A Clinician’s Guide to Restoring
Screw-Retained, Fixed and Removable Hybrids
Dear Doctor,

Over the last few years we have witnessed a definite increase in the demand for a retrievable hybrid screw-retained option to restore our edentulous as well as partially edentulous patients.

Screw access position and limited material options have traditionally caused esthetic as well as functional challenges. This ultimately has led to the shift from screw-retained to cementable CAD abutment restorations. Furthermore, restoring with a screw-retained option in the anterior zone has always been at the mercy of these factors.

Technology has now finally solved this issue, making it possible to restore 100% of our implant retained patients with a retrievable, functional and esthetic option.

This protocol manual is dedicated to showing how technology is now allowing us the ability to control the screw access position. It will also shed light on the multitude of restorative materials and protocols available to restore every patient individually.

These options now offer us an efficient and more economical way to restore from a single implant crown to a full arch rehabilitation.

Absolute Dental Lab has been keeping our clinicians abreast of these technology changes for more than two decades and therefore I am very confident in our ability to help you from case planning to final delivery.

I welcome you to contact us with any questions on these restorative protocols and hope you will also become part of our Absolute family!

Kind Regards,

Conrad J Rensburg

Conrad@absolutedentalservices.com
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Hybrid and Screw-Retained Restorative Options

Advances in technology and innovative products are now allowing the restorative team to use a screw-retained option in almost every application. Having the ability to restore 100% of our implant patients with a retrievable yet highly esthetic restorative option is finally a reality.

FDA Standardized Quality on all Popular Implant Platforms

The FDA has recently branded restorative implant components as medical devices requiring full 510k clearance from all US milling facilities. This law has effectively standardized the quality and milling tolerances of every component regardless for which implant interface system they are designed. This new regulatory requirement on all US milling facilities ensures consistent, high quality products that will not compromise the implant.

Restorative Options and Technologies

- Wrapped acrylic over Titanium suprastructure
- Layered or Monolithic and Combination Zirconia
- Layered Ceramics over CoCr suprastructure
- Atlantis CustomBase screw-retained solution by Dentsply Sirona Implants
- Angulated screw access feature by Dentsply Sirona Implants
## Restorative Protocol
*(Full arch or partial, screw-retained prosthetics)*

### FIRST APPOINTMENT

**Clinical**
- Take an Implant or Abutment level PVS impression (Preferably use an open tray impression technique)
- Splint Impression copings with acrylic bridge to stabilize

**Lab**
- Lab will pour a soft tissue model and also fabricate a bite rim and verification jig

### SECOND APPOINTMENT

**Clinical**
- Verify model accuracy by placing verification jig into implants or onto abutment level. Verify with hand pressure, no need to screw down
- Register a bite as if fabricating a denture or partial – Request shade and mold

**Lab**
- Lab will set up a wax based tooth try in for patient approval and bite check

### THIRD APPOINTMENT

**Clinical**
- Tooth try in and bite verification. Patient approval on final esthetics shade and tooth position
- Choose restorative option based on patient specific needs (Options discussed in this manual)

**Lab**
- Lab will fabricate a supporting sub-structure within bucco-lingual parameters set by tooth try in
  - OPTIONAL - Frame try in without teeth, or
  - ACRYLIC OVER TITANIUM - Teeth will be added to sub-structure for final try in, or
  - LAYERED CoCr / ZIRCONIA – Restoration will be processed for final delivery

### FOURTH APPOINTMENT

- Final delivery of CoCr or Zirconia restoration
- Final tooth and bar try in for wrapped acrylic over titanium bar

### FIFTH APPOINTMENT (Titanium only)

- Final delivery of wrapped acrylic over titanium bar

Layered ceramics over CoCr
# Full Arch Hybrid Options

## ACRYLIC WRAPPED OVER TITANIUM

<table>
<thead>
<tr>
<th>Application</th>
<th>Full or partial arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical requirements</td>
<td>12 – 15mm minimal – Cantilever extension 1.5 times AP spread</td>
</tr>
<tr>
<td>Advantages</td>
<td>Most economical option, easily repairable, good esthetics</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Known to fracture, prone to stain, discolor &amp; wear, 3 to 5 year life span on teeth &amp; acrylic</td>
</tr>
<tr>
<td>Screw access</td>
<td>Can be controlled by using Dentsply Sirona ASA technology. Restored from Implant or abutment level platform. Available on most popular implant platforms</td>
</tr>
<tr>
<td>Warranty</td>
<td>10-year Atlantis* warranty* on sub-structure. 3-year Absolute warranty on teeth and acrylic</td>
</tr>
<tr>
<td>Price range</td>
<td>$3500 to $4800 depending on number of implants and sub-structure type</td>
</tr>
</tbody>
</table>

![Diagram of ACRYLIC WRAPPED OVER TITANIUM](image)

## MONOLITHIC, LAYERED OR COMBINATION ZIRCONIA

<table>
<thead>
<tr>
<th>Application</th>
<th>Single units, full as well as partial arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical requirements</td>
<td>10mm minimal – Cantilever extension 10mm</td>
</tr>
<tr>
<td>Advantages</td>
<td>Monolithic occlusion for strength with layered ceramic facials for esthetics or full monolithic design. Can be processed as combination case with monolithic zirconia and layering ceramics. Design is digitally archived for modelless remake if needed. Monolithic design reduces the risk of cusp chipping</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Post-delivery sub-structure failure concerns and bright esthetics. Not a good option for low value shades. Not repairable in case of a fracture</td>
</tr>
<tr>
<td>Screw access</td>
<td>Must be corrected with a correction abutment at implant level</td>
</tr>
<tr>
<td>Warranty</td>
<td>5-year Atlantis* warranty* on sub-structure. 3-year Absolute warranty on layered ceramics</td>
</tr>
<tr>
<td>Price range</td>
<td>$4500 - $5500 depending on layering or monolithic choices and number of implants</td>
</tr>
</tbody>
</table>

![Diagram of MONOLITHIC, LAYERED OR COMBINATION ZIRCONIA](image)
## LAYERED CERAMICS OVER CoCr

<table>
<thead>
<tr>
<th><strong>Application</strong></th>
<th>Full or partial arch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vertical requirements</strong></td>
<td>6mm from tissue to opposing, 5mm with metal occlusion – Cantilever 1.5 times AP spread</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>Exceptional esthetics and strength in sub-structure. Screw access can be positioned by using Dentsply Sirona ASA technology. Great bridge application. Can easily be repaired by lab. Metal occlusion an option. Requires only 6mm vertical clearance (tissue to opposing) when used with metal occlusion</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>Case must contain a minimum of 2 implant units in a bridge/splinted application, no single unit application at time of publication. Layered ceramics can be prone to fracture under stress</td>
</tr>
<tr>
<td><strong>Screw Access</strong></td>
<td>Full control over screw access position on most implant platforms</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>5-year manufacturer warranty on sub-structure, 3-year Absolute warranty on ceramics</td>
</tr>
<tr>
<td><strong>Price range</strong></td>
<td>$6500 – 7500 Full Arch. Partial application $575 - $600 / implant bridge unit</td>
</tr>
</tbody>
</table>

![CoCr milled sub-structure](image)

- **6mm vertical from tissue to opposing occlusion**
- **Layered ceramics**
- **Metal lingual for protected occlusion**
- **Metal occlusal design for reduced vertical**

## TITANIUM CLIP BAR WITH REMOVABLE DENTURE

<table>
<thead>
<tr>
<th><strong>Application</strong></th>
<th>Full arch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Options</strong></td>
<td>Titanium with Dolder Clips or Locator attachments</td>
</tr>
<tr>
<td><strong>Vertical requirements</strong></td>
<td>Locator bar 15mm – Dolder bar 12mm</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>Restore with or without vestibule. Removable &amp; hygienic option. Clips can be replaced when worn</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>Large amount of uncomfortable hardware. Bucco-lingual thickness</td>
</tr>
<tr>
<td><strong>Screw access</strong></td>
<td>Implant position and screw access not a concern</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>10-year Atlantis® manufacturer warranty on titanium bar</td>
</tr>
<tr>
<td><strong>Price range</strong></td>
<td>$2800 – 3400 depending on type of clips. Includes CoCr support for denture</td>
</tr>
</tbody>
</table>

![Vertical stop on framework seats on bar to protect Locator clips and stabilize prosthesis](image)

- **Loaded Framework engages axial wall of bar to stabilize**
- **Unloaded Locator clips used to only hold prosthesis in place - low wear on clips**
- **Locator clips drilled and tapped into bar to allow replacement**
- **Facial and lingual axial wall of bar milled to allow axial retention from framework**

![Metal lingual for protected occlusion](image)
## CONUS CONCEPT HYBRID DENTURE

<table>
<thead>
<tr>
<th>Application</th>
<th>Full or partial arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical requirements</td>
<td>15mm minimum above implant sites</td>
</tr>
<tr>
<td>Advantages</td>
<td>Restore with or without vestibule. Removable option with functional feel of a fixed hybrid. Horseshoe open palate design. 15mm vertical only required around implant sites. Can be restored with a shallow AP spread to full occlusion. Friction fit SynCone caps have minimal wear and limited maintenance long term. Can be restored on most popular implant systems. Exceptional upgrade for existing Locator patients. Includes a highwater sleep denture. Exceptional partial option where vestibule is needed</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Strong retention makes prosthesis tough to remove with limited dexterity.</td>
</tr>
</tbody>
</table>
| Requirements                 | Full arch application – 4 implants (Minimum of 4 implants required)  
3 to 4-unit partial application – 2 implants  
6 to 7-unit partial application – 3 implants |
| Protocol                     | Conus specific protocol manual available from Absolute |

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### Diagrams

- **SynCone cap with retention**
- **Support structure**
- **Conus denture**
- **Patient-specific Conus abutments**
- **Conus friction fit denture**

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1-844-293-2371
Screw-Retained with Screw Access Positioning

<table>
<thead>
<tr>
<th>ANGULATED SCREW ACCESS BY DENTSPLY SIRONA IMPLANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
</tr>
<tr>
<td><strong>Vertical requirements</strong></td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
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<tr>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
</tr>
<tr>
<td><strong>Price range</strong></td>
</tr>
</tbody>
</table>

**Restorative workflow**

1. Digital or PVS impression
2. Tooth setup
3. Diagnostic try in
4. Digital dual design scan
5. Lingualized screw access
6. Framework try in
7. Seating verification
8. Pink porcelain for length adjustment

*Case pictures courtesy of David Hedgcock, DDS

www.AbsoluteDentalLab.com
Screw-mentable Crown

ATLANTIS CUSTOMBASE SOLUTION – ACB

<table>
<thead>
<tr>
<th>Application</th>
<th>Single unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical requirements</td>
<td>5 to 7mm minimal from top of implant to opposing occlusion</td>
</tr>
<tr>
<td>Description</td>
<td>ACB is a custom support interface connection designed to connect a milled ceramic crown to an implant interface. The crown can be cemented extra or intra-orally to the ACB titanium abutment. Abutments can be fabricated in gold-shaded or silver titanium</td>
</tr>
<tr>
<td>Advantages</td>
<td>Retrievalable option with no cement cleanup. The ACB custom support CAD abutment offers more cementable area than a stock ti-base connection for screw-retained crowns and bridges. It offers the ability to use multiple material options – e.max, high strength and high translucent zirconia, monolithic, layered or combination. Can correct screw access up to 30 degrees by combining ACB with ASA technology on some implant platforms</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Titanium sub-structure can cause metal bleed through, in thin areas, when high translucent zirconia is used.</td>
</tr>
<tr>
<td>Material</td>
<td>Titanium and gold-shaded titanium support abutment covered with a milled ceramic material of choice</td>
</tr>
<tr>
<td>Warranty</td>
<td>10-year Atlantis® warranty on ACB abutment. 3-year Absolute warranty on ceramics</td>
</tr>
<tr>
<td>Price range</td>
<td>$550 - $ 595 per implant unit.</td>
</tr>
</tbody>
</table>

Seating workflow

*Subject to the full terms and conditions of the Atlantis warranty.*

Digital or PVS impression

Atlantis digital design file

Digital wax-up

ACB Design and screw access

3Shape crown design and in-house milling

Composite screw access filed at delivery
Absolute Case Studies

Perfection is not optional!
Absolute Dental Lab

Established in 1994, Absolute Dental started as a fixed prosthetics lab in the Triangle area of North Carolina. Two decades later, Absolute’s restorative focus is much broader but their attention to product detail and exceptional customer service has not changed.

Today, Absolute is a full-service dental lab and the team is renowned for their expertise in creating world-class dental esthetics. Their use of cutting edge technology in CAD and milling departments, as well as their extraordinary dental implant and high end removables sections, enables them to deliver lifelike and functional dental prosthetics.

Staying abreast of new technologies, yet only implementing relevant protocols and procedures, has earned Absolute a reputation for being a trusted partner to discerning clinicians throughout the United States.

Serving their customers with Absolute Excellence has always been the primary focus of the owners, branch partners and team members...this remains true today.

Our Team

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The artistry of
Absolute Master Ceramist
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Perfection is Not Optional!

Layered Ceramics over Hybrid CoCr sub-structure

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