

WHAT'S MILLING?


PATTERSON
DENTAL

A RESOURCE FOR PATTERSON CEREC SPECIALISTS

ISSUE 1: IMPLANTOLOGY

FEBRUARY 2014



For those of you who have not met me yet, my name is Adam Quade and I am the CEREC Product Manager for Patterson Dental. As the information within our field of CAD/CAM dentistry is rapidly advancing, I thought it would be helpful to have the updates summarized in short newsletters that can be referenced when needed. You

will be seeing an issue of "What's Milling?" at least once a quarter; however, if there is a need for more issues I will get them out. If you have topics you want covered, please feel free to reach out to me at adam.quade@pattersondental.com. A little tip for getting in touch with me: email is always the best way! Hope you enjoy and learn something from the newsletters.

ScanPosts, TiBases and Scanbodies: Three Components, One Outcome

The CEREC Software V4.2 was a revolutionizing software update for the chairside CEREC user. The virtual articulator and smile design ability opened doors to single visit restorative dentistry that many thought would never exist. One of the other exciting components included in the V4.2 software is the ability to design custom implant abutments chairside up to an angulation correction of 20°. There are two different hybrid abutments which can be created, one being the CAD hybrid abutment and the other being a CAD hybrid abutment crown (also referred to as screw retained restoration). As a whole, the hybrid abutment is defined as a structure that is made from two pieces, a titanium base to aid in connectivity with the implant along with an increase in dependability, and a highly esthetic ceramic coping. See the examples of both options at right.



Photo Courtesy of Dr. Bob Conte

The photo shows a CAD hybrid abutment that is made up of an abutment coping and a separately milled crown. For placement, the TiBase and coping are cemented together extraorally and then torqued to the implant intraorally. The crown is then cemented on top of the coping intraorally.



Photo Courtesy of Dr. Daniel Vasquez

This photo shows a CAD hybrid abutment crown that has the crown and abutment milled as one piece to allow the screw retained restoration. For placement, the TiBase and abutment are cemented together extraorally and then torqued down to the implant intraorally.



Photo Courtesy of Dr. Daniel Vasquez

When placed, you can see the hybrid abutment crowns have screw access holes that are filled with composite once torqued down, whereas the hybrid abutment has the screw access hole covered by the crown once that is cemented. Each one of these has its own clinical significance, depending on the situation and clinical preference of the clinician.

A Closer Look at the Components Required for a Successful Hybrid Abutment

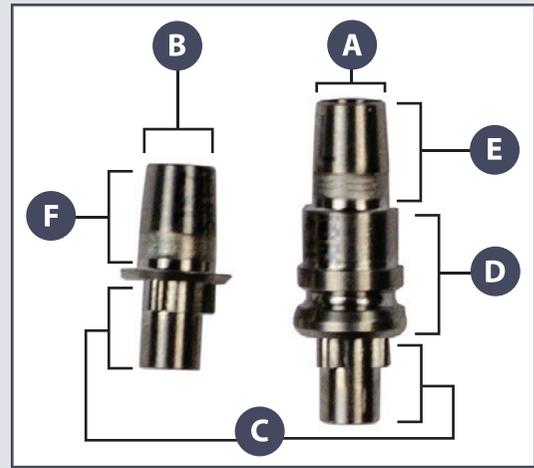
The components are implant dependent; it is vital to the success of this procedure that the correct pieces are used. The custom abutment process currently being done with the CEREC system includes 10 different implant systems and has a total of 28 TiBases and corresponding ScanPosts that work with 33 individual implants. It is important to note that there are 5 sets of TiBases and ScanPosts that will work with multiple sizes of implant diameters such as Nobel Biocare Active 5.0 (NB A 5.0) that fits both 4.3 and 5.0 mm implant diameters. For the specific implant diameters the TiBases or ScanPosts work with, use the Operating Instructions as a resource, which can be found on td.sirona.com.

For the following explanation we are going to be working with a Nobel Biocare Replace RP 4.3 mm implant.

For this case we will need:

1. **TiBase NB RS 4.3L**
2. **ScanPost NB RS 4.3L**
3. **Scanbody for Omnicam (L)**

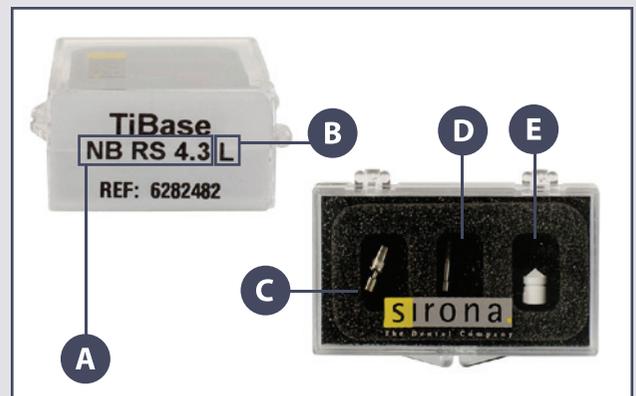
The names of the corresponding TiBase and ScanPost are very similar and in essence they can serve the same purpose when trying to capture the digital image intraorally. The ScanPost and TiBase that correspond to the implant have two characteristics that are exactly the same: the internal connection and the geometry connection (see image to the upper right). There are, however, significant characteristics that make the ScanPost easier to image with, and that is why the additional purchase of a ScanPost might be required depending on the case. Here are the differences between them.



- A - ScanPost NB RS 4.3L
- B - TiBase NB RS 4.3L
- C - Internal Connection that is specific to the implant system and diameter being used.
- D - Additional height ScanPost has to allow for easier acquisition of implant position.
- E - Geometry connector where Scanbody seats.
- F - Geometry connector where Scanbody and milled ceramic abutment will seat.

TiBase

This component's main purpose is to serve as the final titanium base of the hybrid abutment, and is single use only. It can be used for imaging of the implant location and angle, when paired with a Scanbody in the right case. This component is shipped in a nonsterile kit, which includes the titanium base, a Bluecam Scanbody and one abutment screw. This must be sterilized before being placed in the patient's mouth. (Image below shows packaging and outlines significance of labeling.)



- A - Name represents the implant brand, system and diameter of implant it works with. In this example, we are looking at Nobel Biocare, Replace size 4.3.
- B - L or S identifies the geometry connection of the TiBase, which coordinates with the Scanbody and abutment blocks required.
- C - TiBase
- D - Abutment screw
- E - Scanbody for AC Bluecam



ScanPost

This component is the impression post that is used to digitally capture the location and angle of the implant using the CEREC Omnicam or Bluecam. Because the ScanPost is used intraorally, it must be sterilized for each patient and can be used up to 50 times. The ScanPost ships with one ScanPost and one fixing screw (see images of packaging below). In order to scan the ScanPost, a Scanbody is required and fits on the geometry connector. When imaging, the primary concern is imaging the upper part of the Scanbody, whereas the sides of the ScanPost are not as important. One thing to note is when using the screw to fix the ScanPost to the implant for imaging, the maximum tightening torque is 15 Ncm.



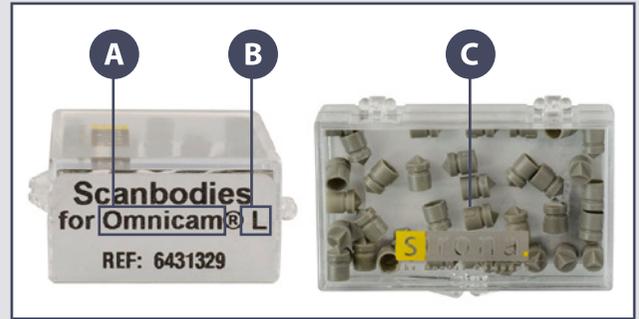
- A - Just as with the coordinating TiBase, the name represents the implant brand, system and diameter of implant it works with.
- B - L or S signifies the geometry connection of the ScanPost, which coordinates with the size of the Scanbody that is required.
- C - ScanPost
- D - Fixing screw

Scanbody

The Scanbody is a single use imaging cap that fits on top of the TiBase or ScanPost geometry connection. There are four different Scanbodies available that change depending on the camera being used and the geometry connector of the TiBase or ScanPost. The Bluecam requires the white Scanbody, whereas the Omnicam requires the grey Scanbody. The geometry is either an L or an S, and this is clearly labeled on all TiBase or ScanPost packages being used. The Scanbody has a notch on it that needs to directly line up with the guide groove on the TiBase or ScanPost to help capture the correct position of the implant. If this is not done correctly, it will result in a negative outcome on the custom abutment.

There are two ways to get Scanbodies:

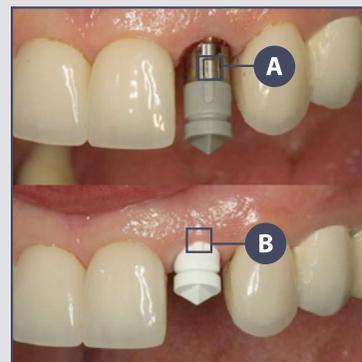
1. There is a white Bluecam Scanbody included with all TiBase kits.
2. Patterson Dental sells packages of Scanbodies for both Bluecam and Omnicam in both size L and size S. There are 36 Scanbodies in each package. (Image in upper right shows these packages and labeling.)



- A - Specific CEREC AC these Scanbodies work with.
- B - Geometry connector size the Scanbody works with.
- C - Grey for Omnicam. White is for Bluecam. (See TiBase kit for photo) (See TiBase photo for white Bluecam Scanbody example)

Should the ScanPost or TiBase Be Used for Imaging?

The decision factor of which to go with depends heavily on how deep the implant is placed. The ScanPost is longer than the TiBase, so for implants that are placed deeper into the bone, it often can be difficult to determine if and when the Scanbody is seated all the way. The length is not the only attribute that makes imaging with ScanPost easier. It also has a visible notch on its external surface that lines up with the guide groove the Scanbody has to align with. This is imperative to have lined up so the software can determine the correct angle and location of the implant. As you can see in the image below, once the TiBase is seated it is impossible to see where the guide groove for the Scanbody is because of its shorter length and the depth of the implant in the bone. This makes it difficult to determine if the Scanbody is seated correctly. In this example, the ScanPost is the superior choice for imaging. Note: once the case is imaged, designed and milled it is easier to determine the final location and depth of the TiBase and abutment because of the anatomical significance of the pieces.



- A - Notch of ScanPost helps align Scanbody and ScanPost for best acquisition.
- B - TiBase is difficult to ensure proper seating of the Scanbody intraorally, which can severely impact the final outcome of the abutment.