

StarDental® Instruments


# 430 SWL® RA High-Speed Handpiece

## Instruction Manual

Includes Lubricated and LubeFree

**Caution:** Federal law restricts this device to sale by or on the order of a dentist.

**Non-Sterile Medical Device**



StarDental®  
1816 Colonial Village Lane  
Lancaster, PA 17601 U.S.A.  
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©2019 DentalEZ, Inc.

Emergo Europe  
Prinsessegracht 20  
2514 AP The Hague  
The Netherlands

866.DTE.INFO (383.4636)  
www.DentalEZ.com

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### DO NOT USE FOR ORAL SURGERY

**BEFORE OPERATING THE HANDPIECE, CAREFULLY READ AND FOLLOW ALL OF THESE INSTRUCTIONS. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE AND OBSERVE ALL WARNINGS AND CAUTIONS.**

### Indications For Use

The **430 SWL® RA** High Speed Dental Handpieces are pneumatically driven, hand-held devices intended for use by trained dental professionals for drilling in the oral cavity. Procedures include, but are not limited to, caries removal, restorative work and crown preparations.

**NOTICE** Any serious incident occurring from the use of this device should be reported to StarDental immediately. If incident occurred in a EU Member State the competent authority must be notified.

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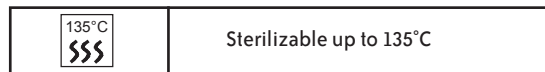
### Specifications

**430 SWL RA** High-Speed Handpiece is designed to fit a 6-pin W&H/ADEC RA-24 swivel. The **430 SWL RA** connects to both StarDental and standard 4/6-Line ISO fiber optic (F.O.) tubing.

**430 SWL RA** Type: High speed fiber optic with an RA Swivel and replaceable autochuck turbine. (Swivel sold separately.)

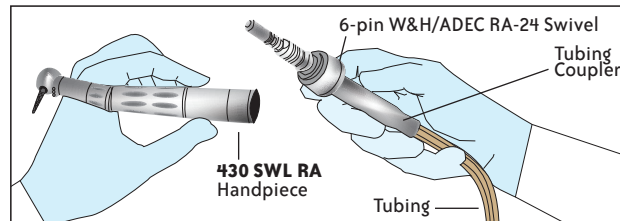
Operating Air Pressure: 44 to 46 psi  
 Air Consumption: 1.6 SCFM @ 45 psi  
 No Load Speed: 410,000 rpm  
 Connection: 360° 6-pin W&H/ADEC RA-24 Swivel with ISO Type C (6 pin Tubing) configuration and fiber optics.

Power: 16 watts  
 Weight: 51g



### Handpiece Installation

**Note:** Filter air and water supplies, recommended filtration: 25 microns. Soften and deionize water. Be sure filters operate efficiently.



Snap **430 SWL RA** handpiece onto 6-pin W&H/ADEC RA-24 Swivel.

### Air and Water Adjustment

1. Air Pressure –

**NOTICE** To prevent premature damage to the turbine, do not exceed recommended pressure (see Specifications) when using a W&H/ADEC RA-24 Swivel.

Using an air pressure gauge, **StarDental®** Part #262591 for 4/6-Line, set pressure to 44-46 psi.

If a gauge is not available, set pressure at delivery head allowing 1 psi pressure loss for every foot of tubing. (See Specifications for recommended operational pressure.)

For example, if you want to operate at 40 psi and you are using either 5 feet or 12 feet of tubing, then the pressure should be set at the delivery head to compensate for the air pressure losses.

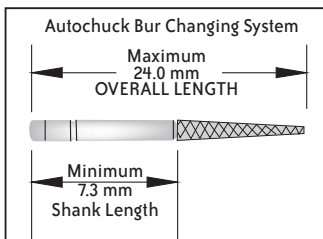
5 feet tubing	40 psi + 5 psi = 45 psi
12 feet tubing	40 psi + 12 psi = 52 psi

2. Water Pressure –

Adjust water volume and coolant air pressure at the delivery head to obtain a satisfactory spray mist.

### Handpiece Operation

Use standard length concentric diamond and carbide burs with .0628" nominal diameter friction grip shanks designed for high speed handpieces. Every **StarDental** Diamond Bur meets the specifications at right for recommended lengths. Contact your dealer for a complete list of **StarDental** Diamond Burs. **StarDental** autochuck turbines have the following bur requirements:

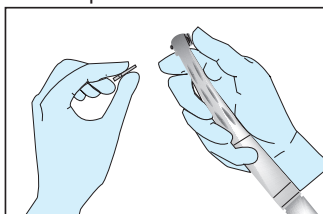


Use only burs with hardened, tempered steel shanks or carbide shanks. Every **StarDental** Diamond Bur maintains required hardness. Before use, verify concentric rotation by operating handpiece outside the oral cavity in a safe place.

**Note:** Do not use burs that produce excessive noise or do not run concentrically. Do not use burs that are modified, eccentrically designed, or are bent or 'soft' (non-heat treated) shanks.

### Autochuck Bur Changing System

1. Insert bur into autochuck until resistance is felt.
2. Depress autochuck end cap button and continue to feed-in bur until it clicks and stops.
3. Release end cap button. Now, apply light inward force to the dental bur. This will help set the chucking mechanism for initial start up. (Always tug on bur after it has been installed to confirm that it is secured).



1. **To remove**, grasp handpiece firmly so your thumb touches the end cap and push until a slight 'click' is noticed.
2. Pull bur straight out.
3. Release end cap.

**CAUTION** Never depress the autochuck end cap button or rest the end cap against any part of the oral anatomy during handpiece operation. Depressing the end cap while a bur is rotating can activate the chuck mechanism and result in end cap heat-up and/or loss of bur retention.

### SAFETY INSTRUCTIONS

**WARNING**

To minimize risk of serious injury:

- Always insert bur the full length of the chuck. If you attempt to extend it from the chuck, the bur may dislodge during use and possibly injure you or your patient.
- Use only recommended burs to prevent damage to the autochuck and in some cases to prevent burs from improper or incorrect placement. An improperly clamped bur may dislodge during use, causing injury to you or your patient. A sudden high-pitched sound or increased vibration while handpiece is operating alerts the operator to the possibility that the chuck is not clamped properly to retain the bur or a bent bur is inserted.

**CAUTION**

To minimize risk of injury or damage to the handpiece or auto chuck:

- Replace turbine when handpiece does not run at full speed or runs noisily.
- Follow these safety instructions:
  - Confirm bur is secure by tugging on it after it is loaded
  - Verify concentric rotation by operating handpiece outside oral cavity. Do not use if it does not run concentrically or runs with excessive noise.
  - Do not operate handpiece without an installed bur.
  - Always use burs with overall length of less than 24mm. Shank length must be at least 7.3mm.
  - When using autochuck, never depress end cap while bur is rotating.

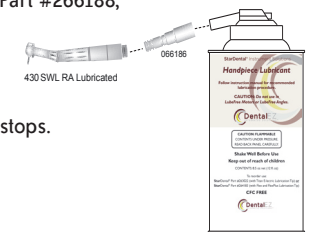
### Lubrication - For Lubricated Handpieces ONLY

For maximum turbine life do not exceed recommended pressure.

**Note:** Lubricate handpiece daily with **Handpiece Lubricant, StarDental Part #266188**, and **prior** to each sterilization procedure.

1. Disconnect handpiece.
2. Shake lubricant can well before using.
3. Thread **430 SWL RA Lubricated** Lubricant Tip onto can nozzle.
4. Press handpiece onto **430 SWL RA Lubricated** Lubricant Tip until handpiece stops.
5. Place rag around handpiece.
6. Holding firmly, press spray button on can for one second.
7. Remove handpiece from **430 SWL RA Lubricated** Lubricant Tip.
 

**Note:** Never operate handpiece without bur in place.
8. With bur in place connect handpiece to tubing, operate for 20 seconds to expel excess lubricant.
9. Wipe off excess lubricant from handpiece.

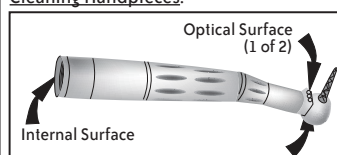
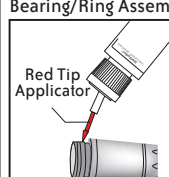


**NOTICE** LubeFree Handpieces Contain A LubeFree Ceramic Bearing Turbine - This turbine uses a sophisticated ceramic bearing design and, therefore, requires no lubrication. To ensure the life of, and to prevent damage to, this turbine - do not lubricate it. If it gets lubricated even once, it MUST then continue to be lubricated for the rest of its life.

### Cleaning & Sterilization

<b>CAUTION</b>	It is the responsibility of the user to use only FDA compliant sterilizing equipment and accessories that are capable of meeting the manufacturers recommendations below.
<b>CAUTION</b>	Do not exceed 135°C To prevent damage to the bur, use an autoclavable bur block. <b>Do not use:</b> <ul style="list-style-type: none"> <li>• dry heat sterilizer</li> <li>• chemical disinfectors</li> <li>• surface wipes</li> <li>• sterilizer bags containing disinfectants</li> <li>• cold sterilizers</li> <li>• immersion techniques</li> <li>• hand soaps</li> <li>• surface sprays</li> <li>• ultrasonic cleaners</li> <li>• surgical milk</li> <li>• detergents</li> </ul>
<b>Limits On Reprocessing</b>	Repeated processing has minimal effect on this handpiece. End of life is normally determined by wear and damage due to use.

### INSTRUCTIONS

<b>WARNING</b>	Clean and sterilize handpieces and burs as soon as practical before first use and after each patient.
<b>Containment and transportation:</b>	It is recommended that handpieces are reprocessed as soon as is reasonably practical following use.
<b>Preparation for cleaning:</b>	Remove handpiece from swivel. No further disassembly is required.
<b>Cleaning - Automated:</b>	Washer-disinfectors are not recommended.
<b>Cleaning - Manual:</b>	<p><b>Cleaning Handpieces:</b></p>  <p>Remove debris from external surfaces using a small brush and isopropyl alcohol. Clean internal surfaces of the handpiece at the swivel connection location using a small brush and isopropyl alcohol. Optical surfaces can be cleaned with a cotton swab soaked in isopropyl alcohol. Dry thoroughly. Repeat after each patient.</p> <p><b>Cleaning Diamond Burs:</b></p> <ul style="list-style-type: none"> <li>• After each use, clean the diamond bur by running it against a wet diamond cleaning stone.</li> <li>• To mechanically clean, the diamond bur should be held in a solution of either enzymatic presoak, <b>Sparkl®</b> Dental Instrument Cleaner <b>StarDental</b> Part# 205472, or water.</li> <li>• Rinse the bur thoroughly and allow it to dry, then Sterilize – See Sterilization.</li> </ul>
<b>Lubrication:</b>	<p>Turbine Lubrication - For Lubricated Handpieces <b>ONLY</b>- See 'Lubrication' instruction section</p> <p>Bearing/Ring Assembly Weekly Lubrication:</p>  <p>Lubricate bearing/ring assembly with <b>DentaLube II</b>, <b>StarDental</b> Part# 262539. Place three (3) drops as shown. Use a small brush to distribute the lubricant.</p>
<b>Disinfection:</b>	Use steam sterilization exclusively for complete sterility as outlined below.
<b>Maintenance:</b>	<p>Use <b>Junk-Out High Speed Chuck Cleaner Kit (263790)</b> <b>once a week</b> prior to sterilization to ensure optimum working condition of the chuck. Instructions for cleaning the chuck are included in the Junk-Out kit.</p> <p>See Turbine Replacement section of this manual for additional information.</p> <p>Handpiece should be routinely maintained, checked for corrosion, worn parts, etc. and should be replaced on an as needed basis.</p>
<b>Inspection &amp; function testing:</b>	See Handpiece Operation or Troubleshooting sections of this manual.
<b>Packaging:</b>	<p>Single: A standard sterilization packaging material must be used. Ensure that the pack is large enough to contain the handpiece without stressing the seals.</p> <p>In sets: Handpieces may be loaded into dedicated instrument trays or general purpose sterilization trays. Ensure that cutting edges are protected and do not exceed the tray manufacturer's limit per tray. Wrap the trays using appropriate packaging materials and methods.</p>

## Cleaning & Sterilization, continued

<b>Wrapped Instrument Sterilization:</b>	Gravity Type Autoclave: • Minimum of 15 minutes at 132°C. • Minimum of 30 minutes at 121°C  Pre-Vacuum Autoclave: • Minimum of 4 minutes at 132°C  Do not exceed 135°C
<b>Drying:</b>	Dry the handpiece for 30 minutes minimum using the sterilization dry cycle and allow the handpiece to cool to room temperature in bag prior to use. If moisture is present, increase your sterilizer dry cycle appropriately.
<b>Storage:</b>	Store in bag after sterilization until ready to use.
<b>Additional information:</b>	Do not exceed the sterilizer manufacturer's guidelines for load capacity.
<b>Manufacturer contact:</b>	See front or back panels of this manual.

## Troubleshooting

### Problem: NO LIGHT OR INTERMITTENT LIGHT

- Cause:** Electrical connections  
**Correction:** Verify connections: wall outlet-power pack, power pack-lamp control, and lamp control-tubing connector
- Cause:** Crimped signal air line to lamp control  
**Correction:** Straighten signal air line to allow air flow
- Cause:** Corrosion on swivel contact pins  
**Correction:** Clean contact pins on swivel with isopropyl alcohol
- Cause:** Lamp burned out  
**Correction:** Replace lamp in swivel - refer to the swivel's instruction manual.

### Problem: YELLOWISH LIGHT

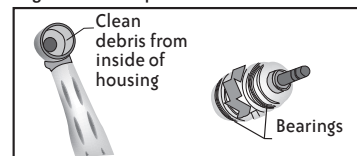
- Cause:** Debris on optical surfaces  
**Correction:** Clean all exposed optical surfaces. (Refer to Cleaning.)

### Problem: REDUCED LIGHT

- Cause:** Low voltage  
**Correction:** Refer to vendor's instruction manual of electrical system
- Cause:** Lamp  
**Correction:** Replace lamp in swivel - refer to the swivel's instruction manual.

### Problem: LACK OF POWER

- Cause:** Air pressure too low  
**Correction:** Verify proper handpiece air pressure. Refer to Handpiece Installation.
- Cause:** Crimped tubing  
**Correction:** Straighten tubing inside and outside delivery head.
- Cause:** Debris buildup  
**Correction:** Clean inside of housing and end cap with swab and alcohol.



- Cause:** Worn out turbine  
**Correction:** Refer to Turbine Replacement.
- Cause:** Swivel not threaded fully onto tubing  
**Correction:** Refer to Handpiece Installation.

### Problem: WATER LEAKAGE

- Cause:** Swivel O-rings worn  
**Correction:** Replace o-rings on RA Swivel with **StarDental**® part #266187
- Cause:** Swivel faulty rear seal  
**Correction:** Replace rear seal on swivel with **StarDental** part #263770

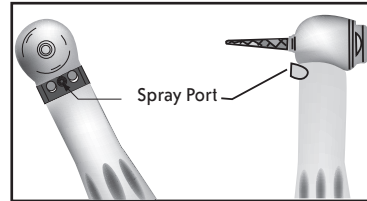
### Problem: SWIVEL WILL NOT DISENGAGE FROM HANDPIECE

- Cause:** Buildup of debris  
**Correction:** Place 2 drops of **DentaLube II** into swivel/tubing connector area. Rotate swivel to circulate lube. Disengage handpiece. Contact dealer if unable to disengage swivel. To prevent recurrence, refer to Cleaning.

## Troubleshooting, continued

### Problem: IMPROPER SPRAY

- Cause:** Clogged filters, tubes or water ports  
**Correction:** Inspect and clean water filter in delivery head. Disconnect handpiece. Depress foot control; verify water exits the swivel. (If water does not come from swivel, refer to swivel's instruction manual)
- Cause:** Swivel O-rings worn  
**Correction:** Replace o-rings
- Cause:** Brittle swivel rear seal  
**Correction:** Replace rear seal
- Cause:** Coolant air line not working  
**Correction:** Setup delivery unit to supply coolant air to handpiece
- Cause:** Clogged spray ports  
**Correction:** Use clean-out wire to unclog ports



### Problem: BUR LOCKS OR SLIPS IN AUTOCHUCK

- Cause:** Debris build-up in chucking mechanism  
**Correction:** Clean with Junk-Out Chuck Cleaner Part Number 263790
- Cause:** Use of non-ISO burs  
**Correction:** Always use ISO burs

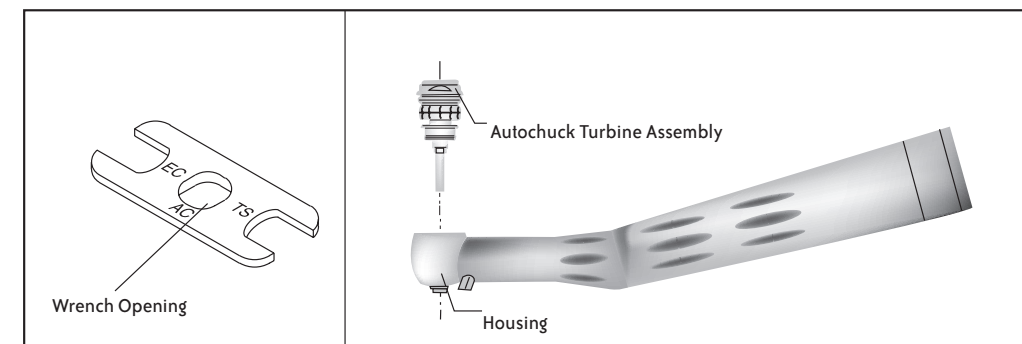
**Note:** Always use ISO burs to prevent locking and slipping of burs in autochuck. If problems of locking and slipping continue, replace worn autochuck turbine immediately with the appropriate **StarDental** Autochuck Turbine Replacement Kit for the handpiece type (LubeFree or Lubricated) - See Replacement Part Numbers.

If any problem persists, contact dealer for further assistance; or, contact **StarDental** Technical Service at 1-866-DTE-INFO.

## Turbine Replacement

**Note:** Replace the turbine when the handpiece fails to achieve full speed and/or increases sharply in noise level. The replacement cartridge is available from your dealer and is easily replaced in the office. When ordering a replacement, be sure to order the appropriate **StarDental** Autochuck Turbine Replacement Kit for the handpiece type (LubeFree or Lubricated) - See Replacement Part Numbers.

1. Remove old end cap and turbine assembly.
2. Inspect housing before cleaning. Remove any obvious debris to prevent damage and to insure performance of turbine.
3. Connect handpiece and run air through turbine housing without turbine installed for 5 seconds.
4. Clean housing thoroughly with cotton swab and isopropyl alcohol. Dry with syringe air.
5. Place turbine assembly into housing and gently insert as shown.



6. Position and engage threads of end cap into the housing by hand until snug.
7. Tighten end cap with the combination end cap wrench employing the wrench opening marked AC as shown above. Position wrench with marked side facing end cap for best wrench control.

## Replacement Part Numbers

Always insist on **StarDental** Parts for best performance.

**Note:** Swivel assemblies sold separately.

Description	Item Number
<b>430</b> ® SWL RA Fiber Optic Handpiece with Lubricated Autochuck Turbine.....	266183
Autochuck Turbine Replacement Kit for Lubricated High-Speed Handpieces .....	263968
<b>430</b> ® SWL RA Fiber Optic Handpiece with LubeFree Autochuck Turbine.....	266182
Autochuck Turbine Replacement Kit for LubeFree High-Speed Handpieces .....	263739
Autochuck Turbine End Cap .....	261294
End Cap Wrench .....	203048
Air Pressure Gauge (ISO 4/6-Line) .....	262591
Cleaning Wire (Gauge: 0.008, Package of 2).....	256719
Junk-Out High-Speed Chuck Cleaner.....	263790
Handpiece Lubricant.....	266188
6-Pin Swivel Rear Seal.....	263770
SPARKL® Dental Instrument Cleaner.....	205472
DentaLube II.....	262539



### Important Notice About Returning Product To DentalEZ Inc.

Anyone wishing to return any DentalEZ Inc. product to a DentalEZ facility MUST obtain the proper RETURN AUTHORIZATION NUMBER from the Customer Service Department. The RA Number must appear clearly marked on both the outside and inside of the returned product carton. When calling for a return authorization number you will be asked to provide the following information:

To Obtain A  
Return Authorization  
Number Call  
1-866-DTE-INFO

- Product Name, Model Number or Part Number
- Serial Number of Product
- Dealer Return Purchase Order Number
- Reason For Return
- Copy of Invoice Showing Purchase

Items will be evaluated. Return Authorization Number is not a guarantee for credit. Your cooperation with this procedure will help us expedite processing of any returns.

**For new products, manuals and technical information, call 1-866-DTE-INFO or visit our web site @ [www.dentalez.com](http://www.dentalez.com)**

### Limited Warranty

O-Rings and Seals are specifically excluded from this warranty.

DentalEZ® warrants the **430 SWL**® RA Handpieces for 1 year from the date of purchase\* with the exception of the fiber optic glass which carries a warranty for 5 years from date of handpiece purchase\*.

Please note the following additional terms of our warranty policy:

- Warranties cover manufacturing defects only and do not cover defects resulting from abuse, improper handling, cleaning, care or maintenance, normal wear and tear or non-observance of operating, maintenance or installation instructions. **Failure to use authorized parts or an authorized repair facility voids this warranty.**
- **Liability is limited to repair or replacement of the defective product at our sole discretion. All other liabilities, in particular liability for damages, including, without limitation, consequential or incidental damages are excluded.**
- THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, REPRESENTATIVE OR DEALER IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR TO GRANT ANY OTHER WARRANTY.

\*Provided conditions in warranty are met.

