# Star

TITAN LOW-SPEED

BALL BEARING FRICTION GRIP CHUCK ANGLES

TITAN 3 LUBEFREE BB FG AUTOCHUCK
TITAN 3 LUBRICATED BB FG AUTOCHUCK
TITAN-T LUBEFREE BB FG AUTOCHUCK
TITAN 3 LUBEFREE BB FG MANUAL CHUCK

NON-STERILE

℞ ONLY

MD

DENTALEZ

DENTALEZ, Inc., StarDental ® Division
1816 Colonial Village Lane
Lancaster, PA 17601 USA

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***DO NOT USE FOR ORAL SURGERY***

Before operating the angle, carefully read and follow all of these instructions. Save these instructions for future reference and observe all warnings and cautions.

## INDICATIONS FOR USE

Used intraorally by trained dental professionals for drilling and preparation of dental cavities for restoration, such as fillings, disking, cavity and crown preps, polishing, post and pin drilling and pin setting.

| | |
|---|---|
| ℞ ONLY | Caution: U.S. Federal law restricts this device to sale by or on the order of a licensed physician. |

**⚠WARNING** Under normal operating conditions, air is exhausted from the back of the head of this handpiece. If air is directed into an open soft tissue wound or beneath the mucosa or dermis, injury to the patient could result from air emphysema of air embolism.

**⚠WARNING** This angle has no internal air or water cooling capabilities. External water for cooling maybe required.

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## FEATURES

Rated for use with Star Motors and Attachments
Easy Maintenance
Friction Grip Auto Contra Angles
Long Term Reliability
Smooth Running, Low Friction Performance
Steam sterilization: 275° F (135° C) max.
Field Replaceable Cartridges and Transmission Gears

| | |
|---|---|
| 135°C SSS | Sterilizable up to 135°C |

| Motor | 5K | 5K | 20K | 20K | 20K |
|---|---|---|---|---|---|
| Accessories | MTA | 16:1 Endodontic Motor to Angle Adapter | MTA | Torque Multiplier & MTA | Torque Multiplier & 16:1 Endodontic Motor to Angle Adapter |
| Ratio | 1:1 | 16:1 | 1:1 | 4:1 | 64:1 |
| Max Allowable RPM | 5,000 | 300 | 20,000 | 5,000 | 300 |

## ANGLE ADJUSTMENT

1. Loosen knurled ring enough to disengage splines.(Fig.1)
2. Pull head assembly up; turn to desired position.
3. Carefully mesh the splines on the knuckle with the splines of the head.
4. Tighten knurled ring onto knuckle threads until snug.

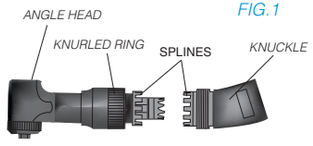


FIG.1

## ANGLE INSTALLATION

1. Thread angle onto the motor-to-angle adapter, Star Titan 3 Part #264073 or Titan T Part # 263970, by hand. Seat completely. (Fig 2)

NOTE: If angle does not seat on adapter, gears are not meshed correctly. Remove angle; spin motor-to-angle adapter drive gear and repeat Step 1.

2. Fit angle disconnect wrench, Star Part #203048, furnished with every angle, to mating indentations on angle neck; tighten securely. (Fig.3)

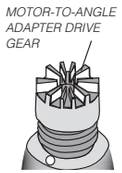


FIG.2

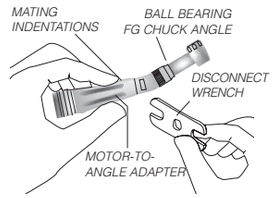


FIG.3

## BUR INSTALLATION AND REMOVAL

NOTE: A concentric .0630" diameter (1.60 mm) cylindrical shank (ISO 1797-1 Type 3) bur should be used.

NOTE: Before installing bur, install motor to the motor-to-angle adapter; then install friction grip chuck angle to motor-to-angle adapter as described in Angle Installation.

INSTALLATION into the Friction Grip Autochuck Angle (Fig 4)

1. Insert bur into autochuck until resistance is felt.

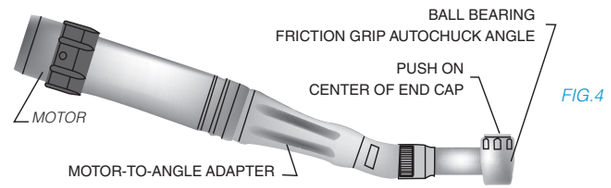


FIG.4

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.)

### REMOVAL FROM AUTOCHUCK

Grasp angle firmly so that your thumb touches the end cap and push until a slight click is felt. Pull bur straight out, then 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.

### INSTALLATION INTO THE MANUAL CHUCK

1. Pull handle back on manual bur tool, Star Part #203108, and slide open end of tool onto head of angle as shown in (Fig 5); release spring loaded handle and seat shaft of tool into the opening in the rear of angle head.
2. To unlock chuck, turn manual bur tool handle counterclockwise.
3. After inserting a 1.6 mm diameter friction grip bur fully into chuck, turn handle of tool clockwise to tighten chuck.
4. Disengage tool and tug on bur to verify that it is completely engaged and holding securely.

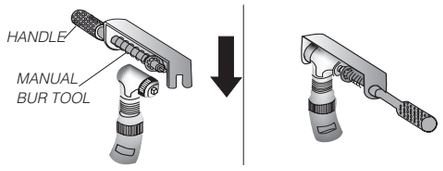


FIG.5

### REMOVAL FROM MANUAL CHUCK

Use manual bur tool and turn counterclockwise one full turn, 360° rotation. Pull bur straight out.

## 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 latched properly to retain the bur or a bent bur is inserted.

**⚠CAUTION**

*TO MINIMIZE RISK OF INJURY OR DAMAGE TO ANGLE:*

- Replace cartridge 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 angle 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 angle, never depress end cap while bur is rotating.

## LUBRICATION - For Lubricated Angles ONLY

*LUBRICATE THE TRANSMISSION GEAR DAILY*

1. To disassemble angle: unthread knurled ring. Remove knuckle and transmission gear from angle head.
2. Place a drop of DentaLube II in the two transmission gear joints between the gear and gear housing and a drop of DentaLube II in the hole in the center of the gear housing. Rotate the gears to allow DentaLube II to work into the bearings. Apply a light coat of DentaLube II to the gear teeth. (Fig. 6)
3. To reassemble angle, insert transmission gear into angle head. Engage splines of knuckle with mating splines of head to achieve proper alignment.
4. Tighten knurled ring onto knuckle threads until snug.
5. Place angle on motor, connect to handpiece tubing; insert bur and run for 20 seconds to evenly distribute lubricant and disperse any residual lubricant.
6. Proceed to Cleaning & Sterilization procedures before use.

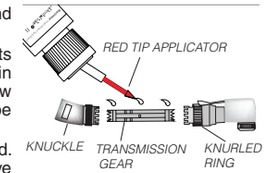


FIG.6

**NOTICE** LubeFree Angles denoted by having 3 rings on neck are lubricated for life. Never clean ultrasonically or immerse in solvent that would dilute the lubricant.

## CARTRIDGE REPLACEMENT

*REPLACEMENT OF THE AUTOCHUCK CARTRIDGE*

FIG.7

1. Unthread knurled ring.
2. Remove knuckle and transmission gear from head.
3. Unthread end cap using end cap wrench(Fig.7), Star Part #261339.

NOTE: Remove transmission gear first before removing cartridge from head.

4. Pushing from the front of the head, remove the cartridge by using a 1/16" pin (Fig.8).
5. Clear housing of all dirt, debris, and/or remaining parts of previous cartridge. Insert new cartridge by installing gear and small bearing end first. Slide cartridge into housing with alignment tab of cartridge mating with groove in head. Install end cap.
6. To reassemble angle, insert transmission gear into angle head. Engage splines of knuckle with mating splines of head to properly align.
7. Tighten knurled ring onto knuckle threads until snug.

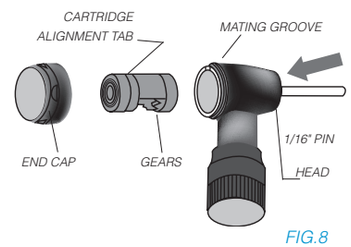


FIG.8

*REPLACEMENT OF THE MANUAL CHUCK CARTRIDGE*

1. Unthread knurled ring.
2. Remove knuckle and transmission gear from head.

NOTE: Remove transmission gear first before removing cartridge from head (Fig 9).

3. Unthread end cap using plastic wrench (Fig.10).
4. At rear of head, push out old cartridge using a 3/32" pin (Fig.11).
5. Clear housing of all dirt, debris, and/or remaining parts of previous cartridge. Insert new cartridge with alignment tab of cartridge and gears toward end cap and align with mating groove in head. Install end cap.
6. To reassemble angle, insert transmission gear into angle head. Engage splines of knuckle with mating splines of head to achieve proper alignment.
7. Tighten knurled ring onto knuckle threads until snug.

FIG.10

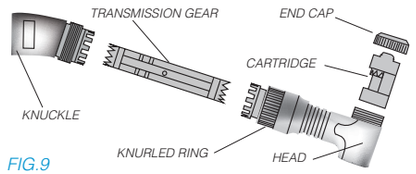


FIG.9

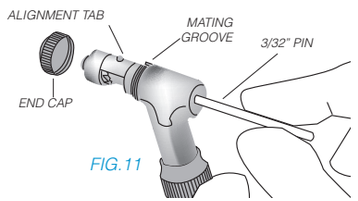


FIG.11

## CLEANING AND STERILIZATION

| | |
|---|---|
| ⚠ **CAUTION** | 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. |
| ⚠ **CAUTION** | Do not exceed 135°C<br>To prevent damage to the bur, use an autoclavable bur block.<br>Do not use: • dry heat sterilizer • cold sterilizers • ultrasonic cleaners • chemical disinfectors • immersion techniques • hand soaps • surface wipes • surface sprays • surgical milk • detergents • sterilizer bags containing disinfectants<br>Refer to Daily Cleaning section for an exception in ultrasonically cleaning a specific chuck component. |
| *LIMITS ON REPROCESSING* | Repeated processing has minimal effect on these angles. End of life is normally determined by wear and damage due to use. |

| *INSTRUCTIONS* | |
|---|---|
| ⚠ **WARNING** | Clean and sterilize angle as soon as practical before first use and after each patient. |
| *CONTAINMENT AND TRANSPORTATION:* | It is recommended that angles are reprocessed as soon as is reasonably practical following use. |
| *PREPARATION FOR CLEANING:* | Remove bur. Remove angle from motor to angle adapter. |
| *CLEANING - AUTOMATED:* | Washer-disinfectors are not recommended. |
| *CLEANING - MANUAL:* | Remove debris from external surfaces using a small brush and isopropyl alcohol. Dry thoroughly. Clean autochuck daily by removing bur from chuck and aerating with syringe air. |
| *LUBRICATION:* | Lubricate - For Lubricated Angles ONLY - See 'Lubrication' instruction section |
| *DISINFECTION:* | Use steam sterilization exclusively for complete sterility as outlined below. |
| *MAINTENANCE:* | Angle should be routinely maintained, checked for corrosion, worn parts, etc. and should be replaced on an as needed basis. |
| *INSPECTION & FUNCTION TESTING:* | See Installation, Operating Recommendations, and/or Troubleshooting sections of this manual. |
| *PACKAGING:* | Single: A standard sterilization packaging material must be used. Ensure that the pack is large enough to contain the item without stressing the seals.<br>In sets: Angles 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. |
| *WRAPPED INSTRUMENT STERILIZATION:* | Gravity Type Autoclave:<br>• Minimum of 15 minutes at 132° C<br>• Minimum of 30 minutes at 121° C<br>Do not exceed 135° C<br>Pre-Vacuum Autoclave:<br>• Minimum of 4 minutes at 132° C |
| *DRYING:* | Dry the angle for 30 minutes minimum using the sterilization dry cycle and allow the angle to cool to room temperature in bag prior to use. If moisture is present, increase your sterilizer dry cycle appropriately. |
| *STORAGE:* | Store in bag after sterilization until ready to use. |
| *ADDITIONAL INFORMATION:* | Do not exceed the sterilizer manufacturer's guidelines for load capacity. Use only paper or paper/plastic bags. |

| | |
|---|---|
| *MANUFACTURER CONTACT:* | See first or last panels of this manual. |

## *DAILY CLEANING - FOR LUBRICATED MANUAL FRICTION GRIP CHUCK ANGLE ONLY*

*PREVENTIVE MAINTENANCE FOR THE BALL BEARING FRICTION GRIP MANUAL CHUCK ANGLE*

1. Pull handle back on manual bur tool (Fig. 12), Star Part #203108, and slide open end of tool onto head of angle as shown above; release spring loaded handle and seat shaft of tool into the opening in the rear of angle head.

**NOTICE** Be careful to keep bur tool aligned with handpiece. If tool is side-loaded while engaged in chuck, tool may be damaged.

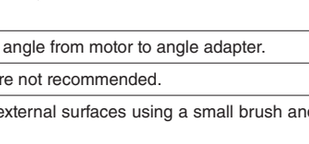
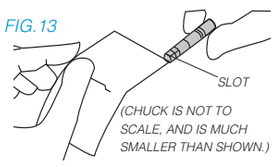


FIG.12

2. To unlock chuck, Star Part #203036, turn manual bur tool handle counterclockwise and remove bur if still in place. Continue turning until rear of chuck emerges from angle.
3. Remove bur tool and turn chuck with fingers to free.
4. Clean chuck thoroughly with isopropyl alcohol or place in ultrasonic cleaner. Run a thin piece of paper through each of the three slots in the chuck to remove any debris (Fig 13).
5. Reinstall chuck by reversing Steps 1 and 2.

FIG.13




## TROUBLESHOOTING

**Problem: BUR LOCKS and/or SLIPS IN CHUCK**

Cause: Debris buildup 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 angle. If a problem persists, contact dealer for further assistance; or, contact Star Technical Service at 1-866-DTE-INFO.

## REPLACEMENT PART NUMBERS

*ALWAYS INSIST ON STAR PARTS FOR BEST PERFORMANCE.*

| *DESCRIPTION* | *ITEM NUMBER* |
|---|---|
| *TITAN BALL BEARING FRICTION GRIP AUTOCHUCK ANGLE* | |
| Titan 3 | LubeFree: 264151 ..... Lubricated: 264149 |
| Angle Cartridge | LubeFree: 264096 ..... Lubricated: 264095 |
| Transmission Gear | LubeFree: 263960 ..... Lubricated: 264093 |
| End Cap | 264097 |
| Angle Disconnect Wrench | 203048 |
| Auto Latch End Cap Wrench | 261339 |
| *TITAN BALL BEARING FRICTION GRIP MANUAL CHUCK ANGLE* | |
| Angle Cartridge | LubeFree: Not Available... Lubricated: 259352 |
| Angle Cartridge AND Transmission Gear Assembly | LubeFree: Not Available... Lubricated: 261672 |
| Transmission Gear | LubeFree: 262724 ..... Lubricated: 259008 |
| End Caps (Pkg. of 2) | Not Available |
| Chuck | 203036 |
| Hex Drive Manual Bur Changing Tool | 203108 |
| Titan 3 BB Motor-to-Angle Adapter | 264073 |
| Titan T BB Motor-to-Angle Adapter | 263970 |
| Angle Disconnect Wrench | 203048 |
| DentaLube II | 262539 |

DENTALEZ

***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

1. Product Name, Model Number or Part Number
2. Serial Number of Product
3. Dealer Return Purchase Order Number
4. Reason For Return
5. 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*

## *LIMITED WARRANTY*

DENTALEZ warrants the Titan Lubricated Friction Grip Chuck Angles for 3 months from the date of purchase*; and the Titan LubeFree Friction Grip Chuck Angles for 1 year from the date of purchase*:

Please note the following additional terms of our warranty and return policy:

- Warranty covers manufacturing defects only and does not cover defects resulting from abuse, accidents, misuse, improper handling, cleaning, care or maintenance or the failure to follow or observe our operating/use, maintenance and/or installation instructions. Damage resulting from the use of chemicals, cleaners, disinfectants or sterilization is not covered under this warranty nor is normal wear and tear. Failure to use authorized parts or an authorized repair facility voids this warranty.
- Liability is limited to repair or replacement of the defective part(s) or products at our sole discretion. All other liabilities, in particular liability for damages, including, without limitation, special, exemplary, 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.

## *WARRANTY REGISTRATION*

Please visit the website below to register your Star product. This will ensure proper registration and prompt and accurate service should any of your purchases need evaluation or repair during the warranty period.

*Star Products: WWW.DENTALEZ.com/warranty*