



StarFlex® SWL StarBright®, StarFlex® SW and StarFlex® K High Speed Handpieces

★ ★ ★ DO NOT USE FOR ORAL SURGERY ★ ★ ★

Instruction Manual

EFFICIENCY IN DENTISTRY™

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Specifications

StarFlex SWL and **StarFlex SW** High Speed Handpieces are designed to fit a 360° quick disconnect swivel. **StarFlex K 2/3** and **4-Line** are conventional non-swivel high speed handpieces. The **StarFlex SWL** connects to both **StarDental**® and standard 4-Line ISO fiber optic (F.O.) tubing. The **StarFlex SW** and **StarFlex K** connect to both **StarDental** and standard 4-Line ISO tubing. The **StarFlex K 2/3-Line** connects to both **StarDental** and standard 2/3-Line ISO tubing.

Note: For sterilization instructions refer to the *Sterilization Sheet, StarDental Part #062712, and use it as a quick reference.*

StarFlex SWL

Type: High speed fiber optic with a swivel and replaceable autochuck turbine (Swivel sold separately.)
 Operating Air Pressure: 34 to 42 psi
 Air Consumption: 1.9 SCFM @ 34 psi
 No Load Speed: 430,000 rpm
 Connection: 360° quick-disconnect ISO Fiber Optic configuration swivels: either 6-pin or 4-line ISO
 Power: 12 watts
 Weight: 67g

StarFlex SW

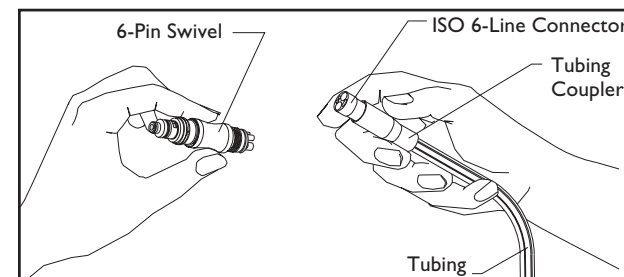
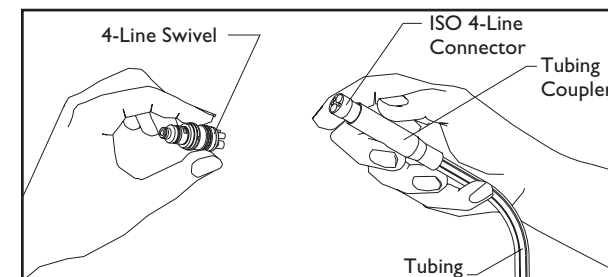
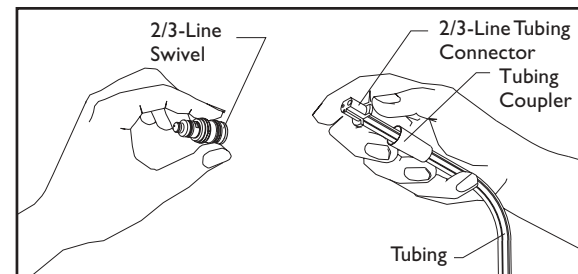
Type: High speed with a swivel and replaceable autochuck turbine (Swivel sold separately.)
 Operating Air Pressure: 30 to 32 psi
 Air Consumption: 1.9 SCFM @ 30 psi
 No Load Speed: 430,000 rpm
 Connection: 360° quick-disconnect ISO Fiber Optic configuration swivels: either 2/3-line non-fiber optic, 6-pin or 4-line ISO
 Power: 12 watts
 Weight: 63g

StarFlex K, 2/3-line and 4-line

Type: High speed with a replaceable autochuck turbine
 Operating Air Pressure: 30 to 32 psi
 Air Consumption: 1.9 SCFM @ 30 psi
 No Load Speed: 430,000 rpm
 Connection: 2/3-line or 4-line fixed ISO configuration
 Power: 12 watts
 Weight: 46g

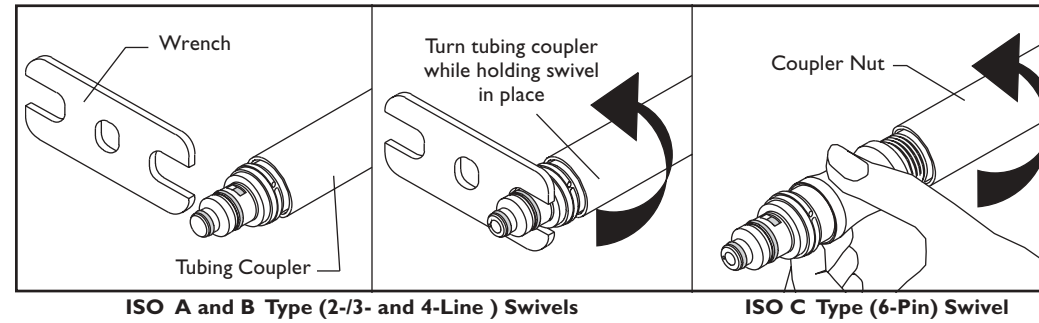
Handpiece Installation

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



StarFlex SWL and StarFlex SW

1. Grasp the swivel in front of the bearing assembly between the thumb and index finger as shown.
2. Slide tubing coupler until the end of the tubing connector is exposed; hold in hand as shown with fingers securing the tubing.
3. Align and insert swivel tubes into the tubing connector holes.
4. While applying slight pressure to hold fittings in the connector holes, slide coupler forward and engage threads. Continue threading coupler clockwise until hand tight against the swivel.
5. Using the wrench as shown, tighten the swivel to the tubing coupler until snug. Be sure to turn the tubing coupler, not the swivel. DO NOT OVERTIGHTEN.

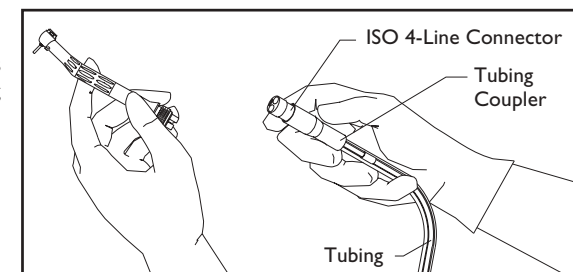


Note: The joint for the Tubing-to-Swivel Connector loosens over time, resulting in a loss of power. Check for tightness periodically.

6. Connect handpiece to swivel until it clicks.

StarFlex K 4-Line and 2/3-Line

1. Slide tubing coupler until the end of the ISO connector is exposed; hold in hand as shown with smaller fingers securing the tubing.
2. Align handpiece tubes into the ISO connector holes.
3. While applying slight pressure to hold handpiece tubes in the connector holes, slide coupler forward and engage threads. Continue threading coupler clockwise until hand tight against the handpiece.



Handpiece Operation

Air and Water Adjustment

1. Air Pressure -
 Use an air pressure gauge, **StarDental Part #262591** for 4/6-Line or **StarDental Part #257492** for 2/3-Line, set pressure at the junction between the tube and the swivel connector to:
 34-42 psi - for the **StarFlex SWL** and **SW** when used with 360° quick-disconnect **StarBright** or **COLORight** or ISO 4-Line fiber optic configuration swivel connectors
 30-32 psi - for the **StarFlex SW** when used with 4-Line and 2/3-Line ISO swivel connectors
 30-32 psi - for the **StarFlex K 2/3** and 4-Line tubing

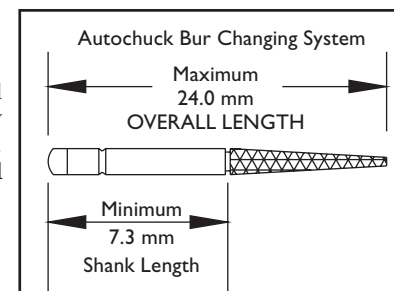
If more torque is desired for the **StarFlex SWL**, increase air pressure to a **maximum of 42 psi** measured at the end of tubing. If premature turbine failure occurs, it will be necessary to reduce the air pressure. If a gauge is not available, set pressure at delivery head allowing 1 psi pressure loss for every foot of tubing. (See *Specifications* for recommended operational pressure.)

For example, if you are using the **StarFlex K** that you want to operate at 32 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	32 psi + 5 psi = 37 psi
12 feet tubing	32 psi + 12 psi = 44 psi

2. Water Pressure -
 Adjust water volume at the delivery head to obtain a satisfactory spray mist.
3. Non-Star 6-pin Fiber Optic System:
 If the handpiece is connected to a non-**StarDental** 6-pin fiber optic (F.O.) system, consult your operator's manual of F.O. system for correct voltage. Non-**StarDental** F.O. systems must have a rated amperage output between 1.5 Amps dc and greater than .73 Amps dc at 3.1 Vdc. Use **StarDental Part # 262962** bulb for non-**StarDental** F.O. systems that meet these requirements. Adjust the voltage per instructions with the 3.1 Vdc bulb.
 If the non-**StarDental** 6-pin F.O. system has a rated amperage output of at least 1.5 Amps dc at 3.3 Vdc, then the **StarDental Part #262522** bulb may be used. Adjust the voltage per instructions with the 3.3 Vdc bulb.

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 specifications below 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. 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 have bent or 'soft' (non-heat treated) shanks.

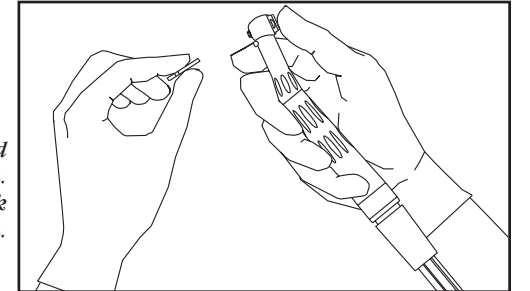
Autochuck Bur Changing System

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. (Always tug on bur after it has been installed to confirm that it is secured).

Note: As a recommended safety measure after installation, push button one time while holding bur then release button to properly align gripping mechanism.

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 beat-up and/or loss of bur retention.



Safety Rules

PLEASE OBSERVE SAFETY RULES

1. Always tug on bur after chuck is loaded to confirm that the bur is secured.
2. Before use, verify concentric rotation by operating the handpiece outside the oral cavity in a safe place. Do not use burs that do not run concentrically or produce excessive noise.
3. Never operate handpiece without a bur installed.
4. Always use burs with an overall length of less than 24 mm. The shank length must be at least 7.3 mm. This includes most short shank burs.
5. When using the autochuck, never depress end cap while bur is rotating.
6. Use only recommended burs to prevent damage to 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 sufficiently to retain the bur or a bent bur is inserted.

WARNING: 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 cause injury to you or your patient.

Cleaning & Lubricating

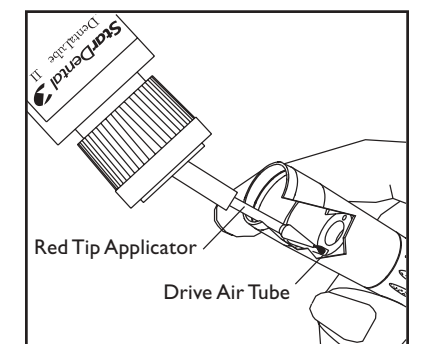
LUBRICATING the Steel Bearing Autochuck Turbine

For maximum turbine life do not exceed recommended pressure.

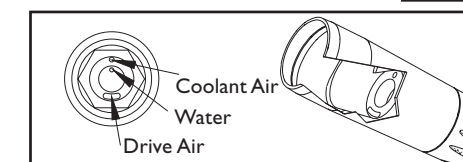
Note: Lubricate handpiece with **DentalLube II, StarDental Part #262539**, prior to each sterilization procedure.

1. Disconnect handpiece.
2. Assemble the conical red tip applicator, **StarDental Part #202954**, into the DentalLube II bottle cap.
3. Find drive air tube at rear of handpiece and place three drops of DentalLube II. (See illustrations for more detail).

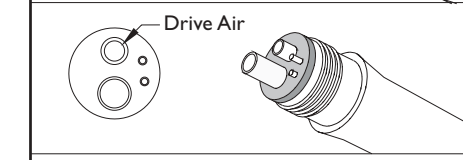
Note: Never operate handpiece without bur in place.



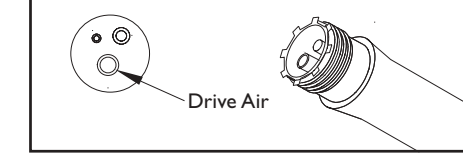
StarFlex SWL & StarFlex SW



StarFlex K 4-Line



StarFlex K 2/3-Line



4. With bur in place connect handpiece to tubing, operate for 20 seconds to expel excess lubricant.

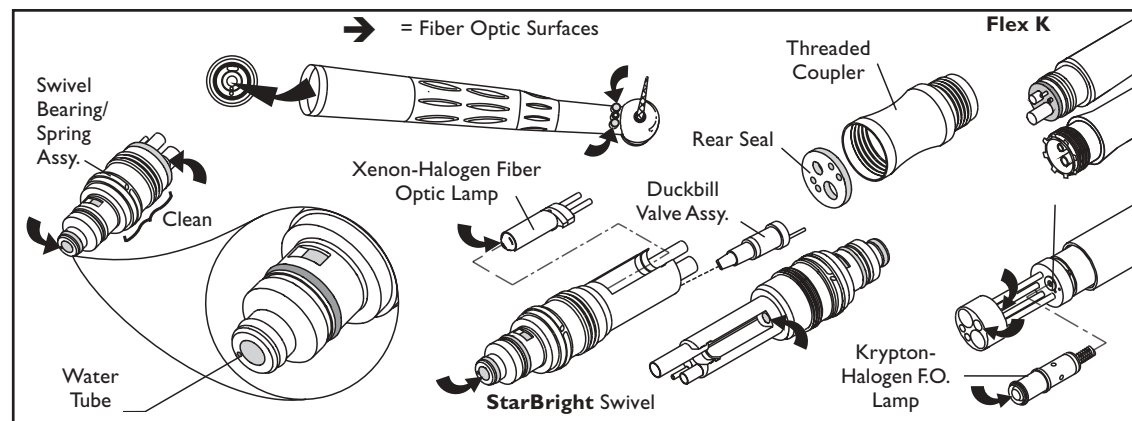
CLEANING Optical Surfaces

Every exposed optical surface of the **StarFlex SWL** Fiber Optic Handpiece system accumulates debris which ultimately decreases light output. To maintain maximum intensity, clean each surface with an alcohol soaked cotton swab. Use firm rubbing motion to remove debris and mineral deposits. See the illustration on the next page denoting each of the seven surfaces to clean.

CAUTION: Prior to cleaning, let lamp cool a few minutes, then remove. After cleaning, let lamp dry completely before reinstalling.

CLEANING the Steel Bearing Autochuck Turbine

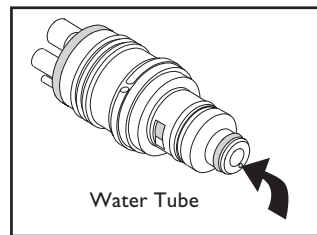
Clean autochuck daily. Remove bur from chuck and aerate mechanism with syringe air to dislodge any debris. Place one drop of DentalLube II, **StarDental Part #262539**, in the chucking mechanism. Aerate mechanism again with syringe air.



Note: Do not attempt to disassemble handpiece or swivel.

CLEANING the Swivel

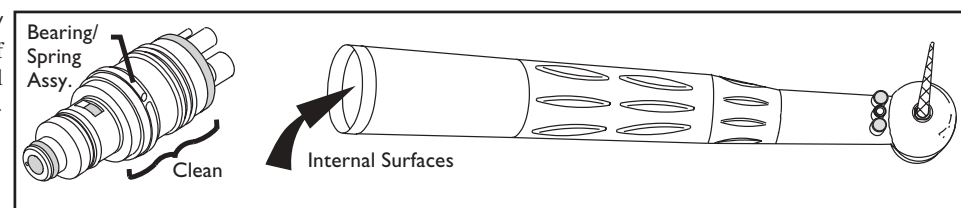
1. Disconnect handpiece from swivel; disconnect swivel from tubing by rotating coupler in the opposite direction as shown in *Handpiece Installation*. Depress foot control; verify water exits tubing.
2. Connect swivel to tubing by following steps in *Handpiece Installation*. Depress foot control; if almost no water exits front of swivel, clean as follows.
3. Remove swivel and find water tube on front face of swivel. See illustration.
4. Insert cleaning wire, **StarDental**® Part #256719, into water tube. For 6-pin H/P **StarBright**® Fiber Optic, remove duckbill valve assembly from swivel to avoid damage. Move wire back and forth to loosen debris at blockage.
5. Remove wire and apply a blast of air into water tube with syringe air.



CLEANING the Mating Parts of the Swivel

To optimize operation of the swivel disconnect mechanism, swab all internal surfaces of handpiece with a cotton swab soaked in isopropyl alcohol until clean. Dry using syringe air.

Clean area from bearing/spring assembly at rear of swivel using isopropyl alcohol and a toothbrush. Dry using syringe air.



Sterilization

The handpiece must be cleaned and sterilized between patient use.

A **wrapped** handpiece should be steam sterilized at 132° C for a minimum of 10 minutes or at 121° C for a minimum of 50 minutes. Do not exceed 135° C.

An **unwrapped** handpiece should be steam sterilized at 132° C for a minimum of 8 minutes or at 121° C for a minimum of 30 minutes. Do not exceed 135° C.

Note: An *unwrapped handpiece needs to be used immediately or sterility is not maintained.*

Do not exceed the sterilizer manufacturer's guidelines for load capacity.

CAUTION: Use steam sterilization exclusively for complete sterility. Never dry heat sterilize, ultrasonically clean, or expose handpiece or swivel to chemical disinfection or cold sterilization by:

- Immersion techniques or Surgical milk
- Surface wipes, Hand soaps, or Detergents
- Surface sprays
- Sterilization bags containing disinfectants

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: Oil on lamp contact points (COLORight® Tubing)

Correction: Remove lamp from tubing; clean spring, front and rear sockets, and lamp contacts with isopropyl alcohol.

Cause: Lamp burned out (COLORight Tubing)

Correction: Replace Krypton-Halogen lamp with **StarDental** Part #260986.

Cause: Wire broken at tubing coupler (COLORight Tubing)

Correction: Re-strip wire 1/8" and lock with set screw, **StarDental** Part #261355. Use .035 Allen wrench, **StarDental** Part #280830.

Cause: Corrosion on lamp contact pins (StarBright Tubing)

Correction: Remove lamp (located in StarBright swivel connector) and clean contact pins with isopropyl alcohol.

Cause: Lamp burned out (StarBright Tubing)

Correction: Replace Xenon-Halogen lamp with **StarDental** Part #262522 or **StarDental** Part #262962 when operating with non-StarDental F.O. systems. (Consult your operator's manual for correct voltage.)

Note: See *Handpiece Installation, Non-Star 6-Pin F.O. system.*

Problem: YELLOWISH LIGHT

Cause: Debris on optical surfaces

Correction: Clean all exposed surfaces, refer to *Cleaning*.

Problem: REDUCED LIGHT

Cause: Low voltage

Correction: Refer to **COLORight** or **StarBright Fiber Optic Electrical System & Handpiece Instruction Manual** or contact **StarDental** customer service at 1-866-DTE-INFO.

Problem: REDUCED LIGHT (cont.)

Cause: Lamp (COLORight system)

Correction: Replace Krypton-Halogen lamp with **StarDental** Part #260986.

Cause: Lamp (StarBright system)

Correction: Replace lamp in 6-Pin swivel with **StarDental** Part #262522 or **StarDental** Part #262962 when operating with non-StarDental F.O. systems. (Consult your operator's manual for correct voltage.)

Note: See *Handpiece Installation, Non-Star 6-Pin F.O. system.*

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 build-up

Correction: Clean inside of housing and end cap with swab and alcohol. Avoid contact of alcohol with bearings.

Note: For safe removal of turbine, place a pin or bur in cback, unscrew end cap and push the pin or bur until turbine is out of housing.

Note: Before cleaning, check for and remove any debris from turbine housing to prevent damage and to insure turbine performance.

CAUTION: If the end cap is solidified with the turbine, DO NOT pull end cap from turbine. This may damage the bearing.

Cause: Worn out turbine

Correction: Refer to *Turbine Replacement*.

Problem: WATER LEAKAGE

Cause: Handpiece not threaded fully onto tubing

Correction: Refer to *Handpiece Installation*.

Cause: Brittle handpiece silicone rubber rear seal

Correction: Replace silicone rubber rear seal. (See replacement silicone rubber seals.)

Cause: Swivel O-rings worn

Correction: Replace both O-rings at the front of any swivel. (See replacement O-rings.)

Problem: SWIVEL WILL NOT DISENGAGE FROM HANDPIECE

Cause: Build-up of debris

Correction: Place two 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*.

Problem: IMPROPER SPRAY

Cause: Clogged filters, tubes, or water ports

Correction: Inspect and clean water filter in delivery head.

Correction: Disconnect handpiece and depress foot control. Verify water exits the swivel. Insert cleaning wire provided, **StarDental** Part #256719, into center spray tube near handpiece head to clear debris. Remove wire; aerate spray tube with syringe air. Refer to *Cleaning*.

Cause: Brittle handpiece silicone rubber seal

Correction: Replace silicone rubber seal

Cause: Swivel O-rings worn

Correction: Replace O-rings. (See replacement O-rings.)

Problem: BUR LOCKS IN AUTOCHUCK

Cause: Use of non-ISO burs

Correction: Always use ISO burs.

Problem: BUR SLIPS IN AUTOCHUCK

Cause: Debris build-up in chucking mechanism

Correction: Aerate with syringe air.

Cause: Use of non-ISO burs

Correction: Always use ISO burs.

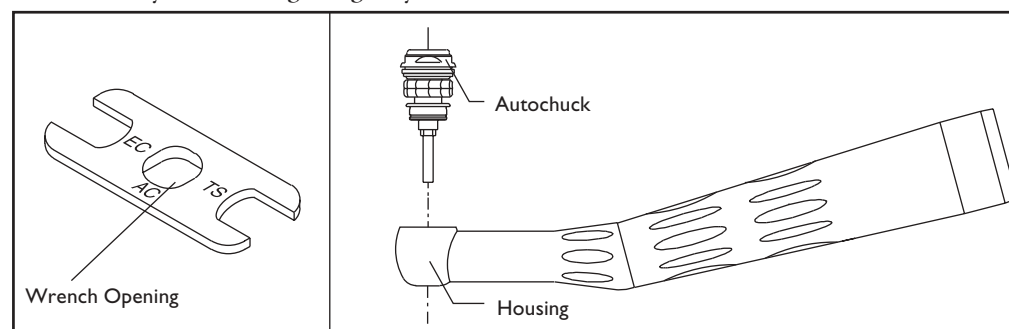
Note: Always use ISO burs to prevent locking and slipping of burs in autocuck. If problems of locking and slipping continue, replace worn autocuck immediately with **StarDental** Part #260296, *Autocuck Turbine Replacement Kit*.

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

Turbine Replacement

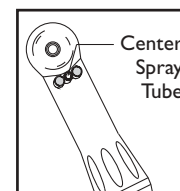
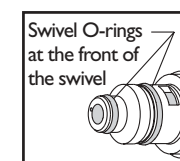
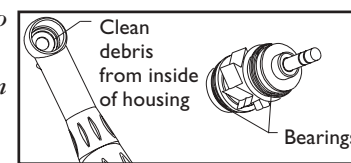
Note: Replace the turbine when the handpiece fails to achieve full speed and/or increases sharply in noise level. The replacement cartridge is available from your dealer and is easily replaced in the office. When ordering a replacement, be sure to order **StarDental** Steel Bearing Autocuck Turbine Replacement Kit, **StarDental** Part #260296.

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 and run handpiece 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
StarFlex SWL Fiber Optic Handpiece with Autochuck	262945
HiFlo Swivel Assembly: 4-Line Fiber Optic	263758
HiFlo Swivel Assembly: ISO/C (6-pin 3.3 Vdc) StarBright	263772
HiFlo Swivel Assembly: ISO/C (6-pin 3.1 Vdc) (for non-Star F.O. System)	263773
StarFlex SW Handpiece with Autochuck	262696
Swivel Assembly 430 SW, ISO 2/3-Line	261550
Swivel Assembly 430 SW, ISO 4-Line	261547
StarFlex K Handpiece with ISO 4-Line Fixed Connection	262943
StarFlex K Handpiece with ISO 2/3-Line Fixed Connection	263285
Steel Bearing Autocuck Turbine Replacement Kit	260296
Autochuck End Cap	260294
End Cap Wrench	203048
Replacement, Krypton-Halogen Lamp, 5.5 Vdc with spring for tubing connected to	
COLORight F.O. System (Pkg. of 2)	260986
Replacement Lamp, 6-pin 3.3 Vdc for swivel connected to StarBright F.O. System (Package of 2)	262522
Replacement Lamp, 3.1 Vdc 6-pin for swivel connected to non-Star F.O. System (Package of 2)	262962
Silicone Rubber Seal, 2/3-Line for #261550 & 263285 (Package of 3)	203103
Rear Seal, HiFlo 4-Line Fiber Optic Swivel for #263758 (Package of 3)	263734
Silicone Rubber Seal, 4-Line for #259716, 261547, & 262943 (Package of 3)	202897
Rear Seal, HiFlo 6-Pin Fiber Optic Swivel for #263772 & 263773 (Package of 3)	263770
Silicone Rubber Seal, 6-Line for #262530 & 263255 (Package of 3)	262520
Swivel O-Ring Kit for HiFlo Swivel for #263758, 263772, & 263773 (2 Large, 2 Small)	263771
Swivel O-Ring Kit for #259716, 262530, & 263255 (2 Large, 2 Small)	259884
Air Pressure Gauge (ISO 4/6-Line)	262591
Air Pressure Gauge (ISO 2/3-Line)	257492
Cleaning Wire (Gauge: 0.008, Package of 2)	256719
DentaLube II	262539
ISO Tubing Set Screw (Package of 2)	261355
Allen Wrench .035	280830



For new products, manuals and technical information, call
1-866-DTE-INFO or visit our web site @ www.dentalez.com

IMPORTANT NOTICE ABOUT RETURNING PRODUCT TO THE DENTALEZ GROUP

Anyone wishing to return any **DentalEZ**® Group 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.

Limited Warranty

StarDental® **StarFlex**® **SWL**, **SW** and **K** Handpieces are warranted against defects in material and workmanship for one year from date of purchase. The Steel Bearing Autocuck is warranted for 6 months. This warranty is subject to the following conditions:

The handpiece must not be abused and must have been operated in accordance with procedures detailed in this manual. Any replacement parts must be genuine **StarDental**® parts.

Warranty validation card must be completed and returned within 15 days of purchase.

StarDental® will, without charge, repair or replace (at its sole discretion) any defective part(s) covered in this warranty, providing above conditions are met and the handpiece is returned through an authorized **StarDental**® dealer. You must have a copy of your original invoice to qualify.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE.



DentalEZ Dental Products (GB) Ltd.,
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Product complies
with MDD 93/42/EEC

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