Ball Head Technology®

Pioneers in Angulation

USERS MANUAL BHS30 LIBRARY FOR EXOCAD –AMANN GIRRBACH – OPEN TECHNOLOGIES - IMETRIC

INTRODUCTION

Once Exocad Dental DB program is initiated, the following screen is shown (see image 1) in which we define the work to be done.

Image 1. Select compatibility

On the left side (**Project**), we introduce all general details: Client, Name of the Patient, Technician and other General Observations.

Further down (**Options**) we fully define the restoration, without indicating brand or implant system.

On the central area (**Worksheet**) we select the pieces to be restored, detailing type of restoration, material and other specifications as the minimum thickness or type of implant. **Important:** Select **OCCLUSAL SCREW RETENTION**

It is very important to indicate that we will use an implant library since our reconstruction will be made on one or more implants, depending if it is a single or a multiple restoration.

SELECT BHS30 IMPLANT LIBRARY

In the following step the appropriate **BHS30** library is selected, according to the required compatibility and platform. For your convenience, you can find all corresponding libraries, according to their brand and implant system and platform, in our **BHS30 Catalogue CAD/CAM PROSTHESIS**. The wide range of compatibilities can be consulted through the following link: http://ballheadtechnology.com/CATALOGUES/CATALOGO_DE_PRODUCTO_2020_PROTESIS_CAD_CAM.pdf

1) **Select compatibility**:

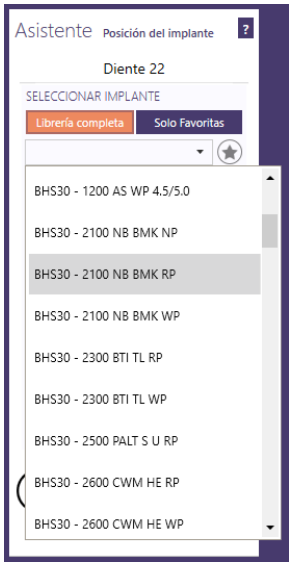

Image 2. Select compatibility

The BHS30 library has several compatibilities available. Therefore, we must select the required option based on the following order structure:

BHS30
Ball Head System solution for correcting angulation up to 30°, with the following options: Implant Level, CrCo Base Level & Ti Base Level.

XXXX - Select compatibility:
1100 / 1200 / 2100 / 2300 / 2600 / 3100 / 3200 / 4100 / 4200 / 4600 / 5100 / 5200 / 6100 / 7100 / 7400 / 7600 / 8100 / 9600 = Compatibility

YY - Select platform:

NP / RP / WP / NC / RC / RP 3.5/4.0 / WP 4.5/5.0 / 20° / 45° / S2 / S3 & S4 / RN Ø4.8 / RN SYNOCTA Ø4.8 / 4.0 / … = Platform

For example: **BHS30** – 2100 NB BMK **RP** (see image 2).

2) **Select manufacturing process**:

Image 3. Select manufacturing process.

Once compatibility and platform are defined, we select manufacturing process at the bottom left tab (see image 3):

- Direct To Implant (Implant Level)
- Ti Base (Cementing to **BHS30** Titanium Base)
- CrCo Base (Welding to **BHS30** CrCo Base)

3) **Select options for screw emergence channel, Engaging or Non Engaging, required angulation, etc.**:
Once manufacturing process has been chosen, options with which you want to make your prosthesis must be chosen.

3.1) Process 1. Implant Level (Direct to Implant):

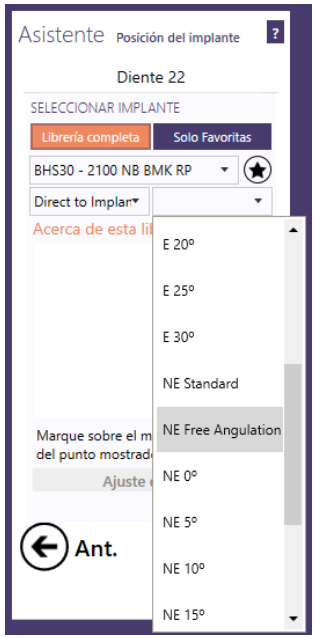

Image 4. Process 1. Implant Level.

The references **E** or **NE** define whether the restoration is **Engaging** or **Non Engaging**. The following examples show the different possibilities to correct angulation:

NE Free Angulation = Implant Level, Non Engaging connection (NE), intended to work within the full 30° angle correction range offered by exocad (selectable) and to orientate the transocclusal channel with freedom.
Note: "**Free Angulation**" option offered by exocad delivers a wider emergence diameter than the **BHS30** predefined option.

E 25° = Implant Level, Engaging connection (E), 25° predefined angulation. 7 predefined angulations are offered 0°, 5°, 10°, 15°, 20°, 25° and 30° for each option.

NE Standard = Implant Level, Non Engaging connection (NE), for straight channels with **straight conventional screws**.

3.2) Process 2. Cementing to BHS30 Titanium Base (Ti Base):

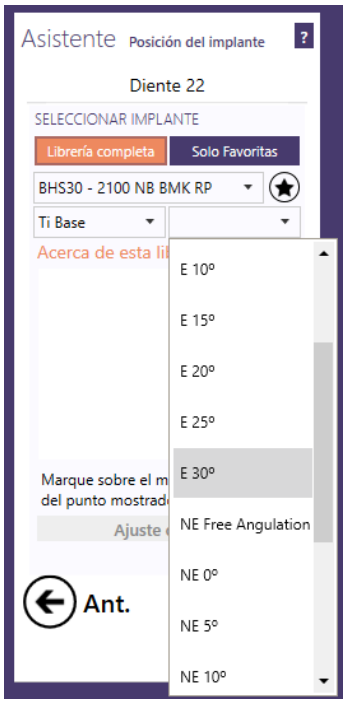

Image 5. Process 2. Ti Base Level (for cementing).

The references **E** or **NE** define whether the restoration is Engaging or Non Engaging. The following examples show the different possibilities to correct angulation:

NE Free Angulation = Cementing to BHS30 Titanium Base, Non Engaging connection (NE), intended to work within the full 30° angle correction range offered by exocad (selectable) and to orientate the transocclusal channel with freedom.
Note: "**Free Angulation**" option offered by exocad delivers a wider emergence diameter than the **BHS30** predefined option.

E 25° = Cementing to BHS30 Titanium Base, Engaging connection (E), 25° predefined angulation. 7 predefined angulations are offered 0°, 5°, 10°, 15°, 20°,
25° and 30° for each option.

3.3) Process 3. Welding to BHS30 CrCo Base (CrCo Base):

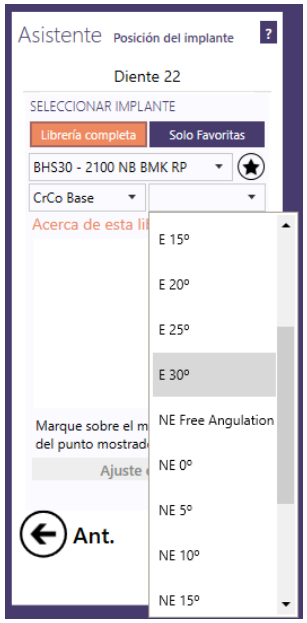

Image 6. Process 3. CrCo Base Level (for welding).

The references **E** or **NE** define whether the restoration is Engaging or Non Engaging. The following examples show the different possibilities to correct angulation:

NE Free Angulation = Welding to BHS30 CrCo Base, Non Engaging connection (NE), intended to work within the full 30° angle correction range offered by exocad (selectable) and to orientate the transocclusal channel with freedom.
Note: "**Free Angulation**" option offered by exocad delivers a wider emergence diameter than the **BHS30** predefined option.

E 25° = Welding to BHS30 CrCo Base, Engaging connection (E), 25° predefined angulation. 7 predefined angulations are offered 0°, 5°, 10°, 15°, 20°,
25° and 30° for each option.

PLACEMENT OF THE BHS30 SCANBODY ON THE WORKING AREA

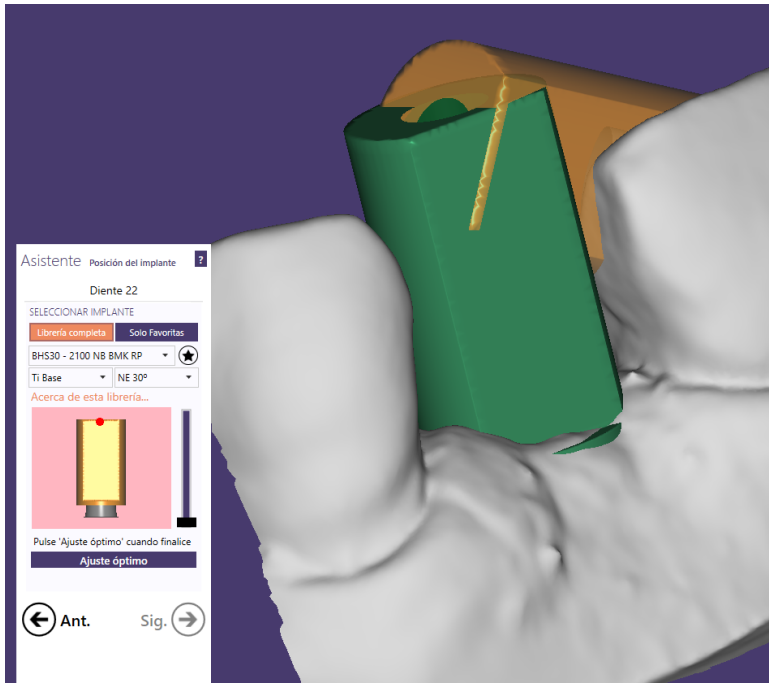

Image 7. Placement of the Scanbody on the working area.

After selecting all previous variables, we proceed to **place the scanbody on the working area.**

The angulation will only be modifiable during the process if the “Free Angulation” option has been chosen previously (with exocad "selectable" option), since the predefined options will fix angulation towards the opposite side of the scanbody flat face. Therefore, **it is always recommended to orientate the scanbody flat face towards vestibular side.**

Note: Although the “**Free Angulation**” option allows the angulation and orientation of the emergence hole with freedom (with exocad "selectable" option), we must take into account that exocad angulation feature will deform the channel design, resulting in a wider diameter than the one offered by any of the **BHS30** predefined options (with 2.8mm diameter cylindrical emergencies or occlusal channel).

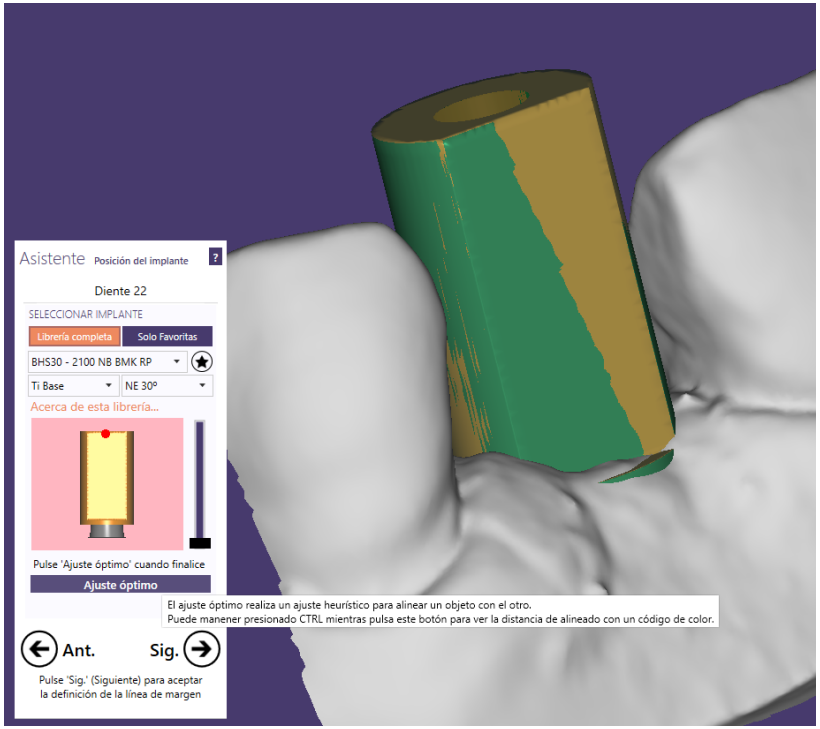

Image 8. “Best Fit” Scanbody positioning.

In the previous image, we can see the scanbody is not showing a perfect position.

To correct that, we must click on the button “**Best fit matching**”, which will help us relocating the scanbody (see image 8).

Once the scanbody finds its correct position, we can proceed to the next step by clicking on **Sig.** →

DEFINITION OF THE EMERGENCE PROFILE AND POSITION OF THE TOOTH TEMPLATE

As per the procedure for any implant library.

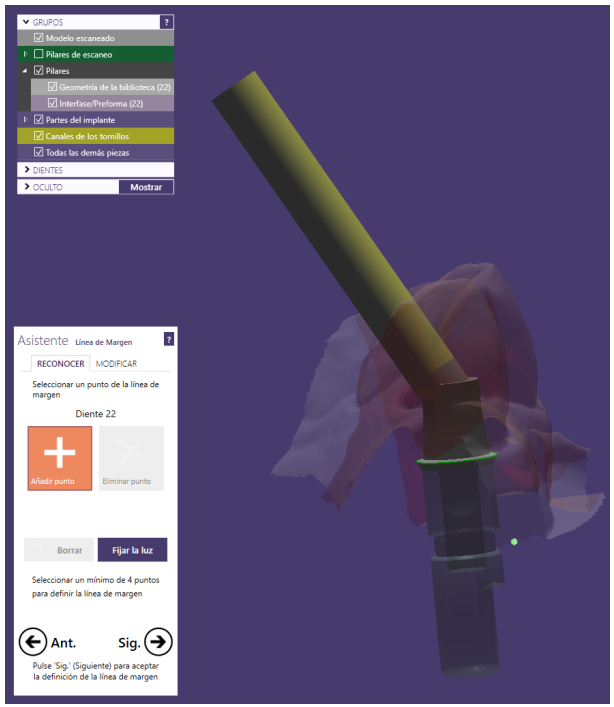

Image 9. Emergence profile definition menu.

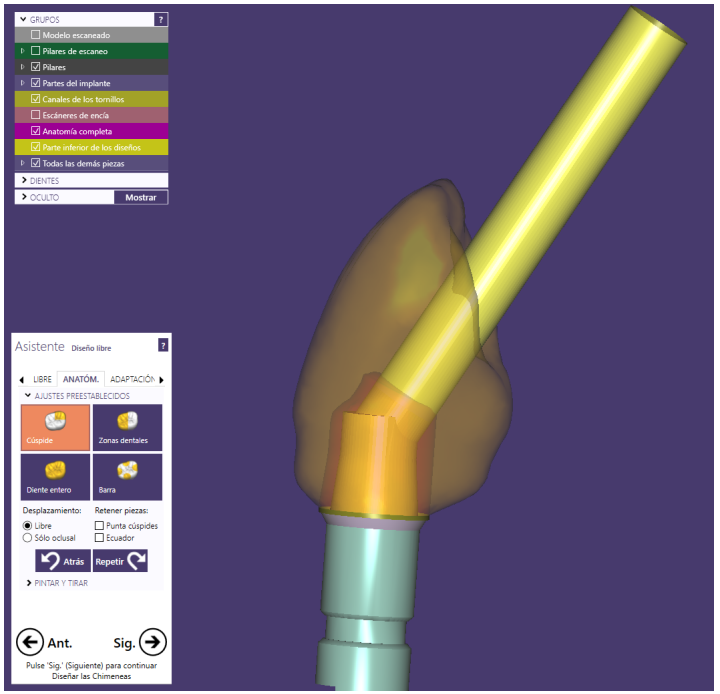

Image 10. Tooth template position menu.

PROSTHETIC STRUCTURE DESIGN

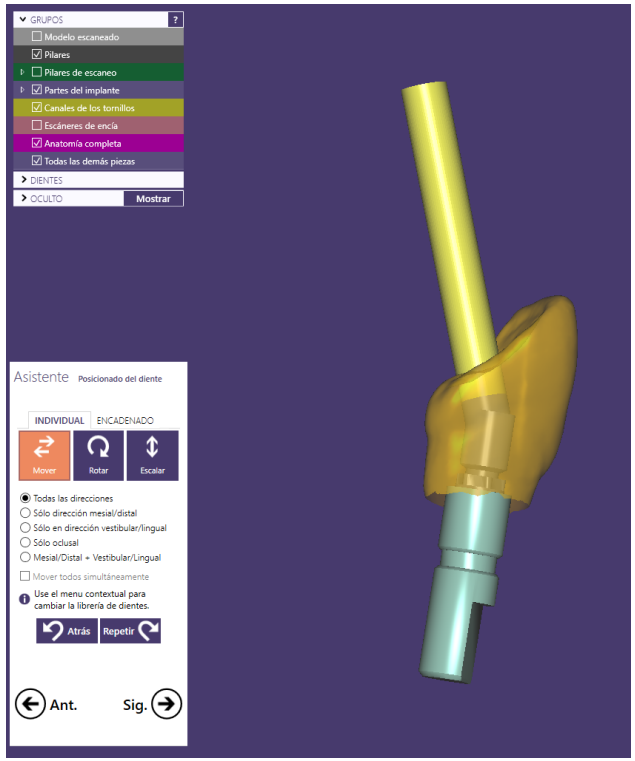

Image 11. Definition of thestructure position and scale.

In this stage we define the exact position and scale of the prosthetic structure through the menu shown in image 11.

After adjusting these settings, we can proceed to the next step by clicking on **Sig.** →

In this stage we will proceed with the adjustment through the assistant “**Create Abutment Base**”.

In case we have previously chosen the “**Free Angulation**” option, we can set the angulation with exocad modulus through this menu, by clicking on the “**Advanced**” tab. Thanks to the option “**Angled Chimneys**” and by activating the “**Selectable**” button, which turns into orange color, we are allowed to change the angulation and orientation of the emergence channel by simply pointing our cursor to its desired location. The program will show an indicator with the exact angle correction grades each time we relocate the channel (see images 12 and 13)

Once the design has been set, we proceed to the next stage by clicking on **Sig.** →

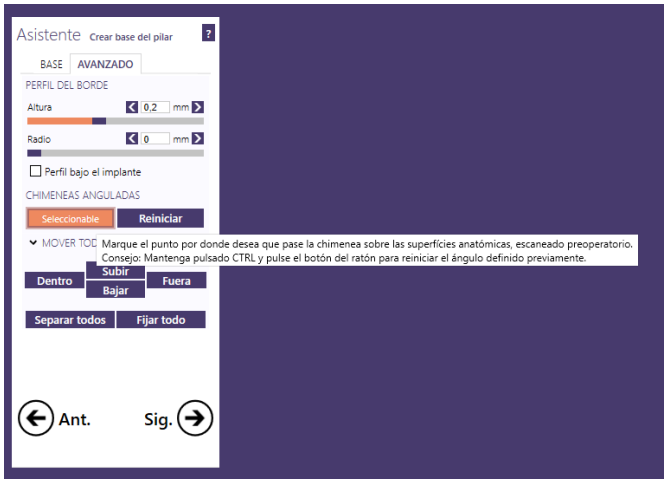

Image 12. Menu to define “selectable” free angle.

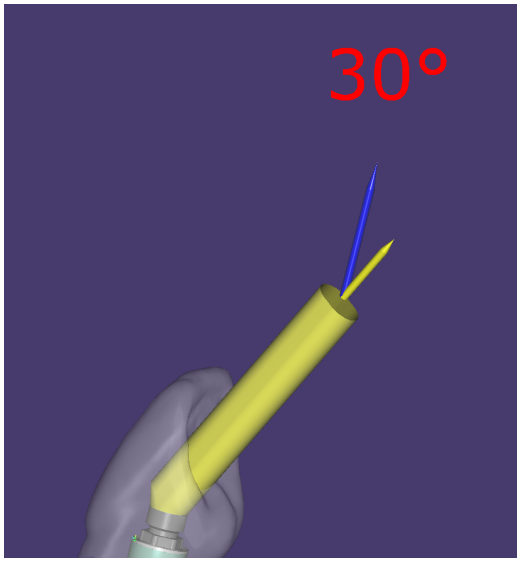

Image 13. Piece with "selectable" free angulation (30°).

IMPORTANT: “**Free Angulation**” option offered by exocad delivers a wider emergence diameter than the **BHS30** predefined alternative. Deformation is less significant in Implant Level restorations. However, when dealing with Ti/CrCo Abutment Level designs the use of **BHS30** predefined angulation feature is highly recommended.

The current stage will allow us to define the anatomical design of the prosthetic structure through the assistant "**Free Design**"

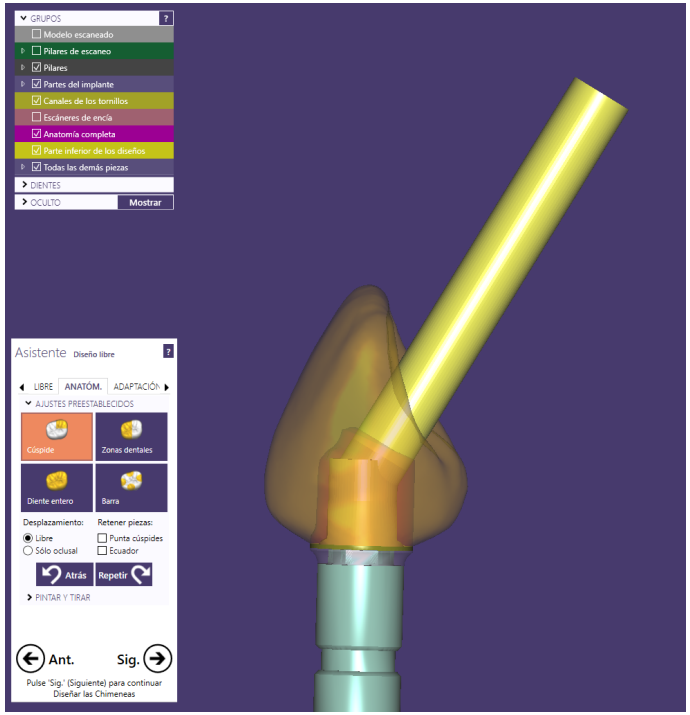

Image 14. Menu to define the anatomical design of the prosthesis.

Image 14 features a new menu which allows defining the structure anatomical design.

When the proper design has been finally set, we proceed to the next stage by clicking on **Sig.** →

PROSTHETIC SCREW ACCESS HOLE DESIGN

In the present stage, we are allowed to modify the height and thickness of the screw hole, as per the procedure for any implant library.

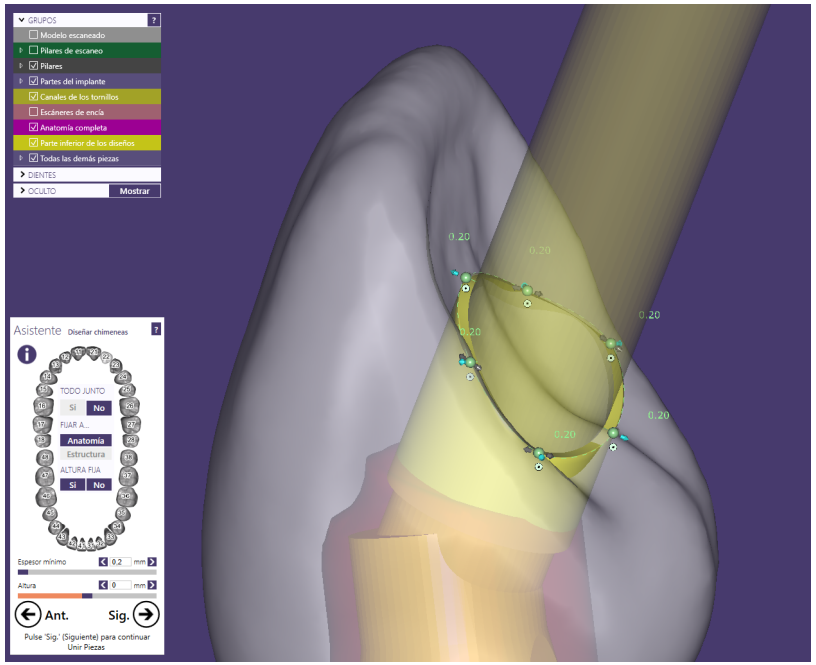

Image 15. Menu to define the settings of the **BHS30** screw hole.

Image 15 shows the menu to design the **BHS30** screw access hole, by setting its desired height and thickness, the same way we would do in any other implant library.

Once this step is complete, the final design of our restoration is obtained when we click on **Sig.** →

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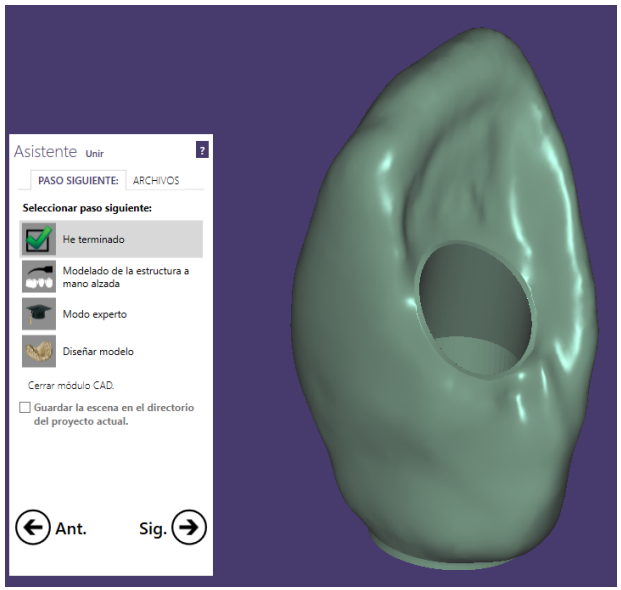
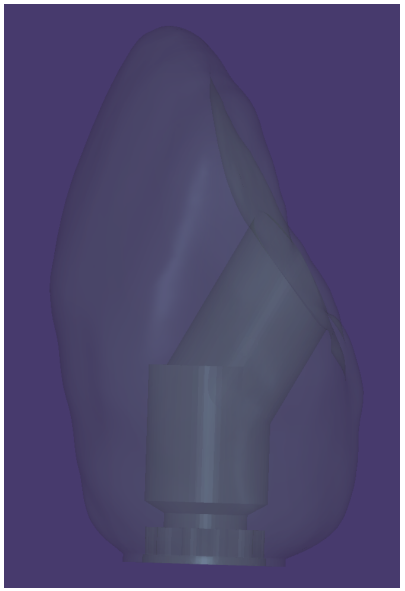
VIEWS OF THE RESULTING DESIGN

Process 1: Implant Level, Engaging with 30° predefined angulation (**E 30°**)

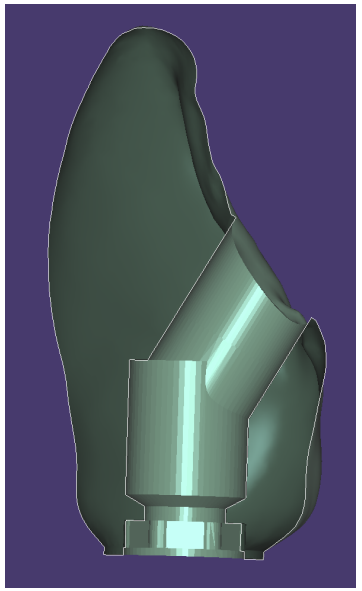
Library: **BHS30 – 2100 NB BMK** Process: **Direct to implant** Occlusal channel: **E 30°**



Exterior View



Transparent View



Section View

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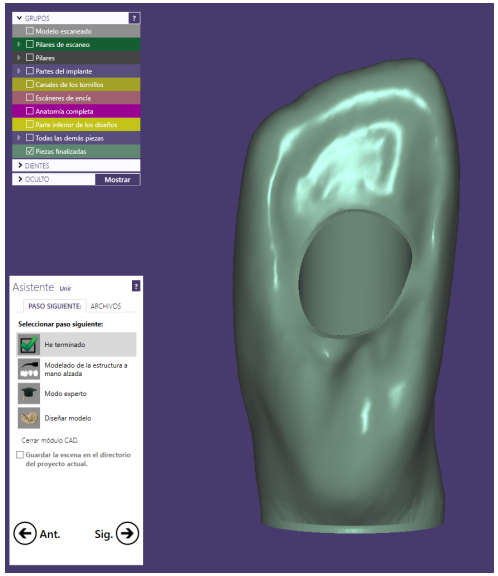
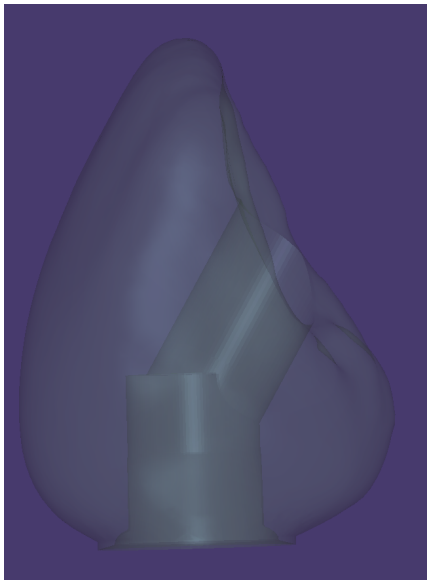
VIEWS OF THE RESULTING DESIGN

Proceso 3: CrCo Base, Engaging with 30° predefined angulation (**E 30°**)

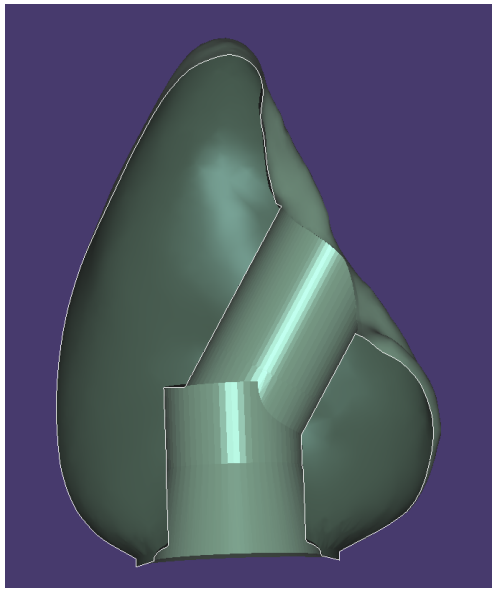
Library: **BHS30 – 2100 NB BMK RP** Process: **CrCo Base** Occlusal channel: **E 30°**



Exterior View



Transparent View



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