**DESCRIPTION:** Universal hinge, resilient attachment for endoseous implants.

**ATTACHMENT COMPONENT ORDER NUMBERS**

Product numbers of ZAAG Implant Abutments vary with implant type, diameter and tissue cuff height. Call Zest Anchors with this information available to place your order.

<table>
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<tr>
<th>PARTS IDENTIFICATION</th>
<th>IMPLANT ABUTMENT</th>
<th>IMPLANT CAP MALE</th>
<th>ST IMPLANT CAP MALE</th>
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<tbody>
<tr>
<td><strong>IMPRESSION MALE</strong></td>
<td>#4571</td>
<td>#4323</td>
<td>#4333</td>
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<tr>
<td>Low Density Polyethylene, green</td>
<td>Gold plated, stainless steel cap, nylon male</td>
<td>Short, gold plated cap, short, nylon male</td>
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<th><strong>ZAAG MALE PLACEMENT TOOL</strong></th>
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<tr>
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<td>#9516</td>
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<tr>
<td>.050 (1.25mm) HEX INSERTION TOOL</td>
<td>.050 (1.25mm) TORQUE WRENCH INSERT</td>
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<tr>
<th><strong>15° ZAAG ANGLE INSERT</strong></th>
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<th><strong>ANGLE ABUTMENT BASE</strong></th>
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<tr>
<td>#4601</td>
<td>#4602</td>
<td>Titanium alloy</td>
</tr>
<tr>
<td>Titanium alloy with Titanium Nitride coating</td>
<td>Titanium alloy with Titanium Nitride coating</td>
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<th><strong>TAPPER TOOL</strong></th>
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<tr>
<td>#9313</td>
<td>#9531</td>
<td>ZEST ANCHORS INC. 800-262-2330</td>
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<tr>
<td></td>
<td>1-72 M2.5</td>
<td>25° 20° 15° 10° 9° 8° 10° 15° 20° 25°</td>
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<tr>
<td></td>
<td>M3.0 M2.0</td>
<td>25° 20° 15° 10° 9° 8° 10° 15° 20° 25°</td>
</tr>
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INDICATIONS

The ZAAG Implant Anchor is appropriate for use with overdentures or partial dentures, retained in whole or in part, by endosseous implants in the mandible or maxilla.

CONTRAINDICATIONS

Not appropriate where a totally rigid connection is required.

CAUTION

Federal (U.S.A.) law restricts this device to sale by or on the order of a licensed dentist.

FEATURES

1. **INTRA-GINGIVAL CONNECTION:** The attachment connection is low within the mucosa.

2. **ROTATIONAL PIVOTING ACTION:** During masticatory function, the ball-and-socket design lets the prosthesis hinge and move vertically.

3. **NYLON INTERFACE:** The slightly-flexible nylon male cushions occlusal shock and avoids the hard metal to-metal contact of other attachments.

4. **TITANIUM NITRIDE COATING:** The Titanium alloy abutment is coated with a gold colored, wear resistant coating that is three times harder than the metal itself and extremely bio-compatible.

5. **USE WITH NON-PARALLEL IMPLANTS:**
   - **Pivoting Male:** The ZAAG nylon male in the full size Denture Cap pivots up to 10 degrees in any direction to compensate for minor mis-alignment of implants. (NOTE: The nylon male does not pivot in the ST Denture Cap).
   - **Angle Correction:** The patented taper lock design for ZAAG angled inserts of 15 and 25 degrees allows easy correction of divergent implants without the need for cementing.
   - **Abutment Access:** Once in place, the completed angle abutment still allows access for removal with the hex tool at any future time.

A. PLACEMENT OF THE ZAAG IMPLANT ABUTMENT

1. Prepare and measure study casts to determine the space available for the female/male assembly. The full size ZAAG Denture Cap Male extends 3.1mm above the ZAAG Abutment. The ZAAG ST Cap Male extends just 2.0mm above the female for use when lack of occlusal space is a problem. (Fig. 1)

2. When selecting the proper ZAAG Abutment, match the threaded abutment with the implant brand and diameter being used. Then, measure the tissue thickness from the apical rim of the implant body to the crest of the gingiva. Choose the closest corresponding tissue cuff height available. When fully threaded into the implant, the top of the ZAAG Abutment should be level with the surrounding tissue to achieve full stress reducing ability of the attachment. (Fig. 2)

3. After the secondary gingival healing period is complete, remove the healing cuff according to instructions provided by the manufacturer of the implant system being used.

4. It is imperative that all bone and soft tissue be removed from the superior aspect of the implant body to guarantee complete seating of the ZAAG Abutment.
5. A .050 (1.25mm) Hex Tool (#4390) is used to thread the ZAAG Abutment into the implant. The stainless steel tool has a white Teflon sleeve that slides down and snaps into the attachment to hold it while delivering it to the implant site and starting the thread. (Fig. 3)

NOTE: The use of a Torque Wrench with a .050 Hex Insert (#4936) can be used to achieve the maximum seating force of 20N-cm (1 3/4 inch lb.) that will help prevent screw loosening.

6. When placing multiple attachments, snap a Parallel Post into each seated abutment to make sure the parallelism between implants is within 10 degrees of each other.

NOTE: If the divergence is greater than 10 degrees, use the ZAAG Angle Correction system to correct the alignment of the implants.

7. If a change in tissue height occurs later, it can be accommodated by unthreading the ZAAG Abutment and replacing it with a different cuff height.

B. PLACEMENT OF THE ZAAG ANGLE CORRECTION SYSTEM

1. Using the Thread Pattern Chart, choose one of the four threads on the titanium Alignment Pin which matches the type of implant being used.

2. Thread the Alignment Pin by hand directly into the divergent implant (or implant analog on a stone model) being careful not to cross-thread the pin. Place the stainless steel Angle Measurement Guide behind the Alignment Pin, level with the path of prosthesis insertion, to determine the divergence in degrees. (Fig.4) An additional Alignment Pin can be placed into an adjacent non-divergent implant to determine the difference in the angle between it and the divergent implant.

WARNING: IF THE ALIGNMENT PIN DOES NOT EASILY THREAD INTO AN IMPLANT, DO NOT FORCE THE INSERTION.

3. Select the ZAAG Angle Insert (15 or 25 degrees) which most closely matches the measured angle of divergence. The threaded Angle Abutment Base must match the brand and diameter of implant fixture being used. Choose the closest corresponding tissue cuff height available.

4. A .050 (1.25mm) Hex Tool (#4390) is used to thread the Abutment Base Cuff into the implant. Note: The use of a Torque Wrench with a .050 Hex Insert (#4936) can be used to achieve the 20N-cm of maximum seating force that will help prevent screw loosening.

5. Snap a Parallel Post into the appropriate ZAAG Angle Insert (Fig. 5) and use it as a handle to lightly place the insert into the Abutment Base.

6. Rotate the Parallel Post with attached Angle Insert until it is aligned with other non-divergent implants and the planned path of prosthesis insertion. (Fig. 6)

7. Hold the ZAAG Angle Insert in the exact position and remove the Parallel Post. Place the Tapper Tool with Delrin tip into the Angle Insert and use a mallet to tap it several times. (Fig. 7) The patented taper design will permanently fuse the insert together with the taper fit of the Abutment Base without the need for cement. NOTE: The complete Angle Insert/Abutment Base assembly can still be removed from the implant with the .050 hex wrench if necessary.
C. ZAAG MALE PLACEMENT BY THE DENTIST

1. Insertion of the proper ZAAG Abutment at tissue level has been completed.

2. Insert a ZAAG Denture Cap Male (metal housing side first) into the ZAAG Male Placement Tool (#4961). Use the tool to snap a male into each female. (Fig. 8) Check each male for proper retention, and verify that each centering sleeve seats firmly against the abutment, maintaining the male in the center of the flared opening. (Fig. 9)

NOTE: The Male Placement Tool is made for use only with the full size Denture Cap Male and does not fit the short cap of the ST Implant Male.

3. Prepare a recess in the denture to accommodate the protruding ZAAG Male. There must be no contact between the denture and the stainless steel cap. If the denture rests on the metal cap, excess pressure on the implant will result.

4. An autopolymerizing or light cure acrylic resin may be used to pick up the caps. Dry the Denture Caps. Apply a small amount of acrylic around the circumference of each cap. Place acrylic into the relief areas of the denture and seat it over the caps and onto the tissue. Have the patient close into occlusion and hold while the acrylic sets.

5. Insert the denture into position in the oral cavity. Guide the patient into occlusion, maintaining a proper relationship with the opposing arch. Maintain the denture in a passive condition, without compression of the soft tissue, while the acrylic sets. Excessive occlusal pressure during the setting time may cause tissue recoil against the denture base and could contribute to dislodging and wear of the nylon males.

6. Remove the centering sleeve from the Denture Cap Male. Relieve the acrylic over the entire implant attachment surface. There should be no contact between the ZAAG Abutment and the acrylic saddle. Instruct the patient in the path of insertion. Have the patient insert and remove the appliance several times. The snap into retention should be accomplished by finger pressure without the aid of the opposing teeth.

NOTE: Use a black Polishing Cap (#9001) to fit over and protect the ZAAG nylon male from damage when polishing the denture or using a bur to remove excess acrylic from around the male.

D. ZAAG MALE PLACEMENT BY THE LABORATORY

In the Operatory:

1. Insertion of the proper ZAAG Abutment at tissue level has been completed.

2. Place the Impression Male into the ZAAG Abutment in the oral cavity. Make sure the male is fully seated. (Fig. 10)

3. Take an impression, exercising caution not to compress the soft tissue. The Impression Male is designed with minimum retention to be picked up with the impression material.
4. Snap an Implant Analog onto each Impression Male in the impression. The Analog must not fall off when turned upside-down with vibration. (Fig. 11)

5. Pour the master cast. Upon separation, the Analog is a part of the master

6. Before waxing and processing the appliance place a ZAAG Denture Cap into each Analog in the master cast (Fig. 12). Make sure the male is fully seated. The centering sleeve eliminates movement of the male during processing.

7. Complete the processing.

8. Remove the centering sleeve from the male and relieve the acrylic over the entire implant attachment surface. There should be no contact between the ZAAG Abutment and the acrylic saddle.

NOTE: Use a black Polishing Cap (#9001) to fit over and protect the ZAAG nylon male from damage when polishing the denture or using a bur to remove excess acrylic from around the male.

E. REPLACEMENT OF THE ZAAG MALE

The life expectancy of the ZAAG nylon male is between one and three years for most patients. During this time the retention of the snap fit gradually diminishes until a point where replacement is desired to return to the full retention of the attachment.

The ZAAG Abutment has a wear resistant Titanium Nitride coating applied to the attachment connection surface. This gold colored coating is three times harder than the metal itself and is bio-compatible with the surrounding soft tissue.

IMPORTANT NOTE: It is imperative that the nylon ZAAG male in the existing metal Denture Cap be replaced with the exact same type. The replacement males are not the same for the full size Denture Cap and the ST (Short and Tough) Denture Cap.

F. HOWTO CHANGE THE ZAAG MALE USING THE DENTURE CAP TOOL KIT (#9201)

NOTE: The following is the technique for replacement of ZAAG Males featuring a "dome-shaped" cap only.
For replacement of ZAAG ST Males, a Denture Cap Tool Kit (#9201) and ST Male Took Kit (#92 02, purchased separately) is required.

1. Using a lab handpiece, guide the Male Coring Tool over the nylon male and core out the center post of the male at medium RPM. (Fig. 13)

NOTE: If too much heat is generated, the metal cap may melt the surrounding denture resin and dislodge. A small amount of cold water will help keep the metal cool while coring out the nylon male.

2. The Seating Tool utilizes a threaded plastic insert with two (2) working ends. Use the end without a slot, with the metal pin provided, to eject the cored male post out of the Coring Tool. (Fig. 14)
3. Using a blade or explorer-like instrument, collapse the remaining plastic ring into the open space created by the removal of the center post and lift it out. (Fig. 15)

4. ZAAG Replacement Males fit into the end of the Seating Tool Insert without a slot. (Fig. 18)

5. Use the Seating Tool to firmly push a ZAAG Replacement Male into the metal Denture Cap. The replacement male must seat securely into place level with the rim of the cap. (Fig. 17)

G. RELINE AND REBASE
1. Remove the entire Denture Cap component from the overdenture, taking care not to damage the metal housing.
2. Trim as much acrylic from the stainless steel Denture Cap as possible using a course sandpaper disk. It is not necessary to remove all acrylic from the metal housing.
3. Place an Impression Male into each ZAAG Abutment for reline impression pick-up.
4. Take a reline impression. Using an Implant Analog, reposition the denture components into the overdenture following steps in "MALE PLACEMENT BY THE LABORATORY (Section D)."

H. PATIENT CARE
Oral hygiene is vital to implant success. The implant abutments must be thoroughly cleaned daily. The use of a soft nylon bristle or end-tufted toothbrush, and superfloss to polish the abutments should be taught. A nonabrasive gel toothpaste and an irrigation system is recommended to keep the socket of the ZAAG Abutment clean.
Patients should maintain a three to four month recall for cleaning and implant evaluation. The sulcus area around the abutment is the primary area of concern. Use plastic instruments for scaling the abutments. Do not use metal instruments which may create scratches on the abutment surface. Examine patients for signs of inflammation around the abutments and for implant mobility. Use the Hex Tool to make sure the ZAAG Abutment is tight before dismissal.

RETURN POLICY
Check with your distributor for their policy on returns.

WARRANTY
ZEST Anchors, LLC provides a limited warranty for its products, to the original purchaser, to be free from defects in workmanship and materials under normal use for a period of one year from the date of purchase. ZEST Anchors, LLC will, at its option, substitute the returned product that proves defective with a similar product, free of charge.
ZEST Anchors, LLC continually strives to improve its products, therefore, reserves the right to improve, modify or discontinue products and components at any time without notice or incurring obligation. Purchaser assumes all risks and liability resulting from the use of ZEST Anchors, LLC products whether used separately or in combination with other products not of ZEST Anchors, LLC manufacture.