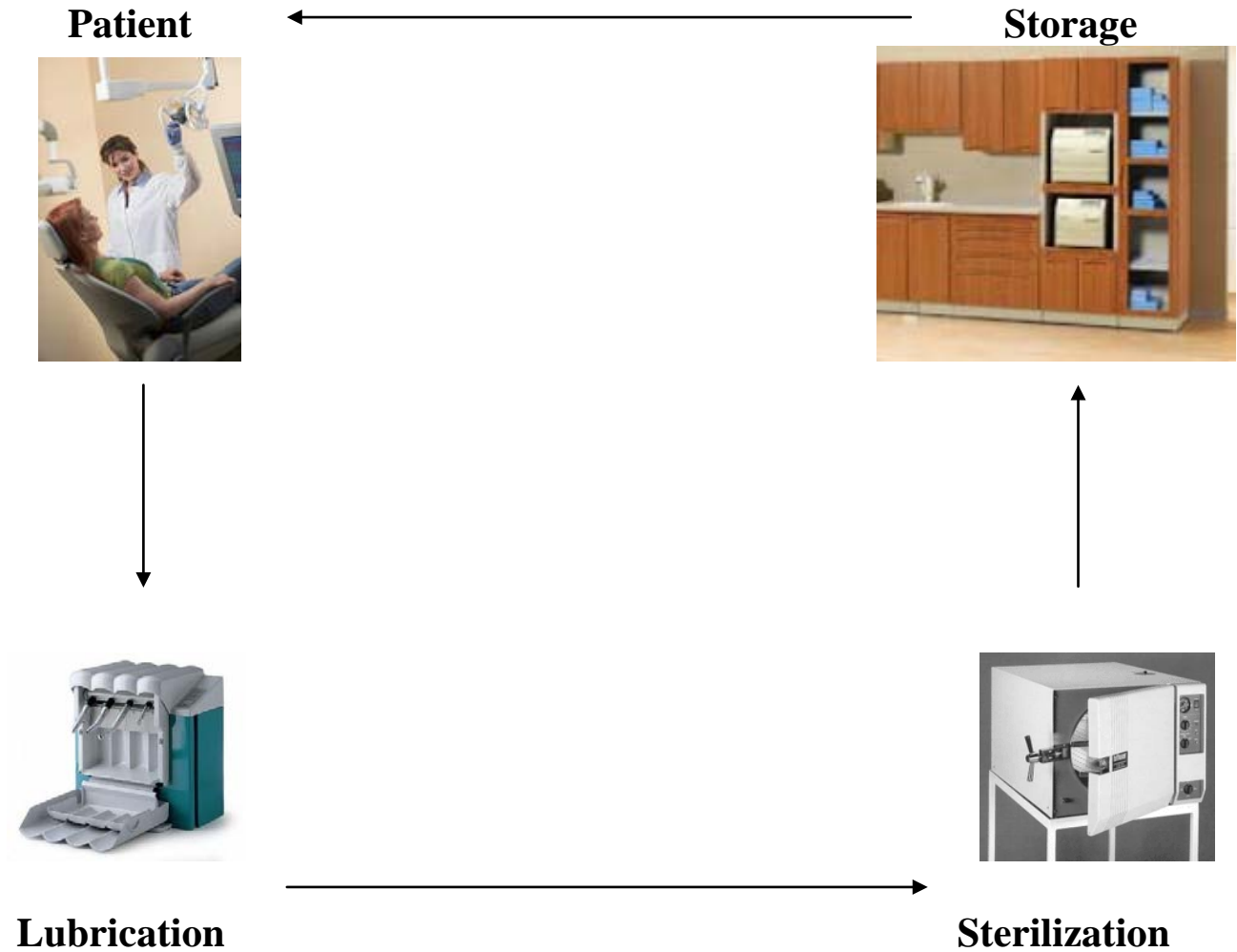
Use Autoclave bags with at least one paper side. This type of bags allows moisture to escape. Never use all plastic bags.

When drying cycle is finished, remove the handpieces from the autoclave. Do not leave overnight in the sterilizer or store in the sterilizer.

After handpieces and/or components are removed from the autoclave or chemiclave, they should remain in their autoclave bag and be allowed to return to ambient room temperature (Naturally) before use.

We recommend you use Pre-Vacuum Steam Sterilizers.

# Production Cycle of A Handpiece



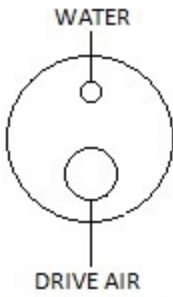
Each handpiece user should have at least 3 handpieces in rotation.

1. In use
2. In Lubrication + Sterilization
3. In Storage
4. Back-Up for repairs.

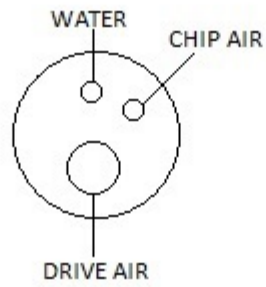


# Coupler Tubing Diagram

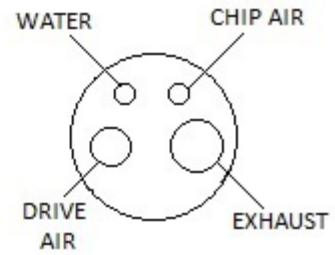
**2-HOLE**



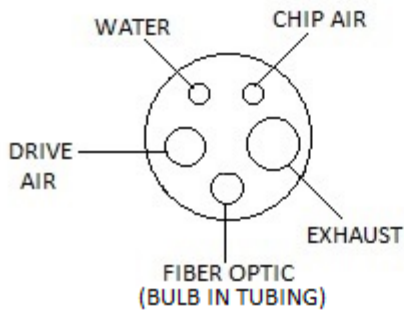
**3-HOLE**



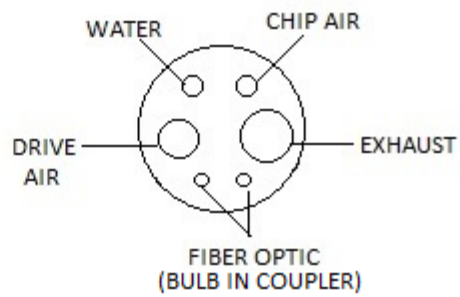
**4-HOLE**



**5-HOLE FIBER OPTIC**



**6-HOLE FIBER OPTIC**



# High Speed Dental Handpieces

## Fiber Optic



FIBER OPTIC PORT(S)  
3 TO 5 WATER PORTS



O-RINGS TO SEPARATE  
DRIVE AIR, CHIP AIR,  
EXHAUST AND WATER

5 OR 6 HOLE  
CONNECTION

## Non-Fiber Optic



NO FIBER OPTIC PORT(S)  
1 TO 3 WATER PORT(S)



O-RINGS TO SEPARATE  
DRIVE AIR, CHIP AIR,  
EXHAUST AND WATER

2 OR 4 HOLE  
CONNECTION

# Slow Speed Dental Handpieces

## Standard- NSK Style



## Premium- KAVO Style



# Slow Speed Handpiece

Slow speed handpieces are made up of two major parts:

## 1. The Air Motor



## 2. The Contra Angle - Head



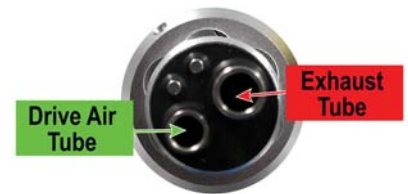
# The Air Motor



The air motor is the powerhouse of your slow speed dental handpiece. They come in multiple speeds (5k, 20k, and 40k) and sizes but the maintenance is the same. Hygiene prophylaxis applications are best at 5,000 rpm, and dentists prefer to work at 20,000 rpm. The compressed air which drives the air motor, enters the smaller of the two large holes on the back end of the handpiece, and exits the larger. The smaller of the two large holes is called the “Drive Air” and the larger is called the “Exhaust”. This is important to note because the “Drive Air” is where the lubricant is added. It is also a good practice to wipe free of debris the threads at the back end of the air motor, the rest of the air motor, as well as the threads on the handpiece tubing. Use 2 x 2 gauze and alcohol.

## Lubrication

The lubricant must be added to the Drive Air Tube (not the Exhaust Tube). Two to three drops will suffice. After adding the lubricant to the Drive Air Tube the air motor is to be connected to an air line and ran for about 10 seconds to push the lubricant into the body of the air motor and purge excess lubricant. It is best to wait until all pieces of the handpiece have been lubricated and then re-assembled and all ran at once. If the lubricant is added to the exhaust tube the lubricant will be blown back out as soon as the handpiece is connected to the air line and never make it to the body of the handpiece.



## Sterilization

Every dental handpiece is to be sterilized after every individual patient contact. It is recommended that the handpiece be sterilized in piece's (separate air motor, contra angle, and head), but they can all be contained within the same sterilization bag.

We recommend you use Pre-Vacuum Steam Sterilizers.

# The Contra Angle, Head & Nosecone



The contra angle transfers the power from the air motor to the head. There are many types and sizes with many different gearing ratios (ex. 1:4 ratio = 1 in : 4 out), but the maintenance is the same. Nosecones are exactly the same without the bend near the top and are maintained the same way. It is a good practice to wipe the threads at the crown free of debris as well as the rest of the contra angle. Use 2 x 2 gauze and alcohol.

## **Lubrication**

The contra angle - head, unlike the air motor, is 100% gear driven. Therefore the lubricant has to be added directly to the areas containing the gearing. The end of the contra angle where the head attaches is called the “Crown”. The reverse end of the contra angle (where the motor attaches) is where you add the lubricant, so add two - three drops of lubricant into the rear end of the contra angle - head. After lubrication the entire handpiece should be reassembled, connected to the airline and ran a minimum of 10 seconds to help spread the lubricant around the gears and purge any excess lubricant.

## **Sterilization**

Every dental handpiece is to be sterilized after every patient contact. It is recommended that the handpiece be sterilized in piece’s (separate air motor, contra angle, and head), but they can all be contained within the same sterilization bag. Please refer to Manufacturer's Directions for Use.

We recommend you use Pre-Vacuum Steam Sterilizers.

# High Speed Handpiece

High speed handpieces are made up of three major parts:

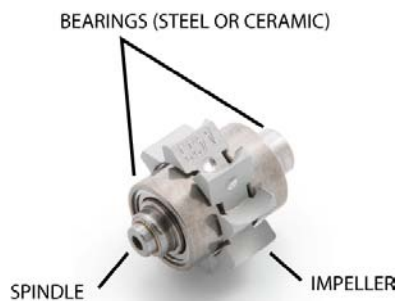
## The Handle



## The Coupler



## The Turbine



# The Handle



The handle is also commonly known as the shell. It contains the turbine within its head and the coupler connects at the rear. It may or may not have fiber optics as well as multiple water port configurations. All variations of the handle are maintained in the same manner. It is a good practice to wipe the handle free of debris. Use gauze and alcohol.

# The Coupler



The Coupler is the connection between the airline and the handle. It contains a quick release mechanism, which allows you to switch between handles of the same brand quickly. It is a good practice to wipe the threads free of debris. Use gauze and alcohol.



# The Turbine



The turbine is heart of the handpiece. It is composed of two bearings, a spindle, an impeller, o-rings, and possible some clips, air dams or pressure plates. When compressed air moves through the Drive Air line it flows through the coupler, through the handle, and reaches the fins of the impeller on the turbine. This pressure on the impeller of the turbine is what causes the turbine to spin. The turbine is also responsible for holding the bur in place, and rotates up to speeds exceeding 400,000 rotations per minute (RPM).

## Lubrication of the High Speed Handpiece

Unlike the slow speed handpiece, the high speed handpiece has to be fully assembled with coupler for lubrication. Other than being assembled the lubrication process works the same way. The smaller of the two large holes at the back end of the coupler is called the “Drive Air” and the larger is called the “Exhaust”. This is important to note because this is where the lubricant is added. The lubricant must be added to the Drive Air Tube (not the Exhaust Tube). Two to three drops will suffice, or 2 seconds of oil spray. After adding the lubricant to the Drive Air Tube the entire high speed handpiece is to be connected to an air line and ran for about 10 seconds to push the lubricant into the head and purge excess lubricant. If the lubricant is added to the exhaust tube the lubricant will be blown back out as soon as the handpiece is connected to the air line and never make it to the head of the handpiece.

### **Sterilization**

Every dental handpiece is to be sterilized after every patient contact. It is not necessary to sterilize the coupler due to it will never come in contact with the patient. Please refer to Manufacturer's Directions for Use.

We recommend you use Pre-Vacuum Steam Sterilizers.

# Handpiece & Parts Dictionary

- **Air Motor** - The main component drive of a slow speed handpiece.
- **Auto Chuck/Push Button/Lever**- A mechanism used to change a bur by pressing a button or by raising a lever.
- **Autoclave** - A steam sterilizer which kills living organisms. Run a full Cycle which includes dry time.
- **Bearing** - A high precision part used to support rotating parts in high speed and slow speed handpieces.
- **Bur/Diamond** - A rotary dental instrument, held and revolved in a handpiece. Used to remove carious material within decayed teeth, to reduce decayed or fractured hard tissues, to form the design cavity preparation and to finish and polish teeth and restorations. Can be made of high speed steel, carbide or diamond coated material.
- **Canister** - A closed cylinder which houses a rotating high speed turbine cartridge, and allows for easier office replacement.
- **Chip Air** - Air supplied to the cutting surface to cool the tooth, aerate water spray, flush chips and residual material resulting from the removal of a decayed tooth surface.
- **Chuck** - The part used to hold the bur for cutting or polishing.

- **Connector/Coupler** - There are four types of N.A. standard handpiece connectors. They include the 2-hole( also called a Borden Connector); 3- hole and 4-Hole. The 4-hole(also called a Midwest Connector) is the most popular connector. In a 4-hole connector, the holes are (1) drive air, (2) chip air (3)water and (4) exhaust. Sometimes a 5-Hole connector is referenced. The fifth hole represents the fiber optic bundle, and light bulb is housed in the tubing. 6-Hole represents the positive/negative terminals for fiber optic bundle and light bulb is housed in the coupler. Hole locations are determined by ISO specification.
- **Contra Angle** – An attachment used with a straight or a slow speed motor which changes the desired angle to better reach areas in the oral cavity which are difficult to access.
- **Drive Air** -The air supply used to power an air-driven dental instrument.
- **“E” Type Motor**- Motor which has a standardized male connector to accept nosecones or contra angles with matching the female connector.
- **Exhaust** – The air discharged from a dental handpiece.
- **Fiber Optic Handpiece** – A handpiece which incorporates fiber optic bundle or rod and light source at the head of the handpiece to facilitate illumination of the oral cavity.