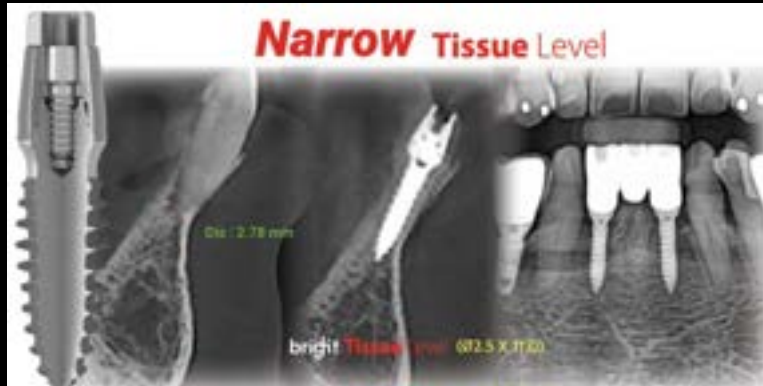


Optimized prosthetic workflow based on the **bright** Concept



Minimalism Surgery

Model-less
(BTS, IOS, BOS)
(Virtual Articulator)

Only Custom Abutment?
(Digital Abutment, Ti-Base
Abutment)



Simple Digital Prosthesis

Dental Lab Materials
zirconia(3 layer block, bright mono block, Shine T block)
3D printing Flexible Resin

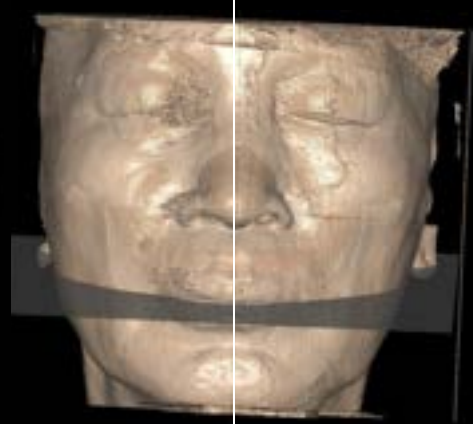
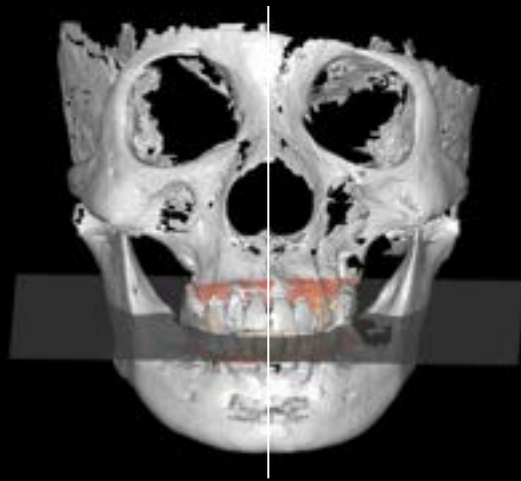
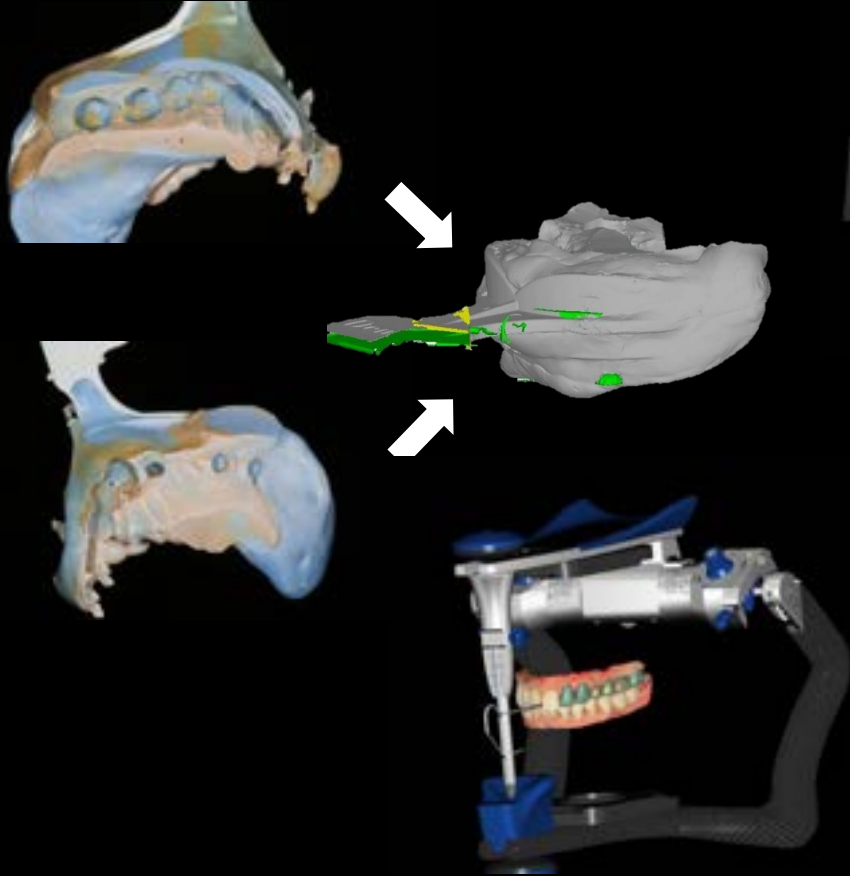
CT data (AI Occlusal Plane)
(Dicom – STL)
(CT Viewer ➡ Dental Cad)

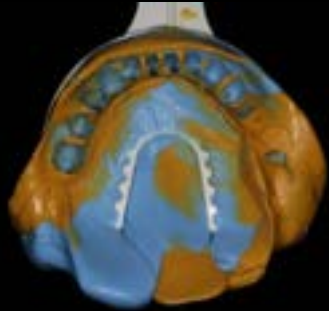
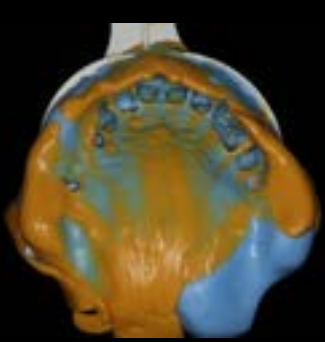
bright Implant



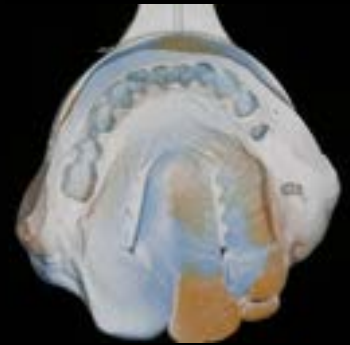
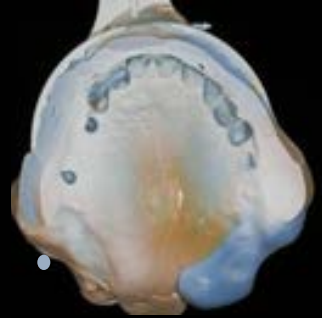
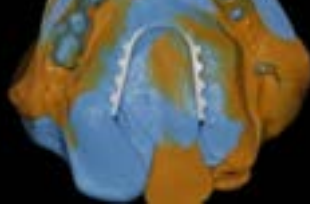
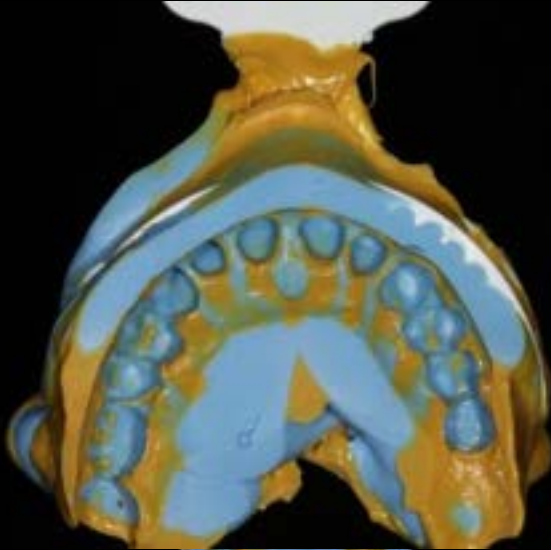
Only a model used, bite and Tooth Axis Discrepancies

bright Implant





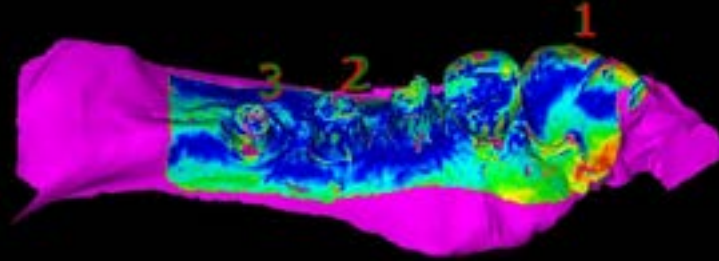
Border, Embrasure Trimming



Scan Spray

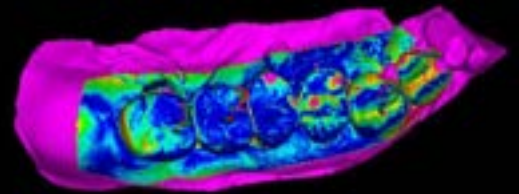
BTS(Bite Tray Impression scan

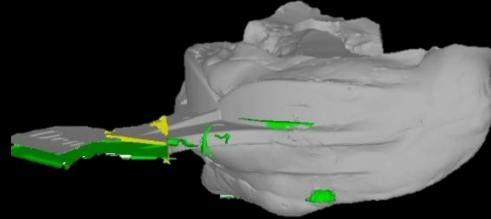
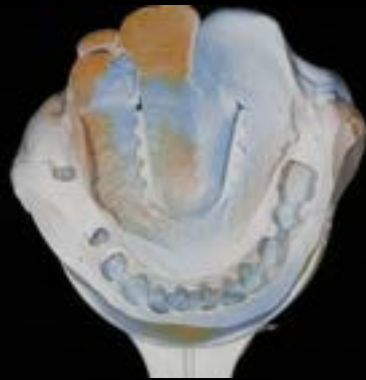
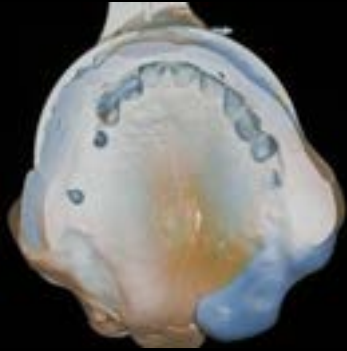
1



BTS

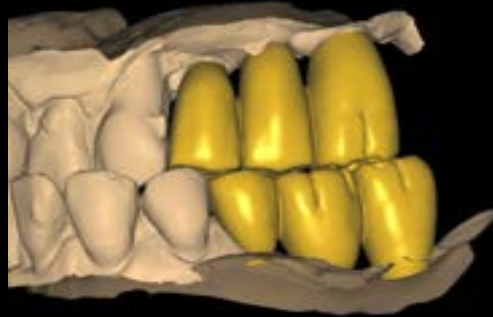
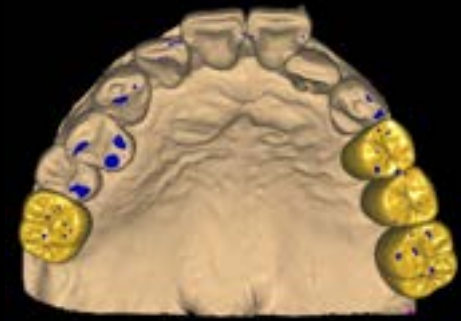
Stone Model





No Articulator Mounting / Bite Tray Auto Stitching

BTS(Bite Tray Impression scan



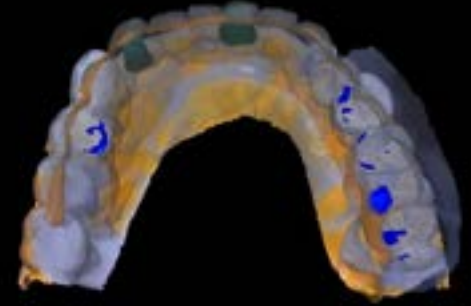
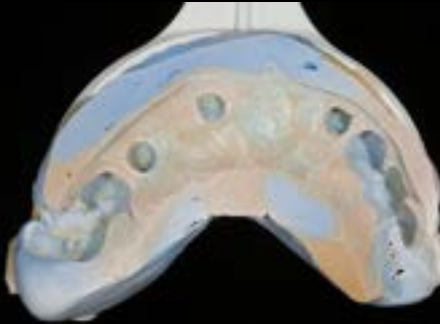
BTS(Bite Tray Impression scan



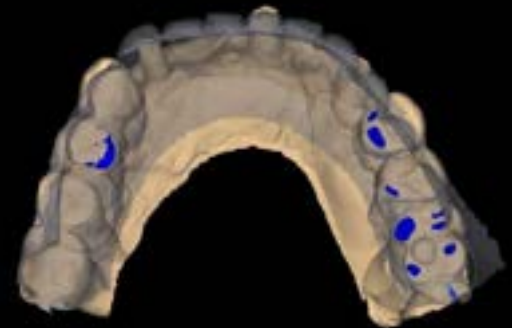
**Intro Oral Scanner
(Clinic)**



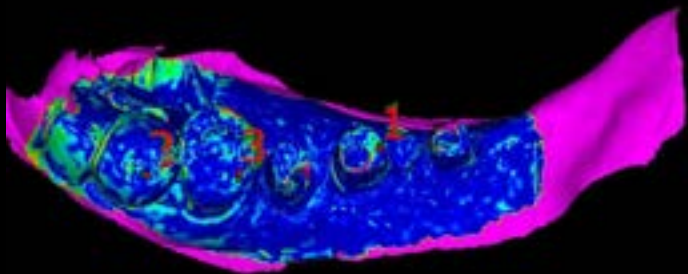
**Model Scanner
(Lab)**



BOS

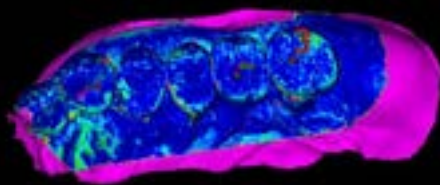


BTS



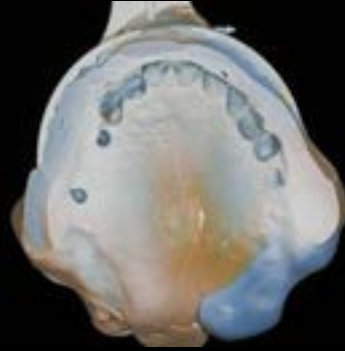
BTS Scan

BOS Scan

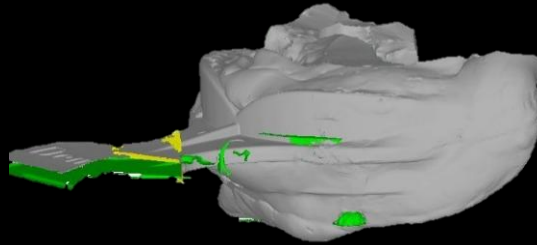




**BOS
(Clinic)**



**BTS
(Lab)**



Digital Model Less

Low investment
High Accuracy

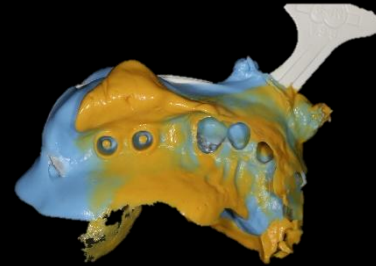
It's a great technique for getting started with model-less workflows.



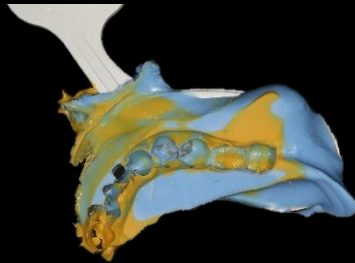
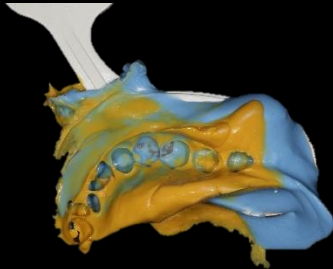
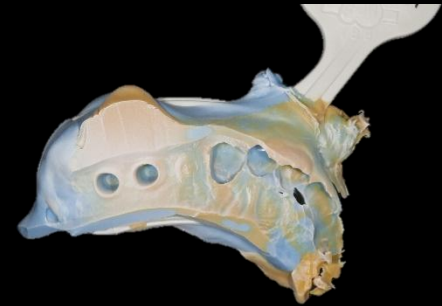
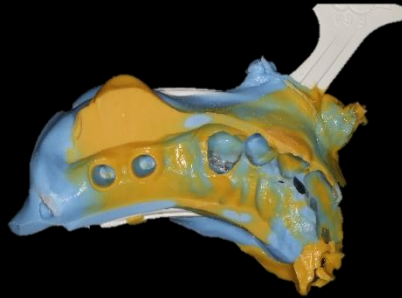
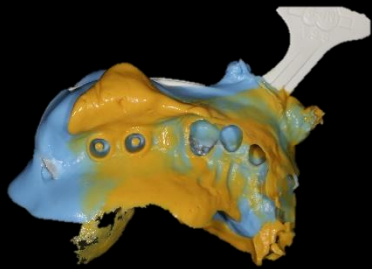
26i 27i
bright Bone Level



Shining 3D
AutoScan-DS-EX Pro (H)

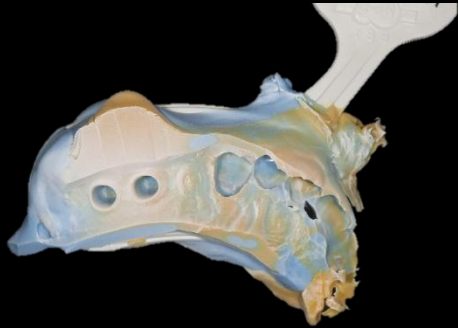


BTS
(Bite impression Tray Scan)

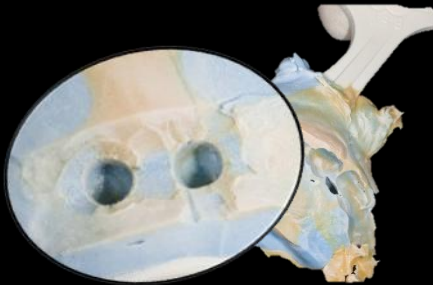


**Border & Embrasure
Trimming**

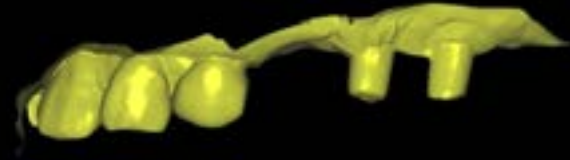
Scan spray



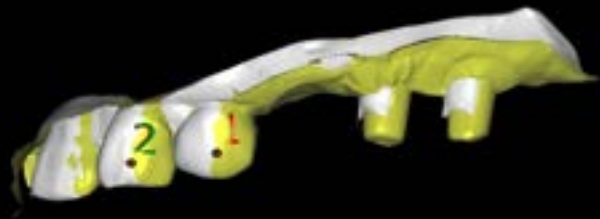
1st Trimming

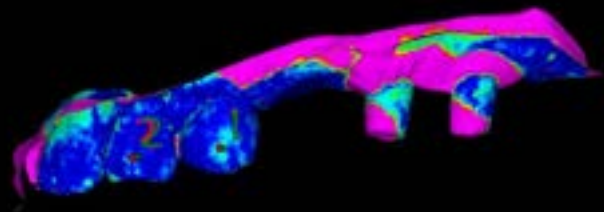


2nd Trimming



26i, 27i Custom abutment level impression

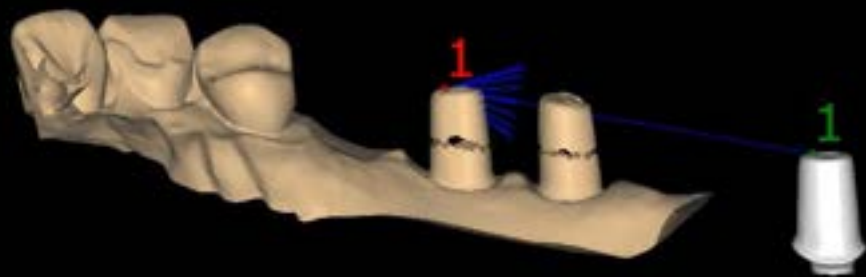


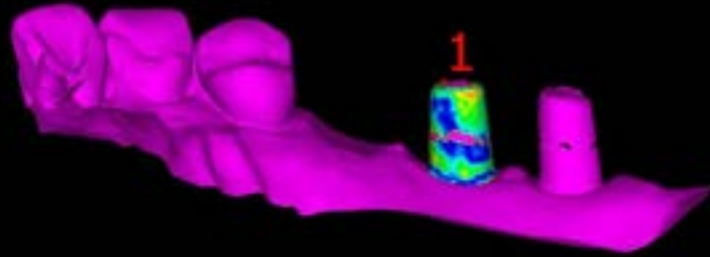




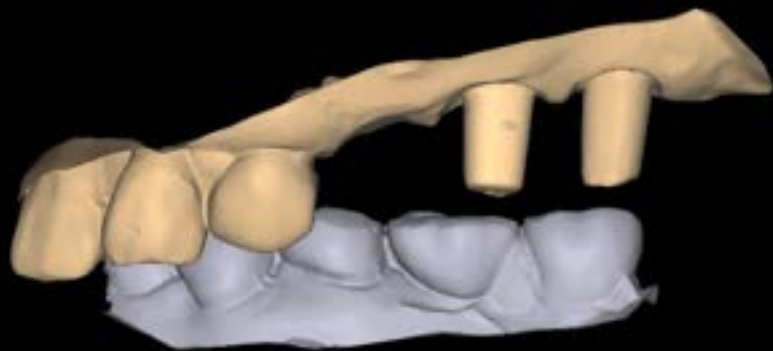
Custom abutment Scan data

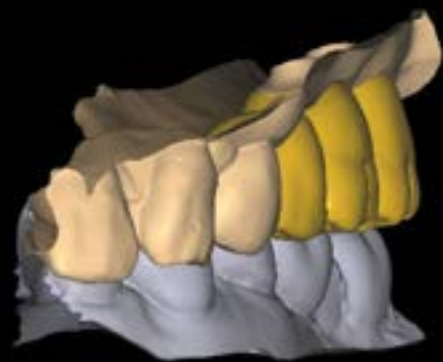
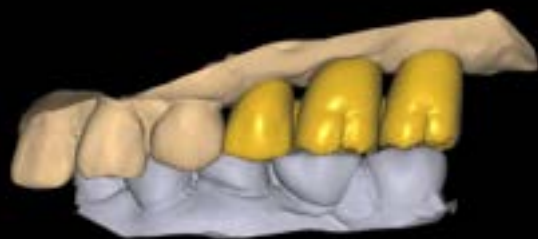
1st scan data + 2nd Scan data Stitching
Edit Mesh data

















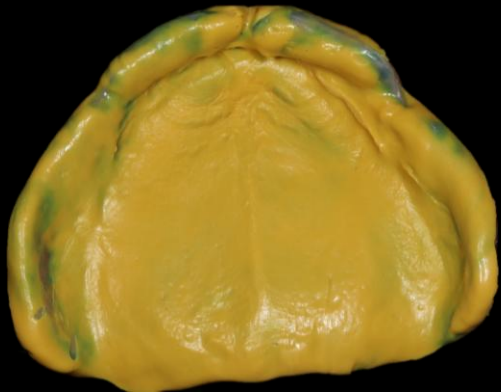
13i 23i
bright Tissue Level



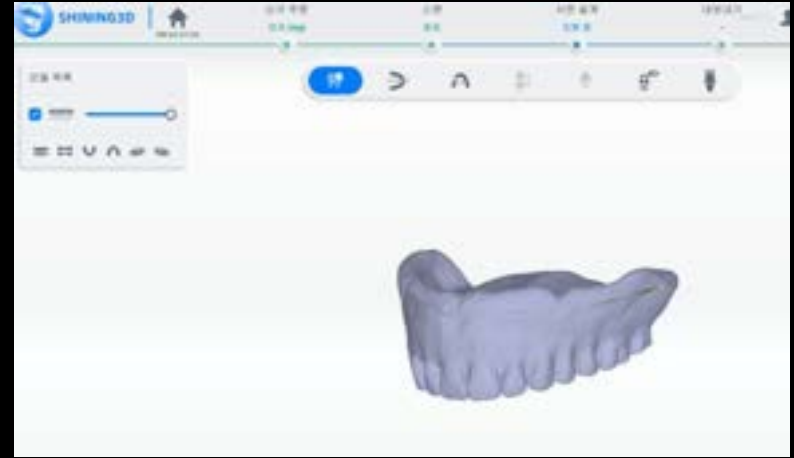
Shining 3D
AutoScan-DS-EX Pro (H)



Denture Impression Scan
(Impression Scan)

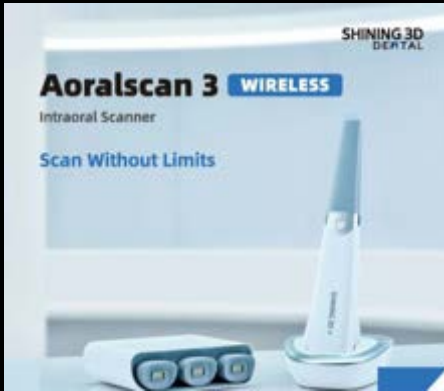


Converted old denture into individual tray for precision impression



Shining 3D
AutoScan-DS-EX Pro (H)

Digital Denture Defulicate



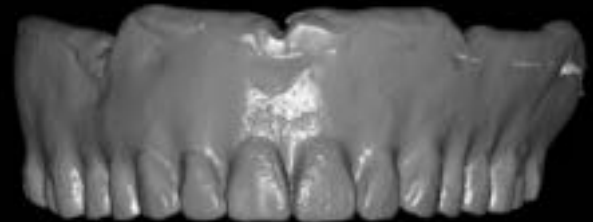
Shining 3d AoralScan3 Wireless
(Model-less)



Existing denture bite captured with IOS

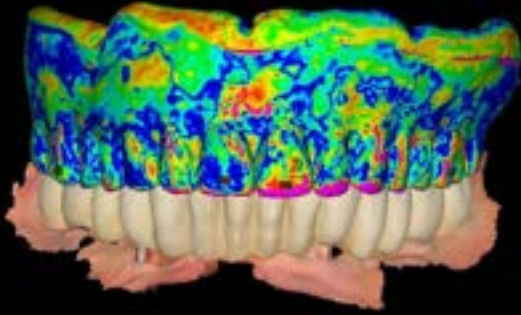


Shining 3D
AutoScan-DS-EX Pro (H)



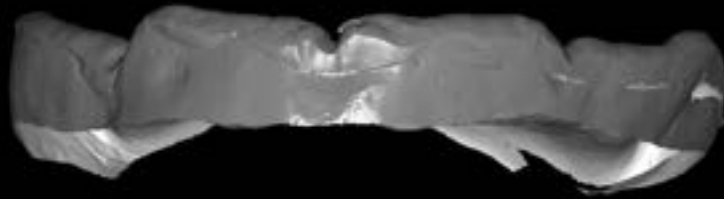
Denture impression scanned with model scanner

Cad Design



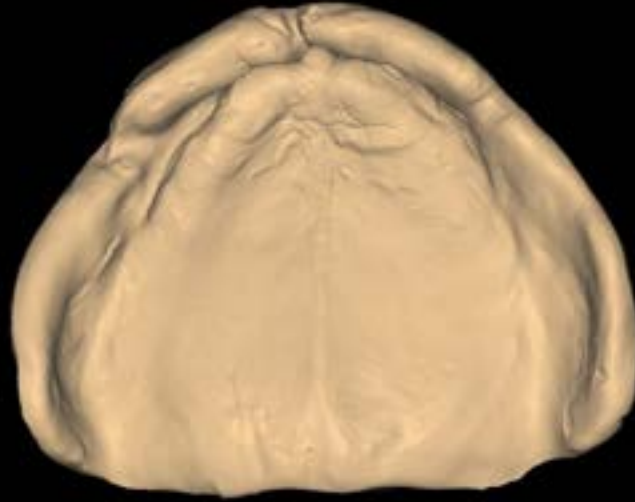
Denture bite record+ Denture Imp Scan data Stitching

Cad Design



Editing and Mirroring Denture Impression Data for Working Model

Cad Design

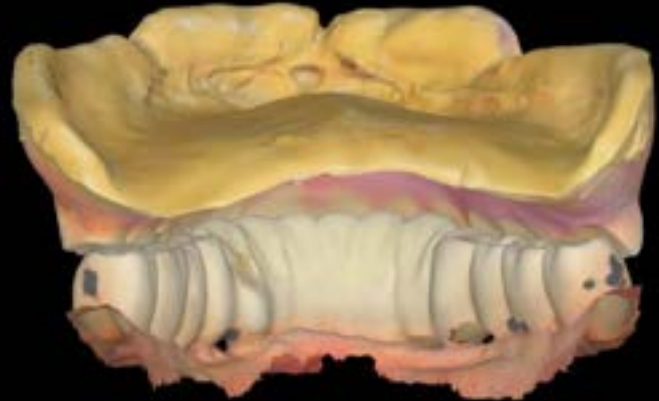
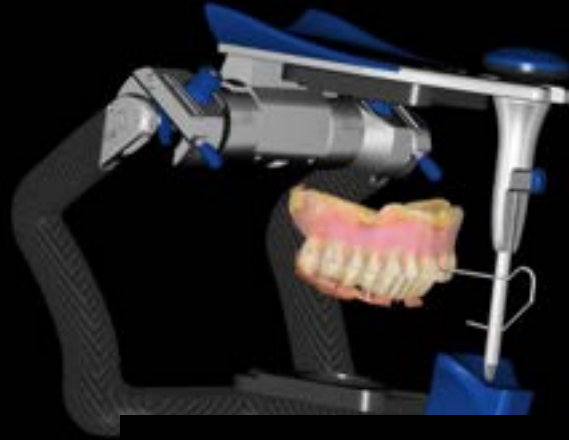
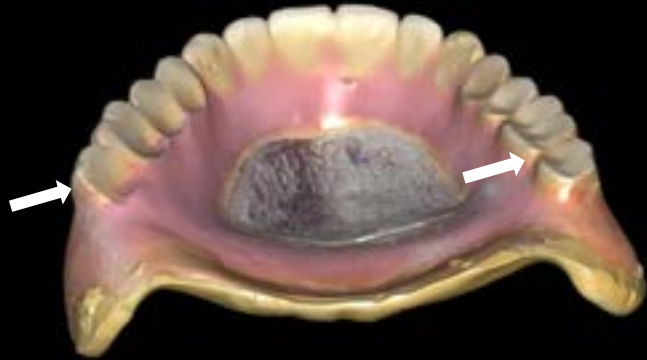


Editing and Mirroring Denture Impression Data for Working Model

Cad Design

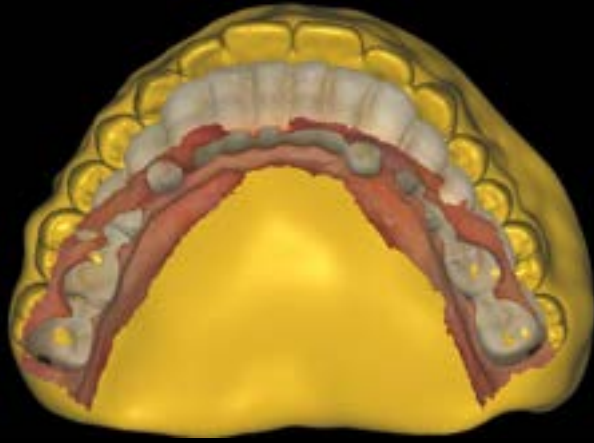


Cad Design

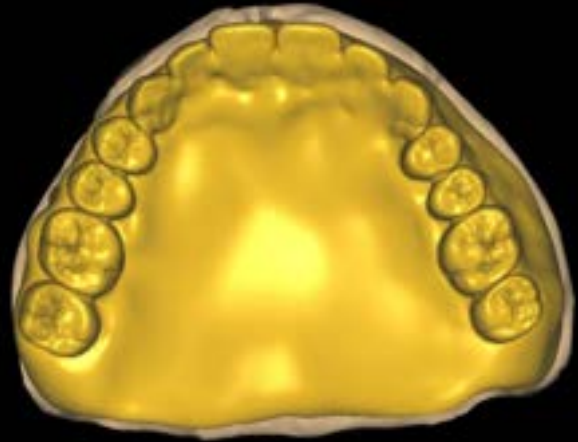


VD +2 mm from existing denture

Cad Design



Cad Design





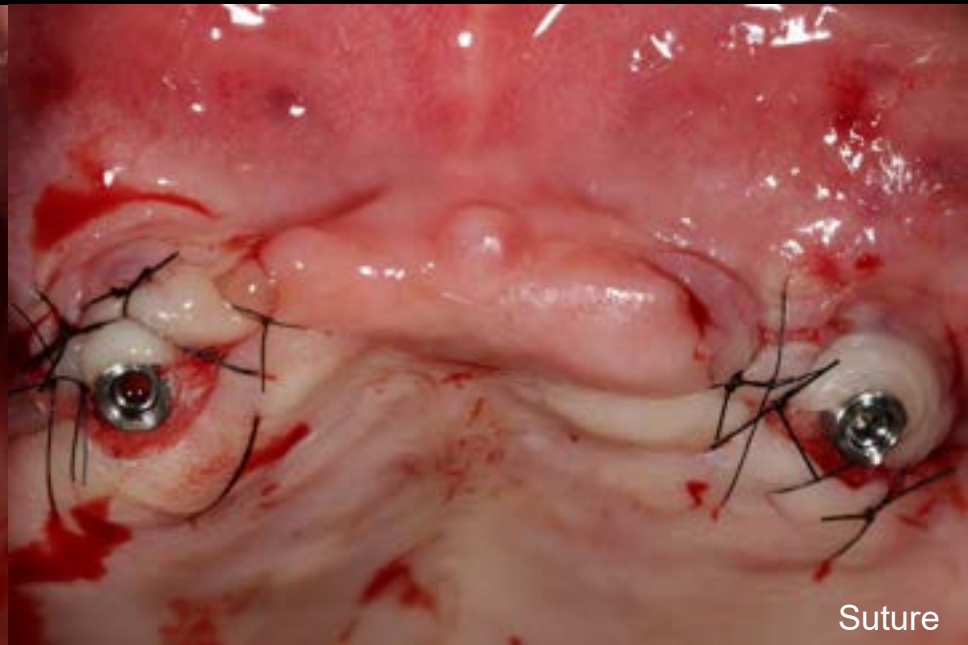
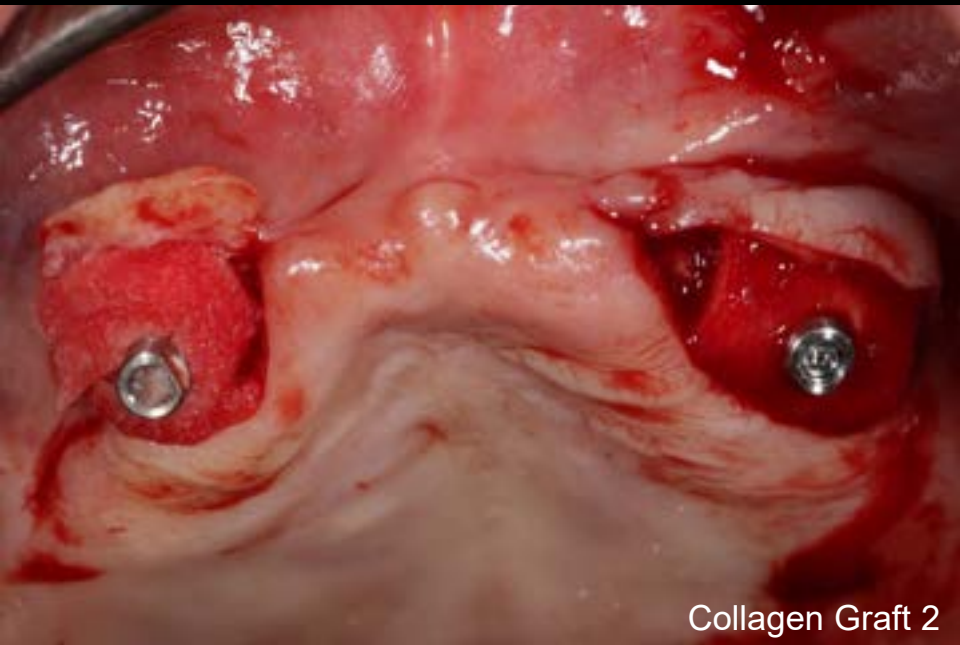
I.S (#13i, #23i) for denture retention



bright TL (Ø3.5 X 7.0B)



Scan comfort cap



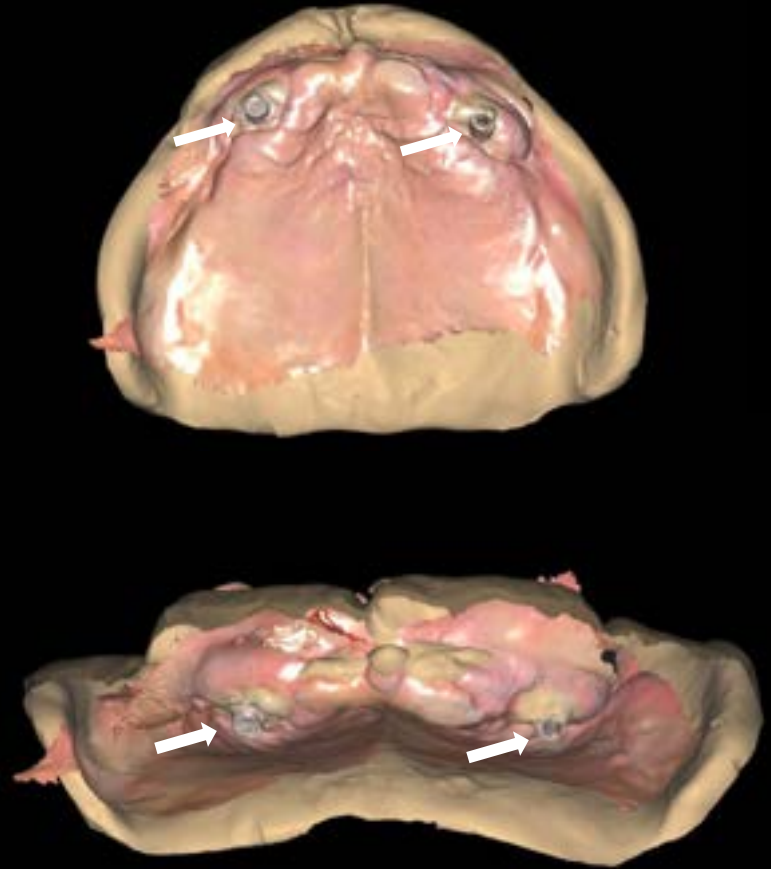


#13



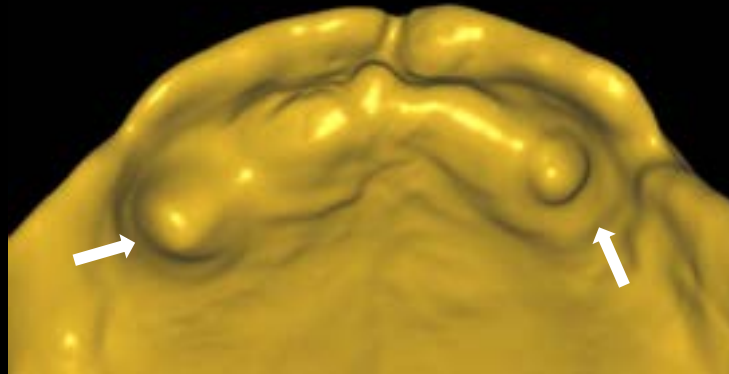
#23

Cad Design



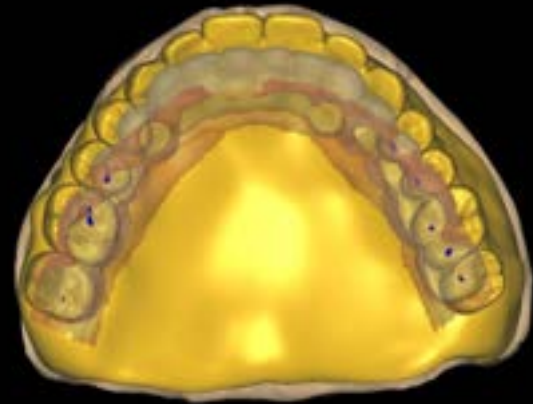
Alignment of IOS data with denture intaglio model

Cad Design



Relief on denture intaglio surface at implant sites

Virtual Articulator



bright 3D Material



Flexible Denture

3D Flexible Denture



Light cured denture resin (A2/ A3/ Pink Shade)

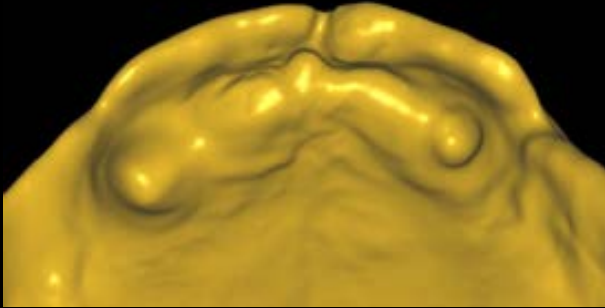
High fracture resistance
and durability enable various cases



Specification

| Properties | Value/Method | Method |
|-------------------|--------------|-------------|
| Color | A2/ A3/ Pink | - |
| Viscosity | ≤ 700 cP | BrookField |
| Flexural strength | ≥ 65 MPa | ISO 20795-1 |
| Hardness | ≥ 80 Hs | ISO 868 |

Printing & Glazing



Provisional Restoration



Provisional Restoration





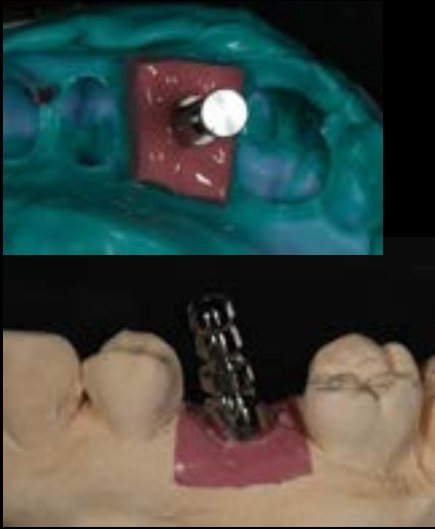
Converted old denture into individual tray for precision impression
Functional impression model using BTS concept with reduced error



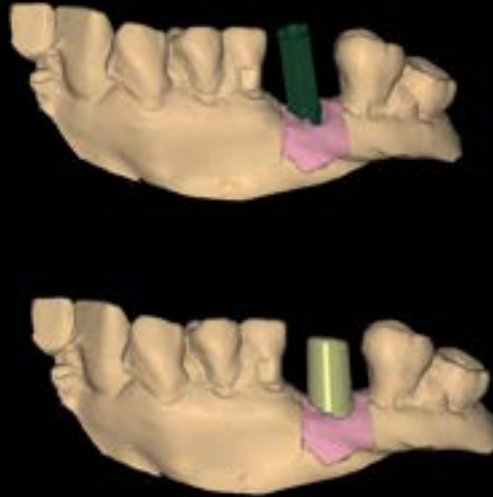
Model-Less Using an Oral Scanner & Digital Abutment



Model-Less Using an Oral Scanner & Digital Abutment



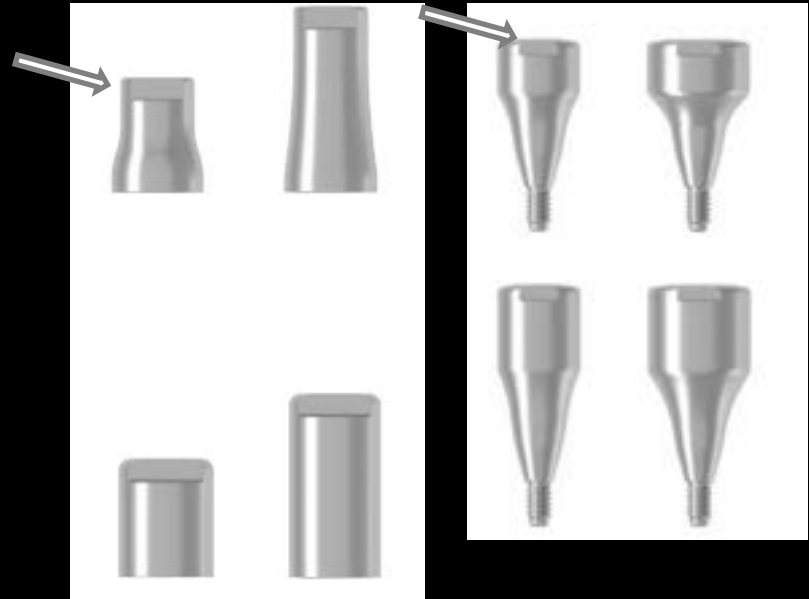
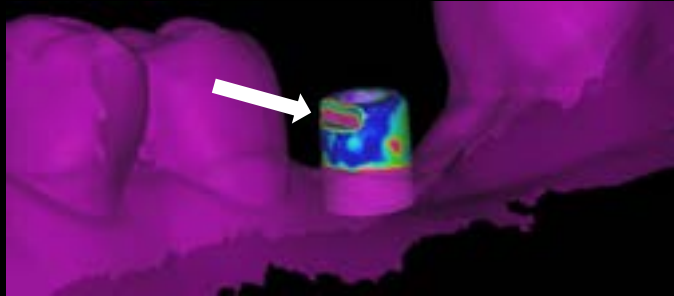
**Stone Pouring
(Working model)**



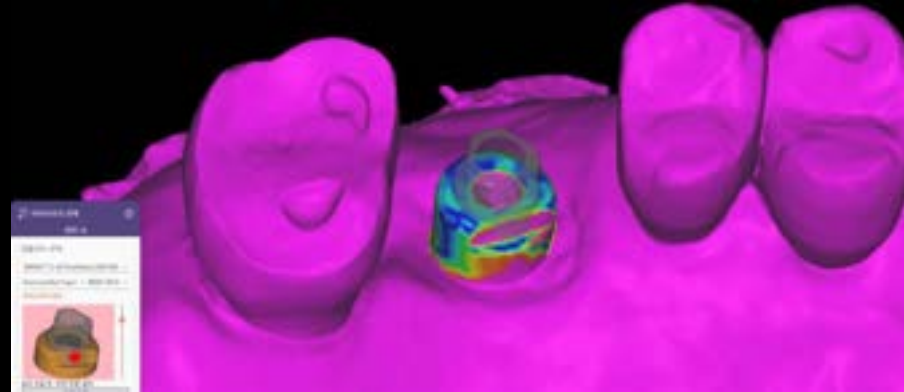
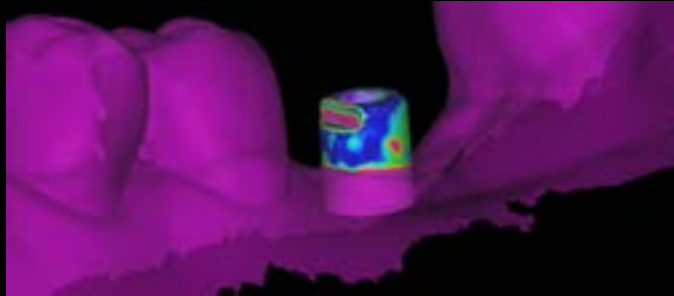
Model Scan & Abutment Design



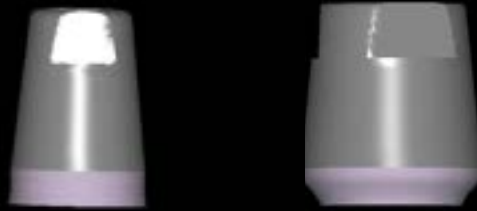
Abutment Milling & Polishing



**Scan Abutment
(Healing Abutment)**



**Scan Abutment
(Healing Abutment)**

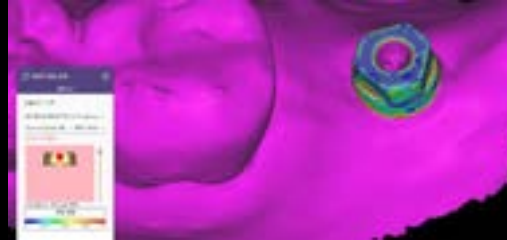


Digital Abutment



Healing Abutment

Digital abutment connected immediately after surgery instead of healing abutment



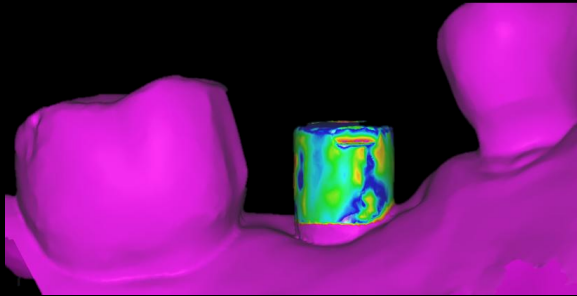
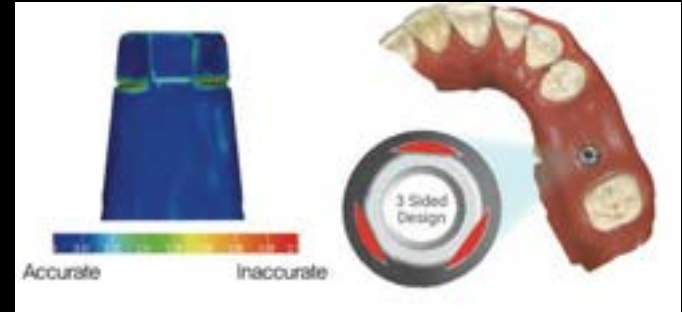
Scan Abutment

For impression and IOS scanning, the digital abutment level was scanned instead of using a scan body

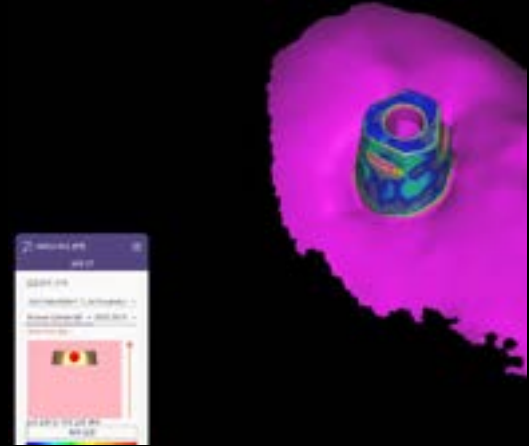


Permanent Abutment

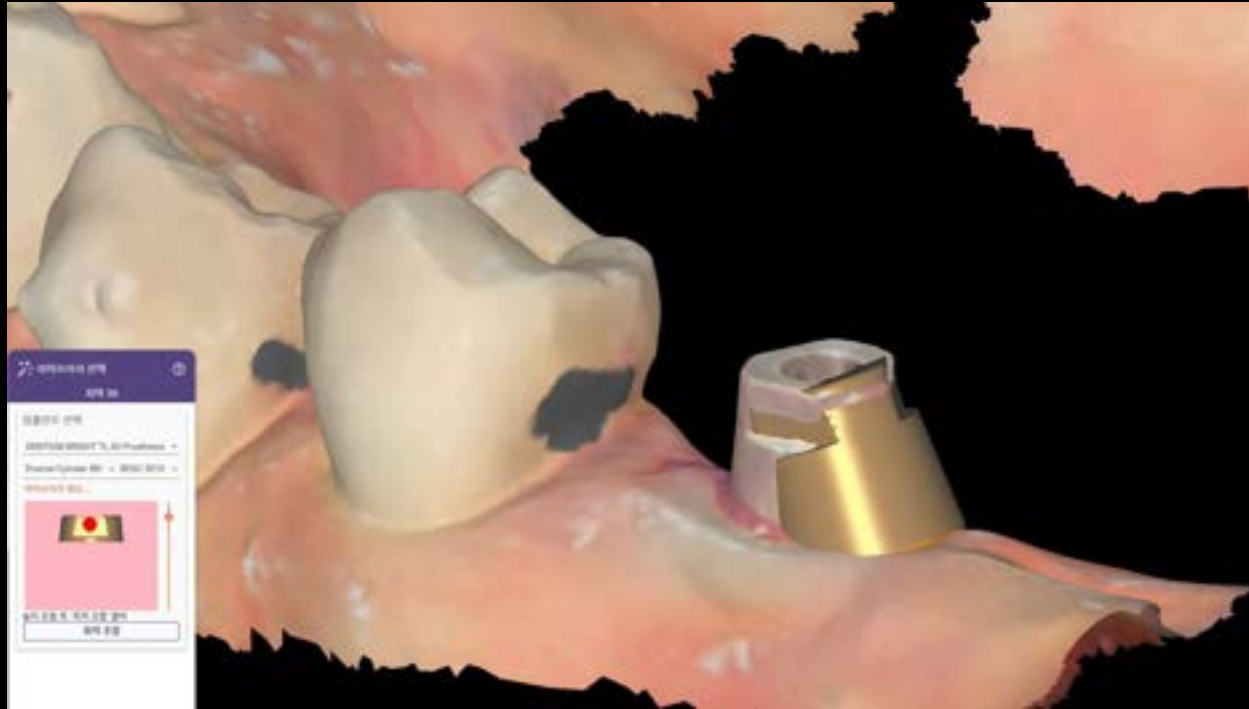
No extra abutment or custom abutment needed
(Digital abutment + crown)

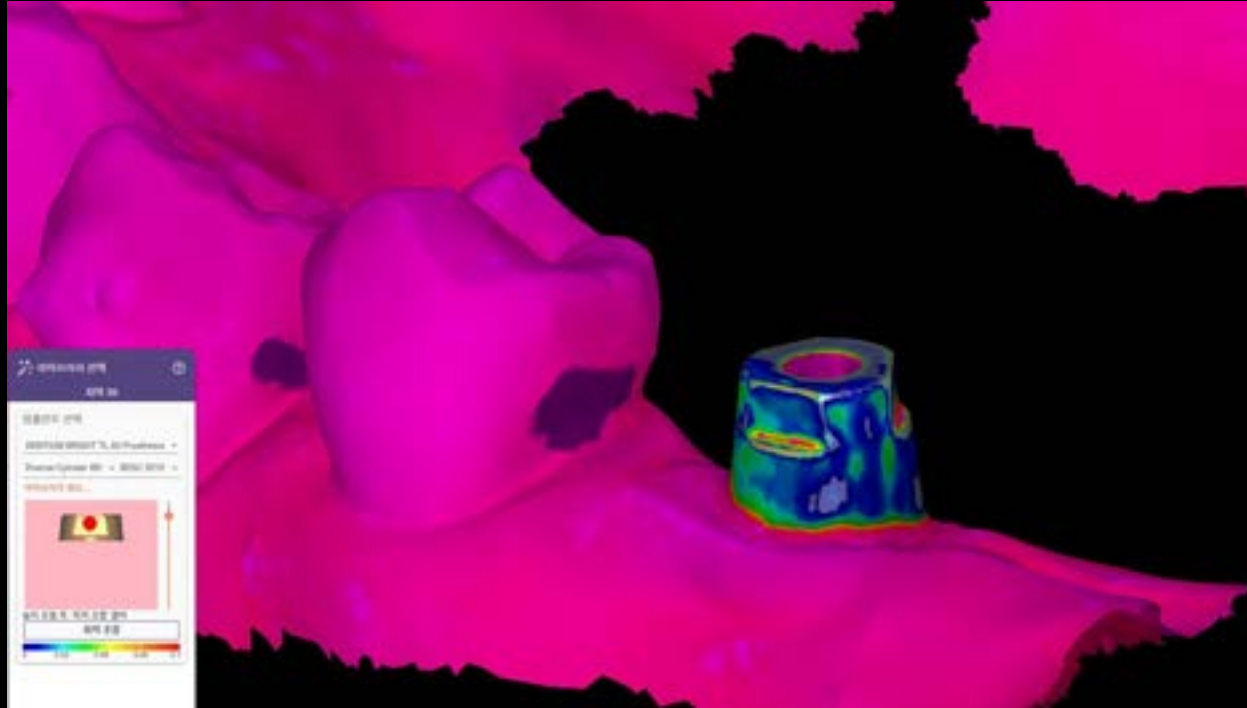


Scan Abutment



Digital Abutment







41i 31i
bright Tissue Level



Shining 3d AoralScan3 WireLess
(Model-less)

Pre Op



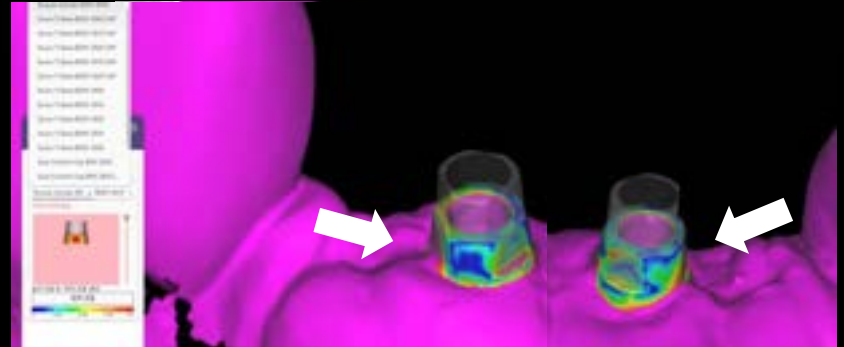
Immediate Implantation

bright TL Ø 2.0 x 11mm & bone Graft

Provisional Crown

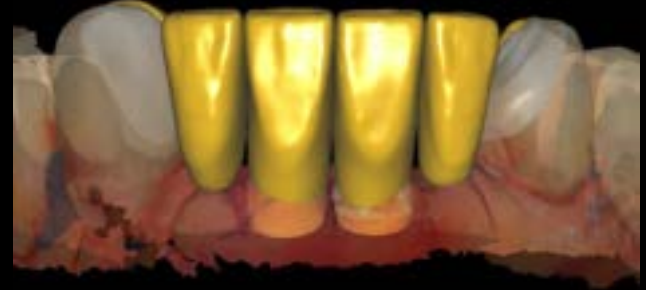


Shining 3D
Aoralscan3 wireless

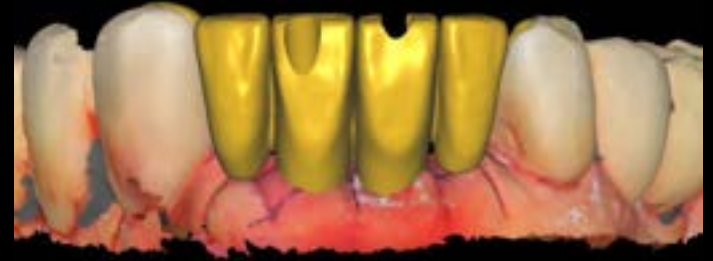


Digital abutment 3 sided accuracy

Provisional Crown



Wing design & splint



Screw Straight Hole

Milling & Polishing



Provisonal restoration



Wing design & splint



Screw Straight Hole

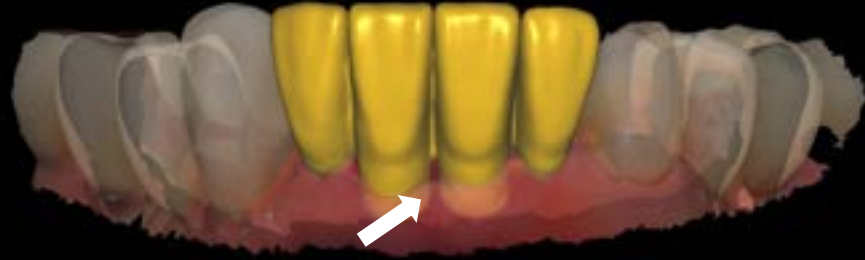


Shining 3D
Aoralcan3 wireless



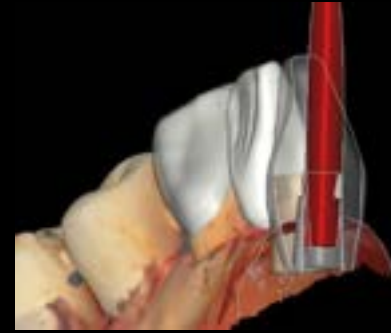
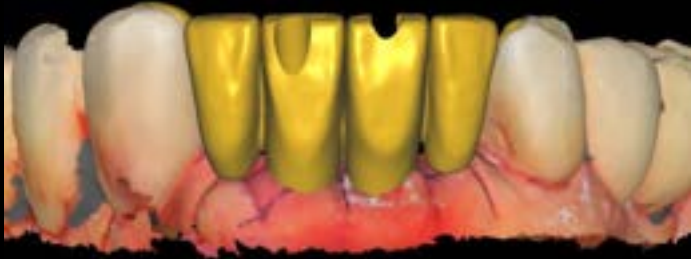
Model-less

Cad design



Contoured non-milled areas to form embrasure cleansing space

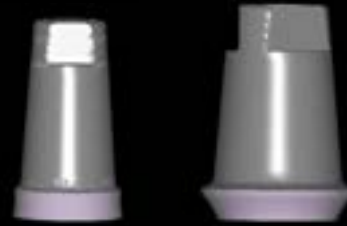
Cad design



Early Loading provisional crown
Straight Hole



Final Prosthesis Angled Hole



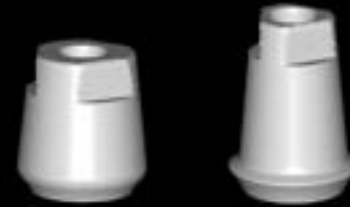
Ti base abutment



Open type 15° Angled hole

15–20° angulation compensated using an **angled driver**
(Angled screw abutment, custom abutment & milling X)

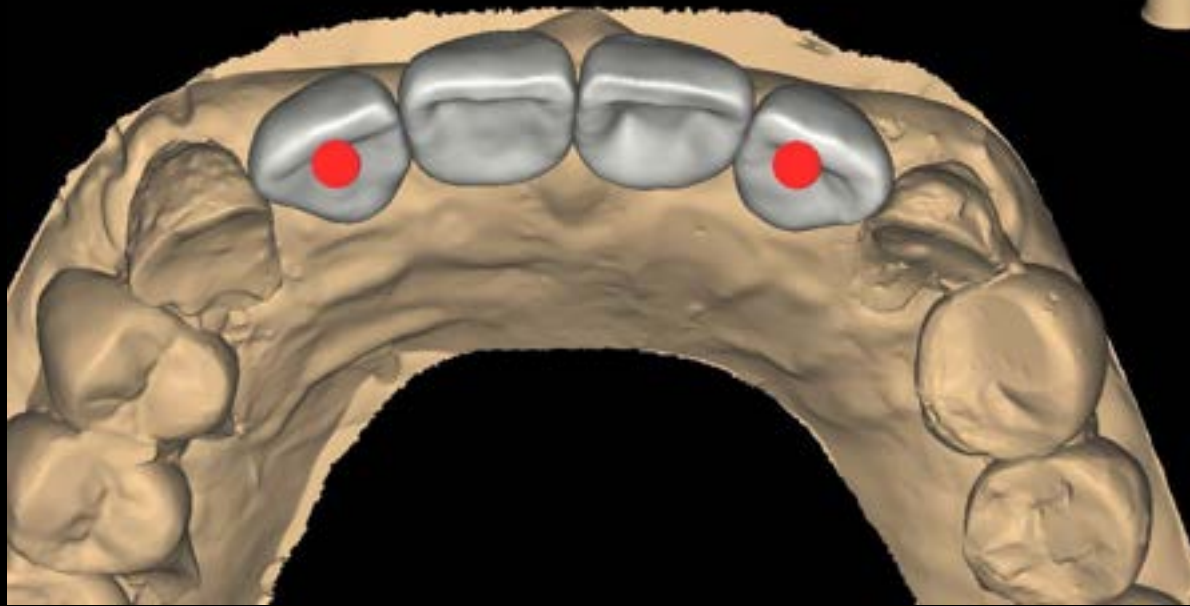
**** Screw hole position is adjustable in the anterior region
More esthetic contour achievable with SCRP crown ****

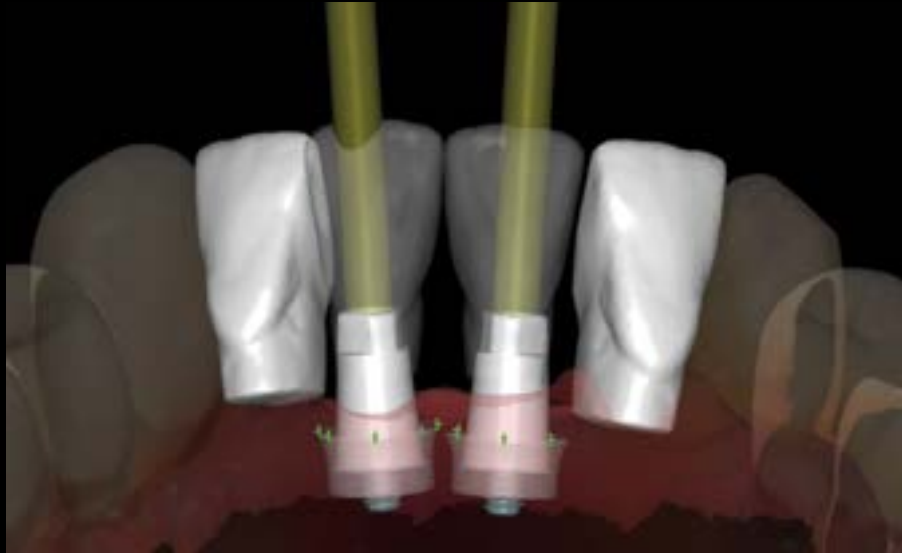


Permanent Abutment

Difference between Digital abutment and Ti-base abutment
Prosthetic design variation using shoulder margin and length differences

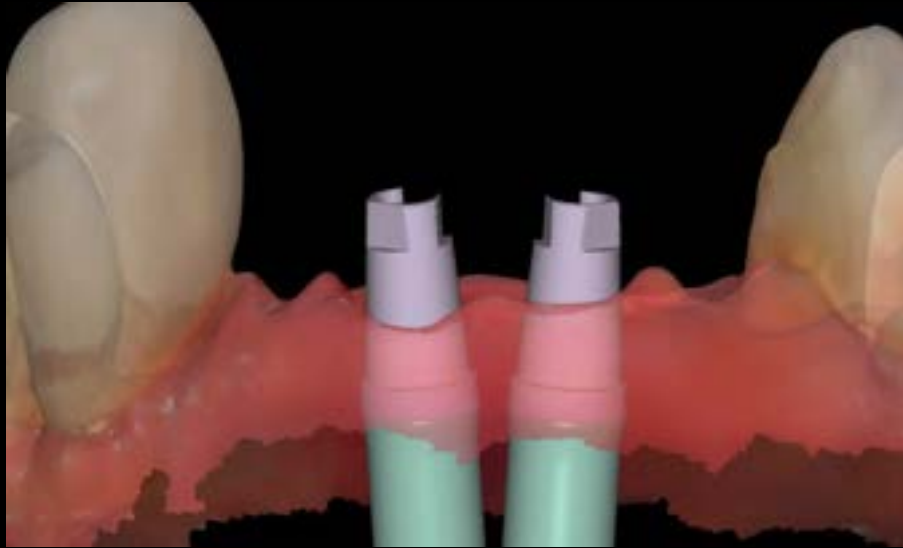
**** Applicable for posterior cases (Ø3.8 / Ø5.0)****





Advantages of Minimum Diameter
Ti base abutment

Model-less



Advantages of Minimum Diameter
Ti base abutment

Model-less



Stock abutment was custom-milled to shape the emergence profile beginning at the tissue-level bevel connection.

Model-less

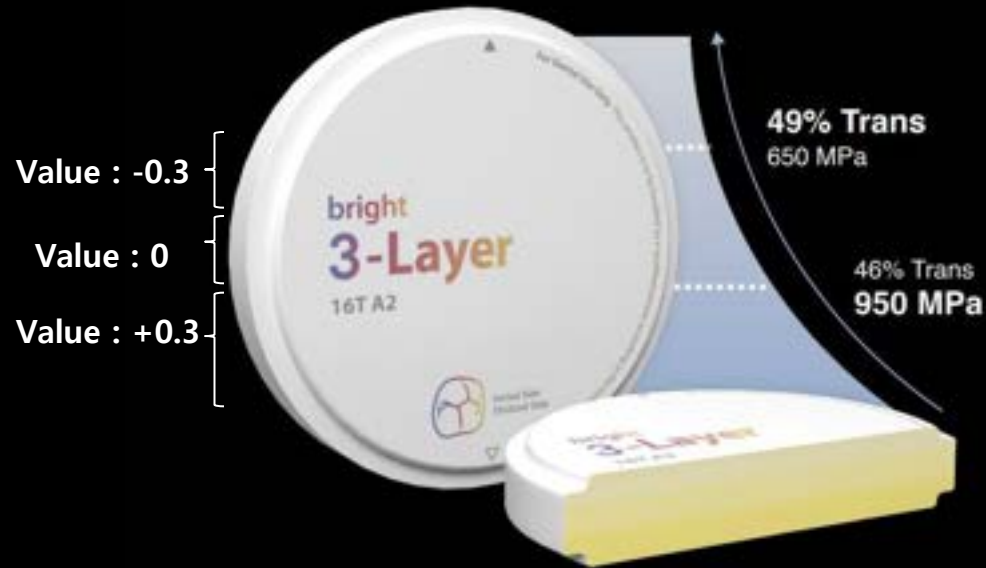
Virtual Articulator



Shade Taking



bright 3-Layer



bright
3-Layer

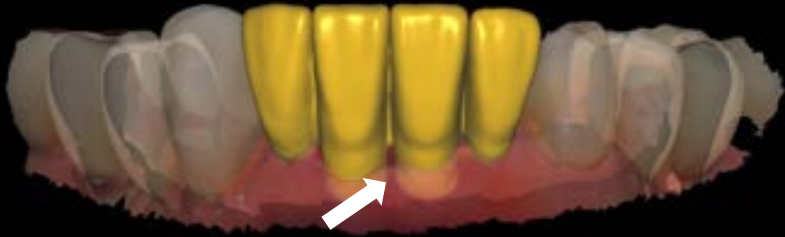
NO Coloring
Staining

Hyper Dent



bright 3-Layer

Contouring & Coloring



bright 3-Layer
No coloring & Stain

Glazing



Final Prosthesis



Final Prosthesis





16i 14i
bright Tissue Level



Shining 3D
Aoralscan3 wireless

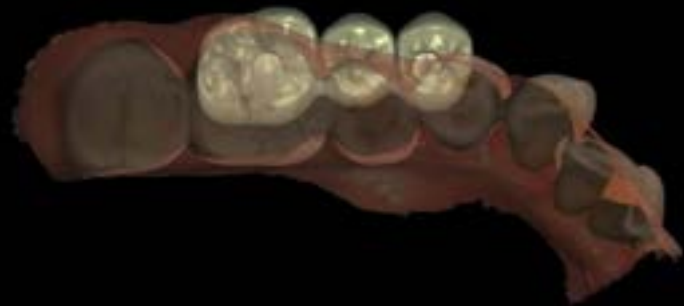
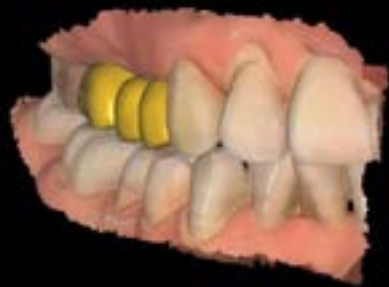


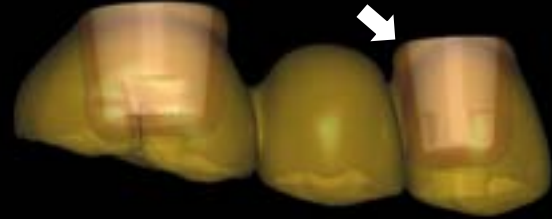
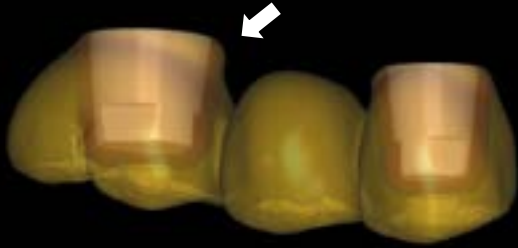
Molar - Ø 5.0



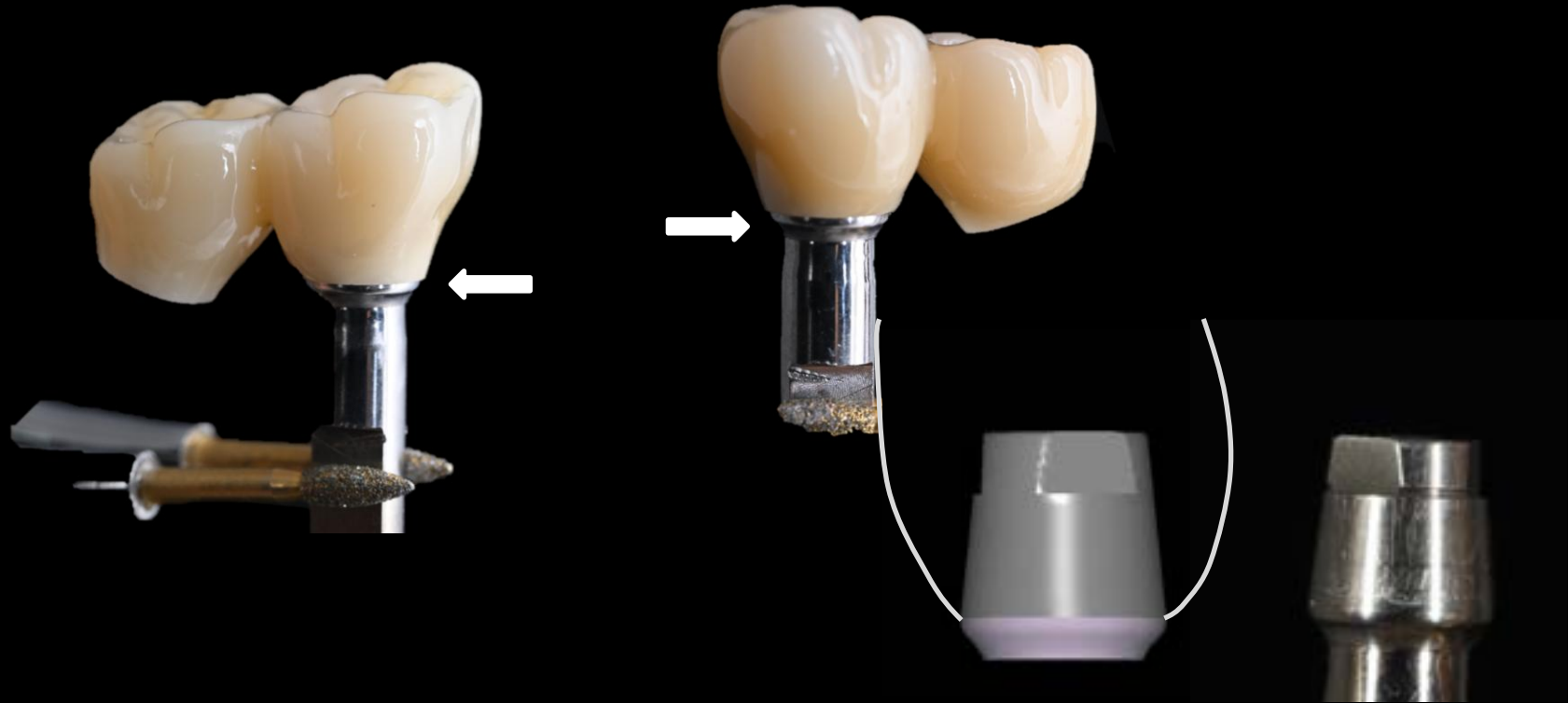
Pre molar - Ø 3.8



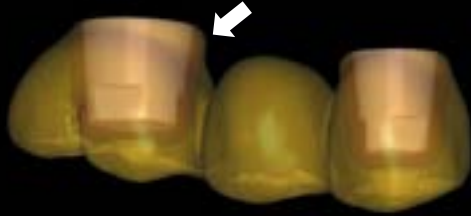




Crown minimal thickness
After Sintering & contouring



Digital abutment
Margin Polishing After Sintering



bright Implant





Intra Oral Scanner



Intra Oral Scanner

1. Accuracy — The Most Critical Factor

| | |
|-----------|---|
| Term | Meaning |
| Trueness | How closely the scan data represents the actual oral structure |
| Precision | How consistent the results are when the same area is scanned multiple times |

- Accuracy directly affects prosthesis fit, splint fabrication, and implant alignment.
- Particularly in full-arch implant cases, reduced accuracy often requires re-scanning or remaking the prosthesis.

2. Speed — A Key Factor in Clinical Efficiency

- Shortens chair time and improves patient comfort.
- For patients with limited mouth opening or gag reflex, scan speed is crucial.
- High-performance scanners can capture data smoothly and continuously without interruption, allowing a "fluid and fast" scanning experience.

3. Usability — Ease of Operation

- The software interface must be intuitive to minimize operator errors.
- Automation, AI calibration, and cloud transfer functions are important for workflow optimization.
- Lightweight design, ergonomic handpiece, and wireless options reduce operator fatigue during long procedures.

4. Compatibility — Open vs. Closed System

- Open systems (e.g., EXOCAD, 3Shape) allow easier integration with implant planning and design software.
- Support for multiple file formats (STL, PLY, OBJ) is essential for seamless collaboration and cross-platform workflow.

5. AI-Assisted Features — Smart Automation

- Newer scanners integrate AI-based features such as:
 - Auto-scanning path recognition
 - Automatic margin line detection
 - Simplified CAD-ready outputs
- Example: *Mirr0* i series provides auto body removal and margin suggestion, enabling faster design turnaround.

The Core of an Intraoral Scanner

A good question.

When we ask, "What is the core of an intraoral scanner?" we're essentially asking:

"What features and factors make a scanner truly useful in digital dentistry?"

So, to summarize in one sentence:

✓ The core of an intraoral scanner is its ability to scan accurately, quickly, and reproducibly.

The Five True Core Factors of an Intraoral Scanner

1. Accuracy — How precisely it captures the actual intraoral structure
2. Speed — Fast and seamless scanning experience
3. Reproducibility — Consistent results regardless of the operator
4. Usability — Easy operation and intuitive workflow
5. Compatibility — Open system and CAD integration flexibility

Therefore,

it's not necessarily about having the most expensive scanner.

What truly matters is how well the scanner balances these five factors and how easily the user can operate it.

Intra Oral Scanner

What do you think about the "leveling trend" of intraoral scanners?

That's a very sharp question.

It shows that you're truly observing the current intraoral scanner market.

My thoughts on the "leveling trend of intraoral scanners"

(Clinical + industrial perspective summary)

1. It is definitely being "standardized."

In the past, only high-end equipment (such as 3Shape TRIOS or Primescan) could perform proper scanning, but now even mid-range scanners priced around 5–10 million KRW (= USD 3,500–7,000) can scan accurately and quickly enough.

Examples:

- Medit i700 wireless
→ Much cheaper than 3Shape, but excellent in accuracy, speed, and UI.
- Shining 3D Aoralscan 3, Runyes, Vatech EZScan
→ Even lower-priced scanners can perform sufficiently well.

Summary:

"Now it's no longer about the equipment itself — we've entered an era where the user's scanning skill and ability to build workflow have become more important."



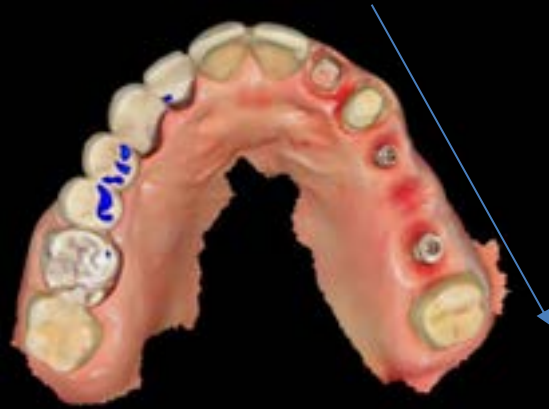
Shining 3D



Intra Oral Scanner



Usability of IOS

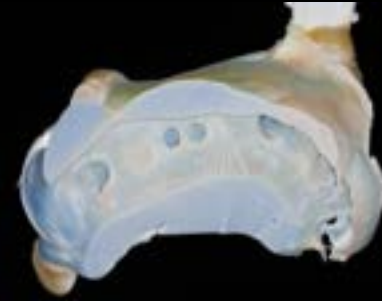


****IOS shows less error and better usability in straight sections, especially in multiple-unit and free-end cases****

Intra Oral Scanner



24i, 25i, 27i 34, 35i 37
Dentium Implantum 2

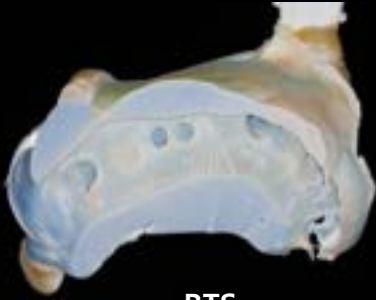


BTS



Shining 3d AoralScan3 Wireless

BTS & IOS data Compare



BTS



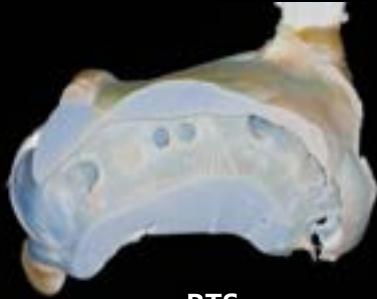
IOS



**** BTS and IOS demonstrated comparable bite and implant library alignment accuracy
__(stable scanner performance and consistent scanning technique)**

**** Checking possible error points of the intraoral scanner is essential when selecting cases**

BTS & IOS data Compare



BTS

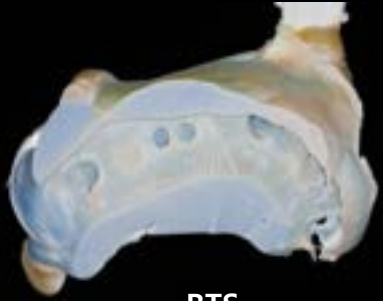


IOS

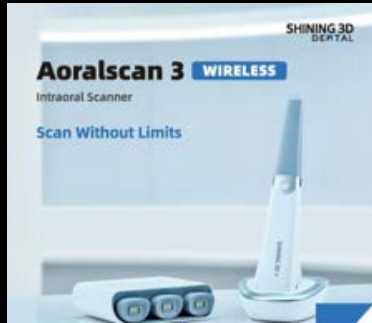
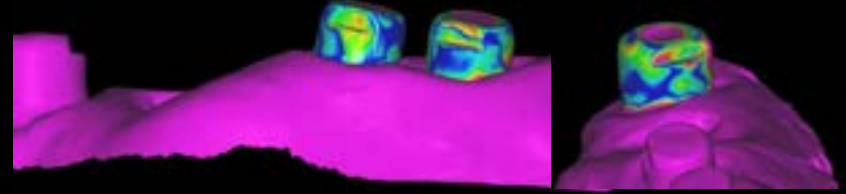


**** Check bite contact at identical position ****

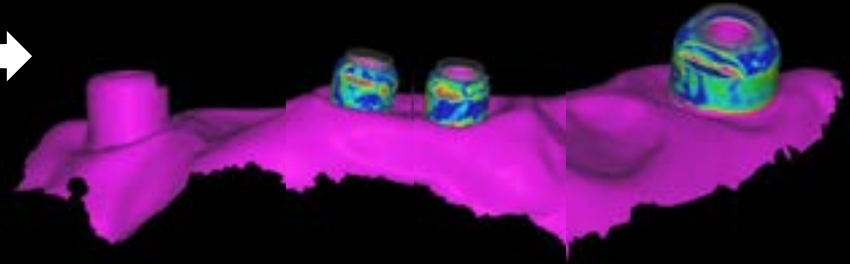
BTS & IOS data Compare



BTS

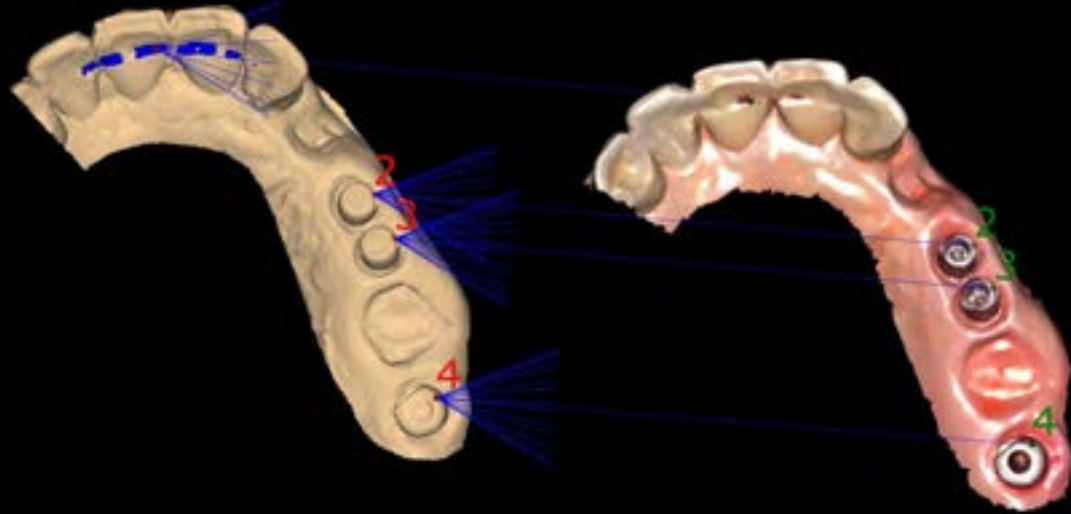


IOS



**** Accuracy of implant library matching ****
(Metal Scan Accuracy — Shining 3D Aoralscan 3 Wireless)

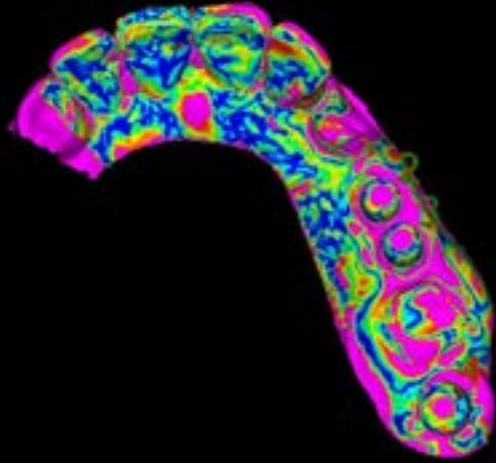
BTS & IOS data Compare



BTS

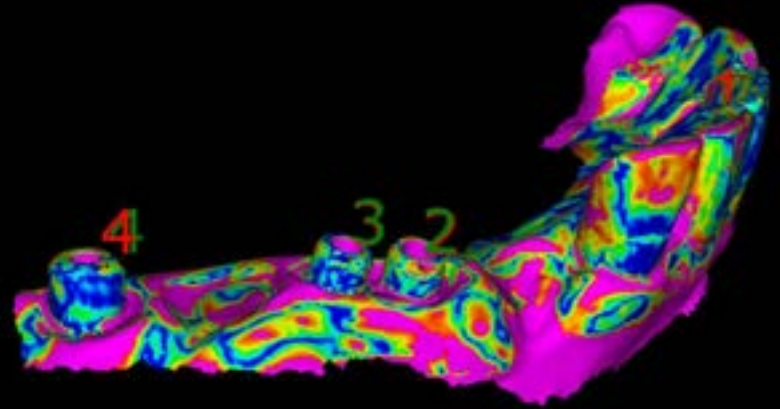
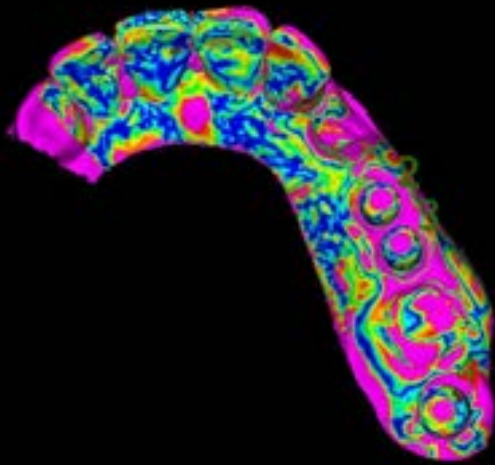
IOS

BTS & IOS data Compare



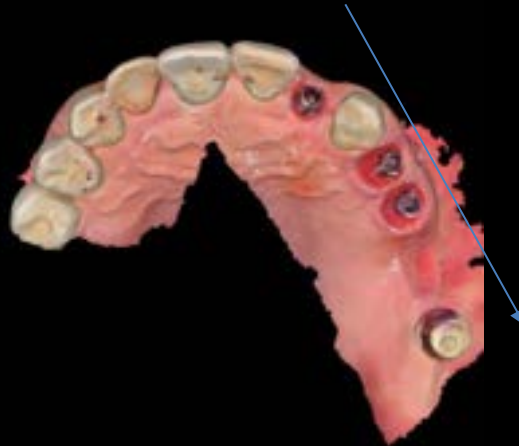
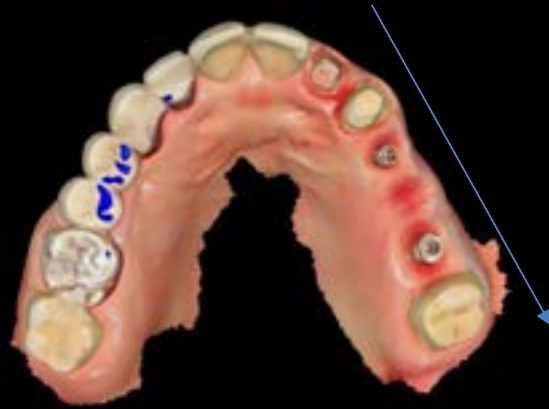
BTS + IOS

BTS & IOS data Compare



*** Accuracy difference between hard and soft tissue alignment in the oral cavity***
(Hard: teeth, palatal rugae, metal scan body / Soft: gingiva, pontic base)

Usability of IOS

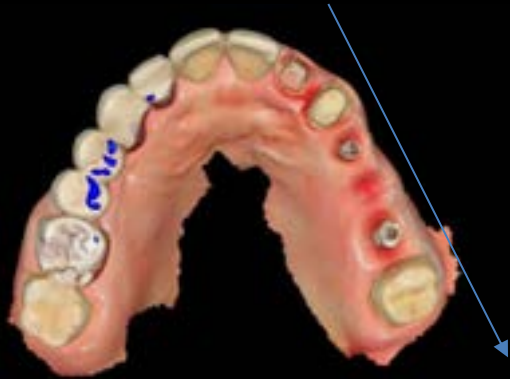


****IOS shows less error and better usability in straight sections, especially in multiple-unit and free-end cases****

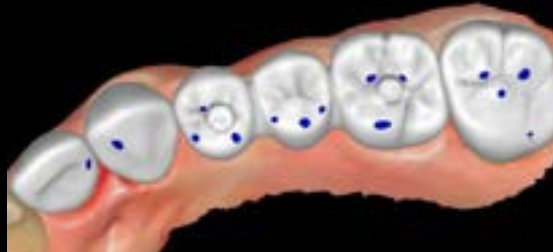
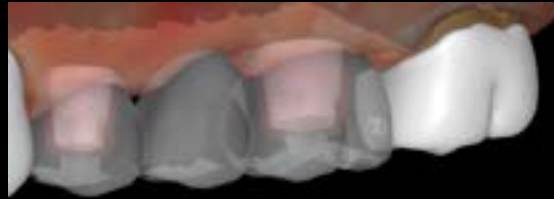
Virtual Articulator

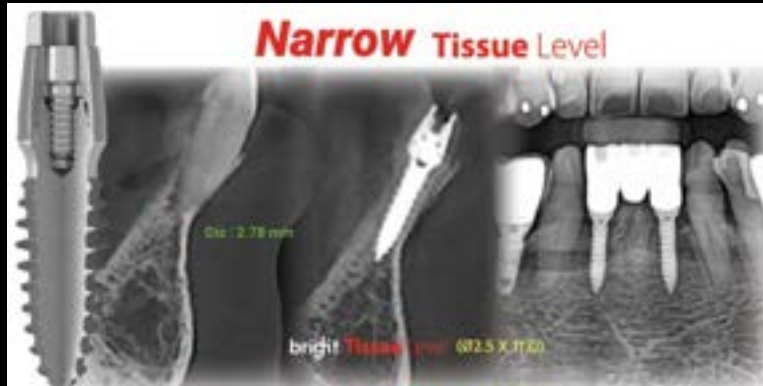


Usability of IOS



Usability of IOS





Minimalism Surgery

Model-less
(BTS, IOS, BOS)

Only Custom Abutment?
(Digital Abutment, Ti-Base
Abutment)



Simple Digital Prosthesis

Dental Lab Materials

zirconia(3 layer block, bright mono block, Shine T block)
3D printing Flexible Resin

CT data (AI Occlusal Plane)
(Dicom – Stl)
(CT Viewer ➡ Dental Cad)

CT data (AI occlusal plane)



Clinic

(AI Occlusal Plane STL) + Working Model (Impression Or Ios data)

**** Expanding CT use from diagnosis to prosthetic treatment ****
(CT enables accurate diagnosis and treatment, enhancing satisfaction for both patients and clinicians)



Lab

(AI Occlusal Plane Use the Cad Design)

**** Utilizing CT data for more precise prosthesis fabrication ****
(Producing ideal prostheses reduces remakes and builds stronger trust with partners)

CT data (AI occlusal plane)



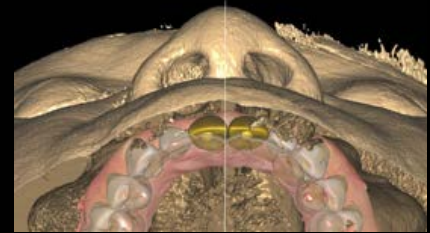
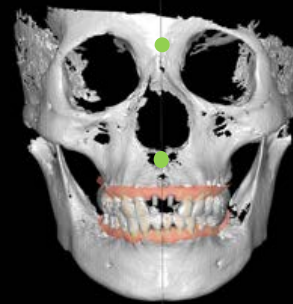
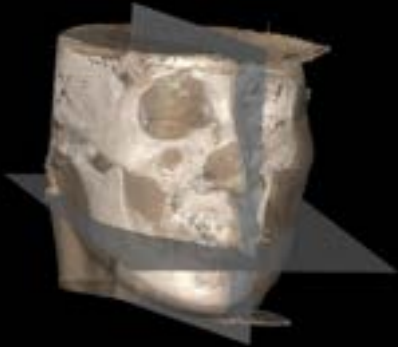
Clinic

(AI Occlusal Plane STL) + Working Model (Impression Or Ios data)



Lab

(AI Occlusal Plane Use the Cad Design)



Dentium CT Viewer



Dentium CT Viewer

ST: 12008
Age: 35
Exam Date: 20200611

Project Label

Select Mark

Create Copy

Create TS

Advanced Plane Tools

Landmark Mode

Plane Lock

Rendering Style

Hard Type

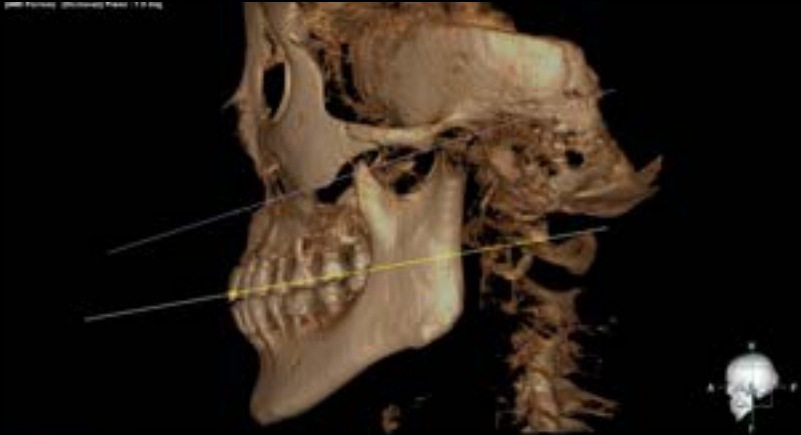
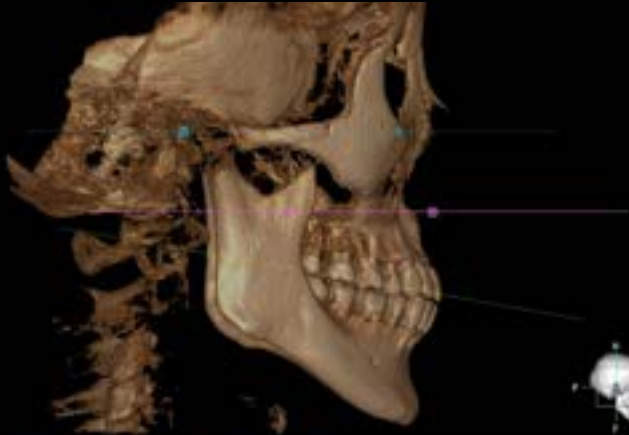
Presets

Customizing

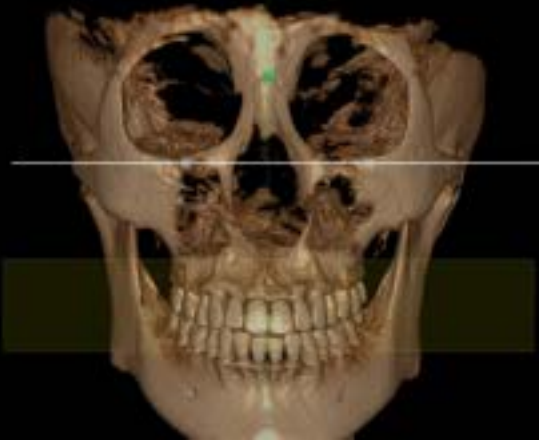
Reset

Copy Mark

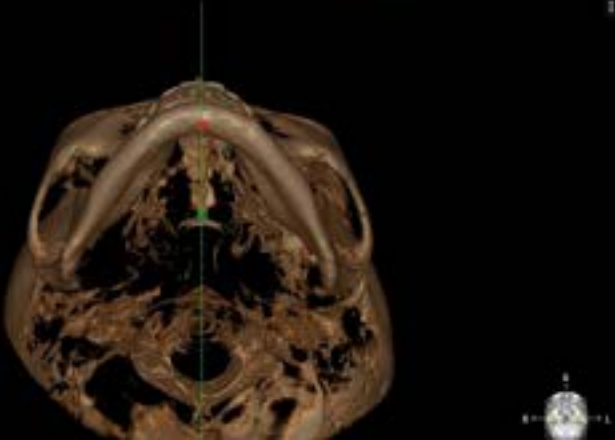
All



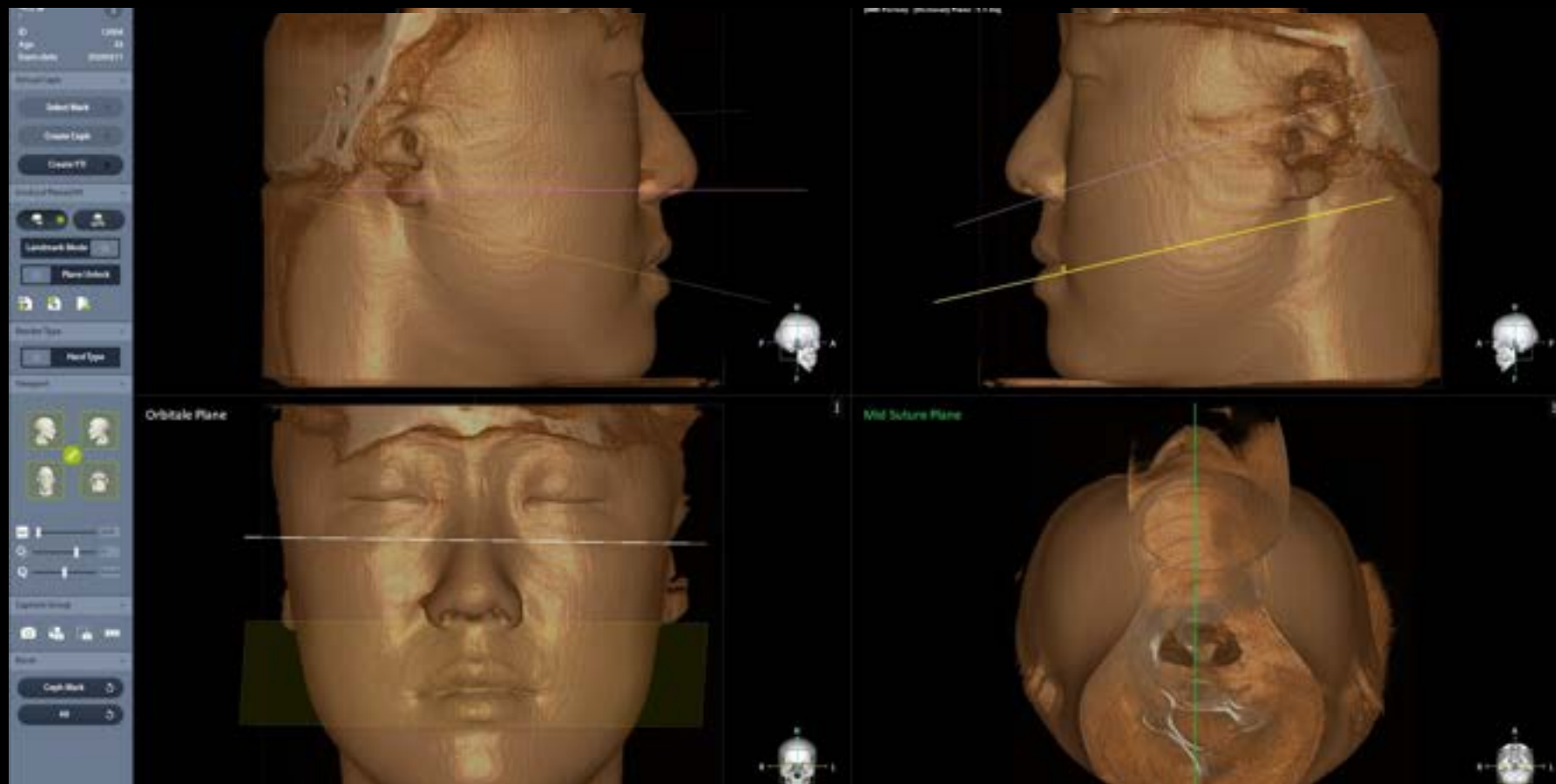
Orbitale Plane



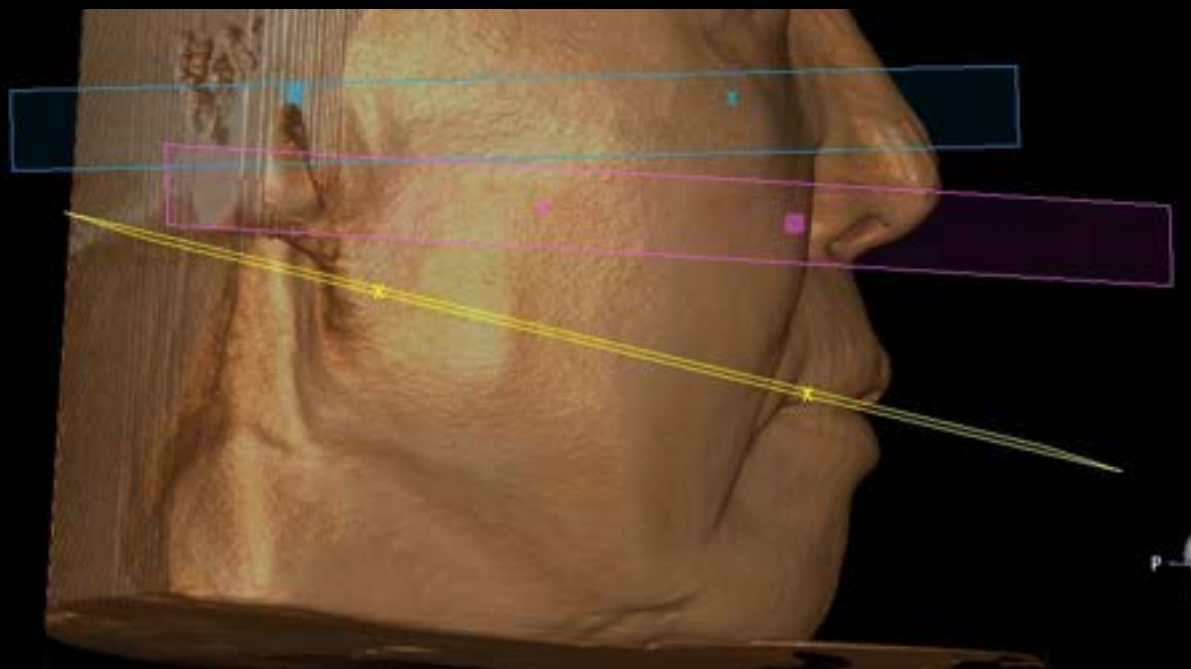
Mid Suture Plane














Dentium CT Viewer

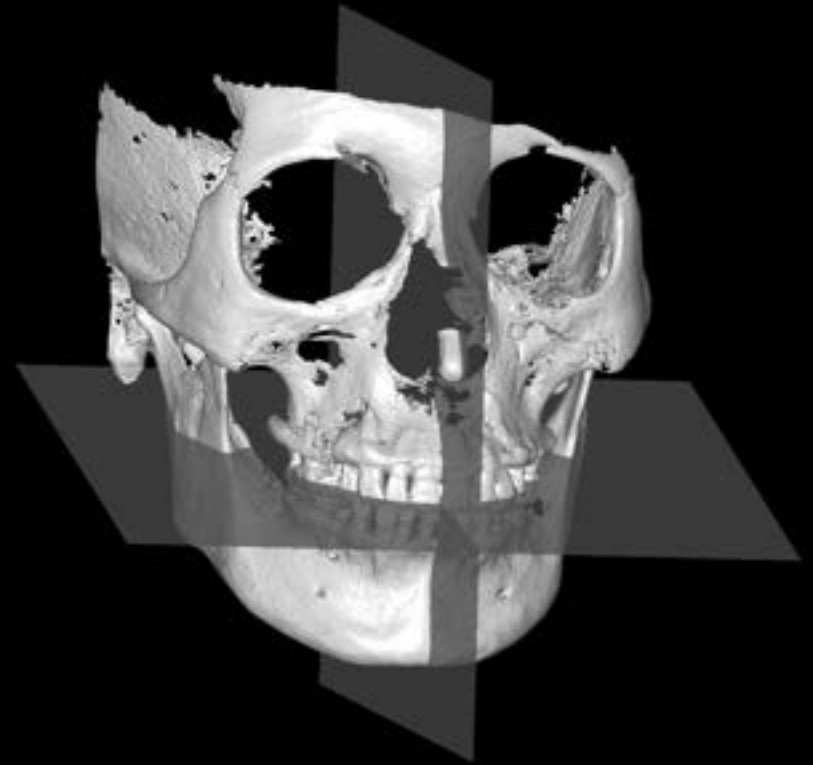


Dentium CT Viewer



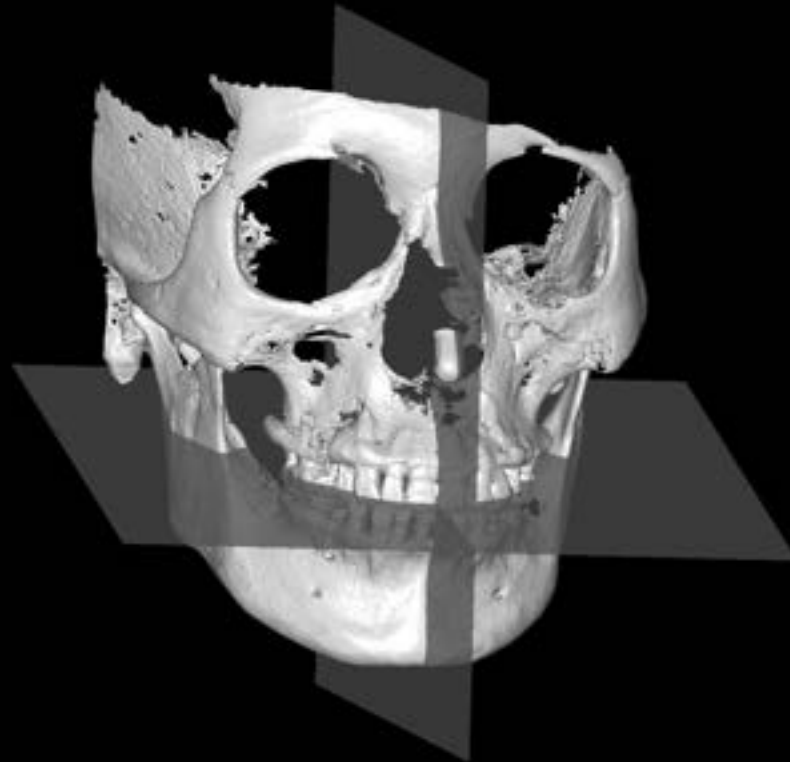
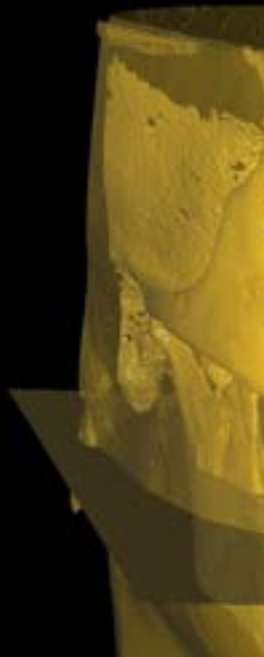
Dentium CT Viewer

-  FH_Plane
-  LowerAxis_Plane
-  MidLine_Plane
-  Occlusal_Plane.mtl
-  Occlusal_Plane
-  Occlusal_Plane
-  Occlusal_Plane
-  Orbitale_Plane
-  PorionANS_Plane
-  PPLine_Plane
-  UpperAxis_Plane



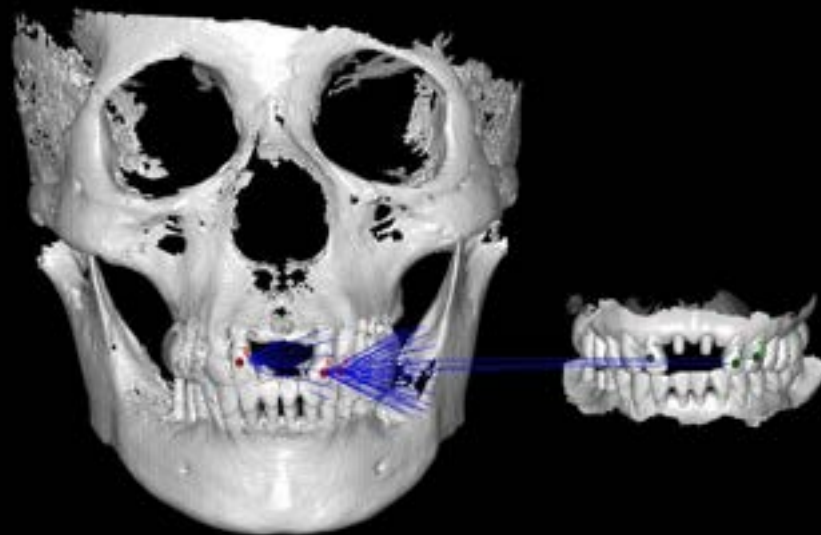
CT dicom File ➡ STL

Dentium CT Viewer



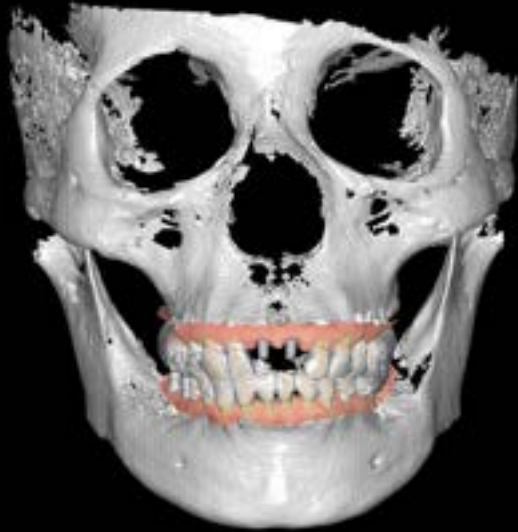
CT dicom File ➡ STL

Cad Data Stitching



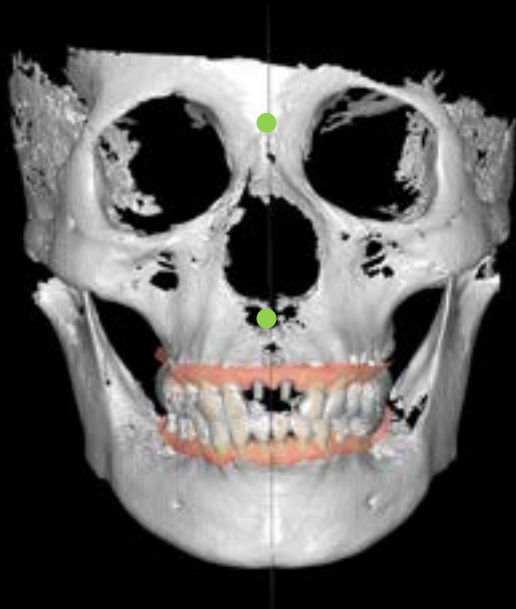
CT data Hard Tissue

Cad Data Stitching

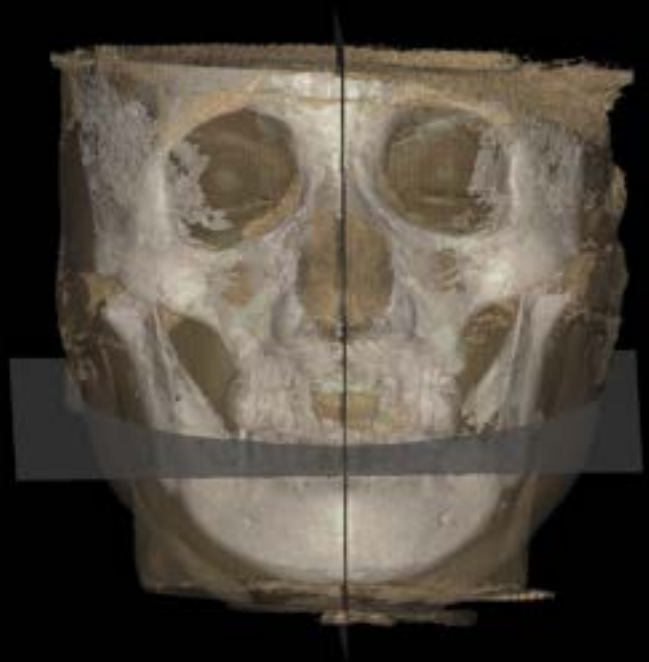


CT data Hard Tissue + Ios Scan Data

Cad Data Stitching

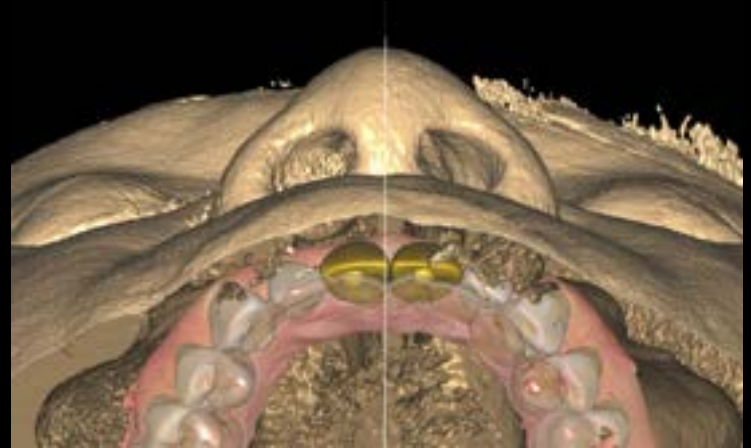
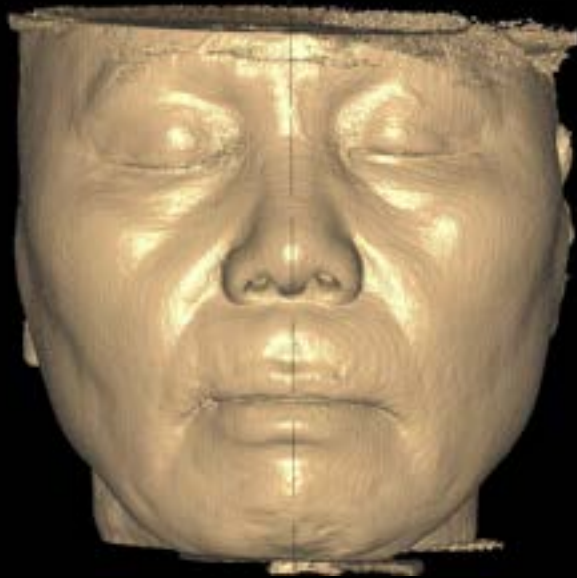


Nasion – Ans to Pns Midline



Ios data + CT data(AI Occlusal Plane)

CT data (AI occlusal plane)



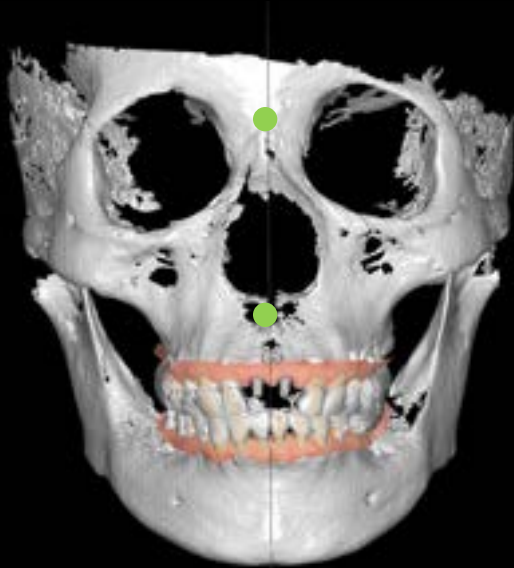
Midline check with CT (Soft Tissue) data

Final Prosthesis



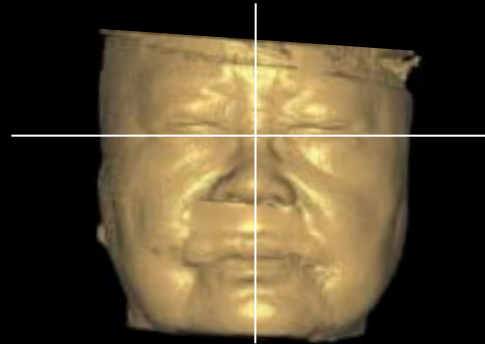
CT data (AI occlusal plane)

- Hard Tissue



Nasion – Ans to Pns Midline

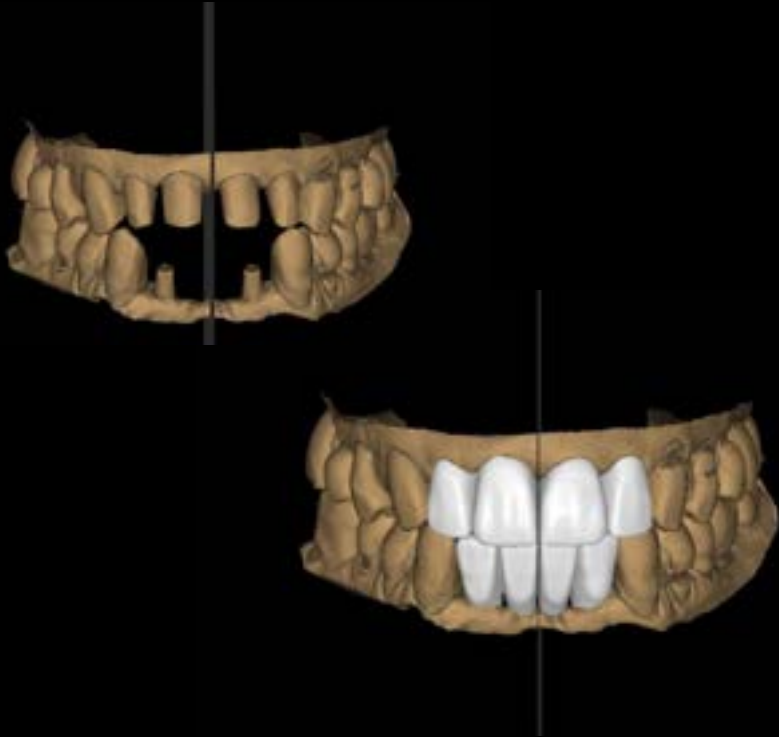
- Soft Tissue



(Face Scanner , Cad Module) X

CT data (AI occlusal plane)

- Mid-Suture Line



- Occlusal Plane





| | | | | |
|-----|-----|-----|-----|-----------------|
| 17i | 15i | 14i | | 26i |
| 47i | 46i | 44i | 43i | 33i 34i 45i 37i |

bright Tissue Level

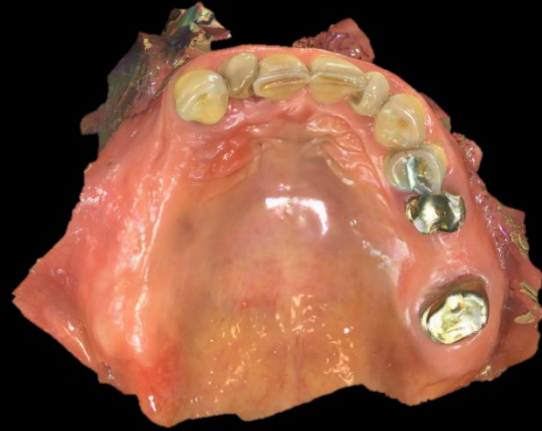
| | | | | | | | | |
|----|----|----|--|----|----|----|----|----|
| 13 | 12 | 11 | | 21 | 23 | 24 | 25 | 27 |
|----|----|----|--|----|----|----|----|----|

Natural Teeth Crown



BTS & IOS Only Model-Less

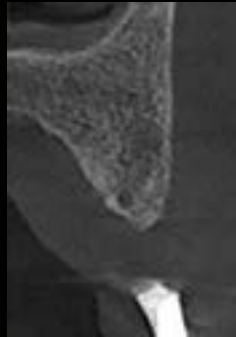
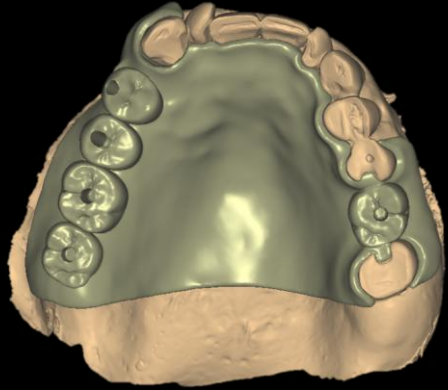
Pre-Op



Surgical Stent Using Existing Denture



Surgical Stent Using Existing Denture



Post-op



#17



#15



#14



#26



#43



#33

Post-op



Surgical Stent Using Existing Denture



Post-op - Additional I.S



#47



#45



#44



#34



#35

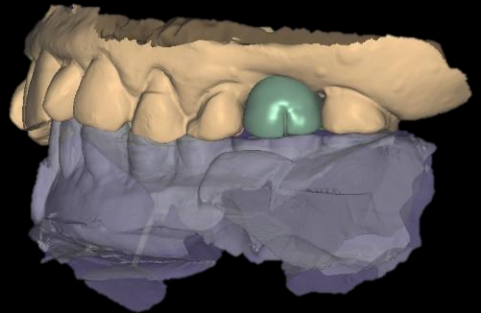
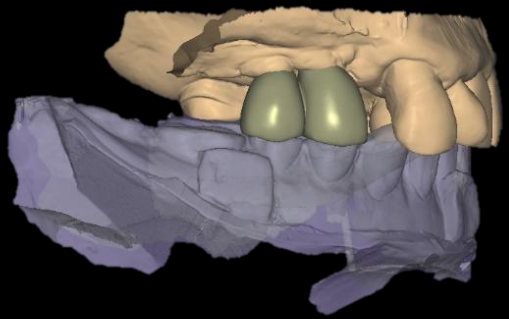
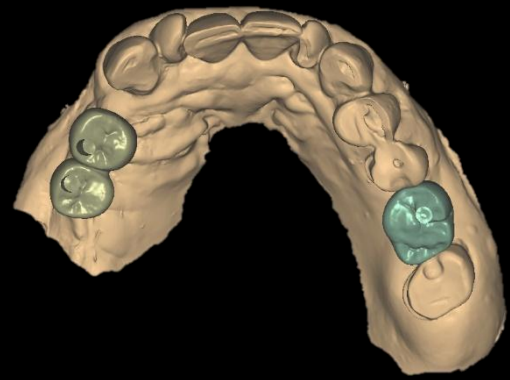
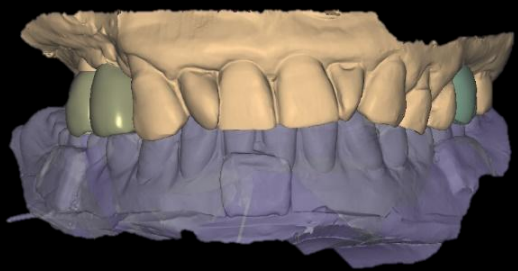


#37

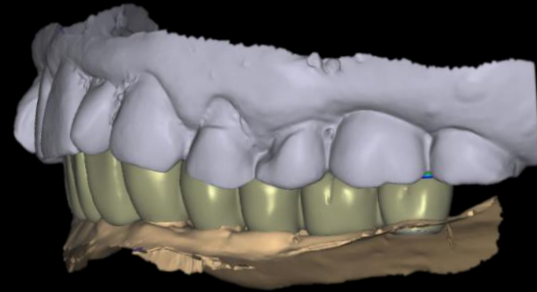
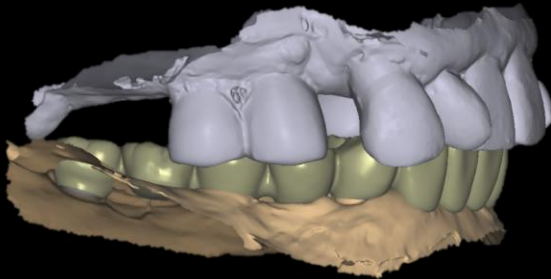
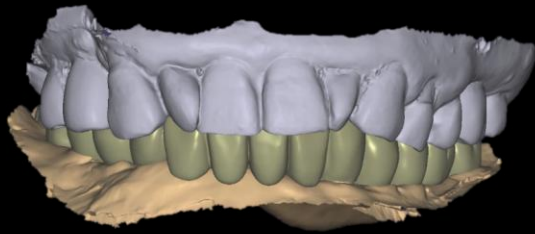
Post-op - Additional I.S



Provisional restoration



Provisional restoration



Provisional restoration

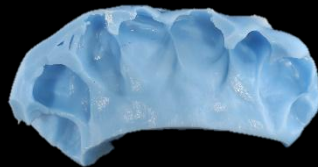
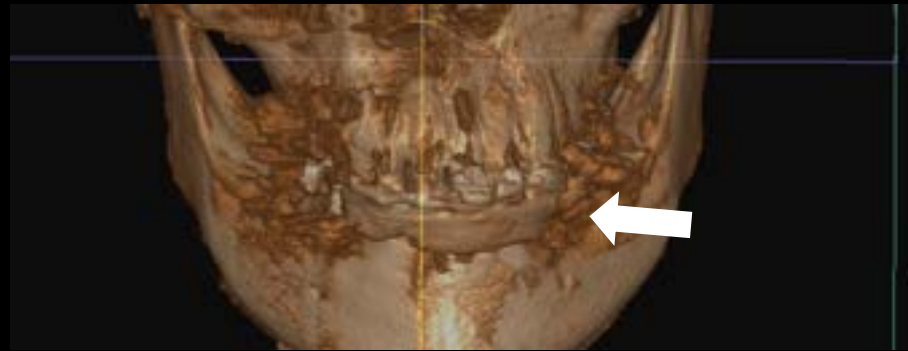


Putty index

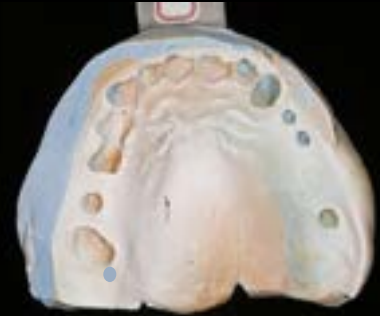
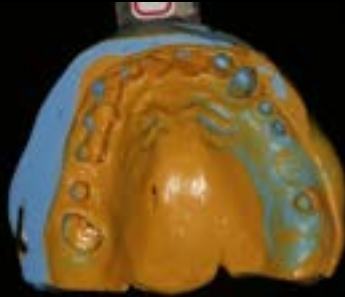


VD increased by 2 mm from 1st provisional crown
CT taken with putty index for 2nd provisional crown fabrication

CT Check Bite



Putty Index



Border, Embrasure Trimming



Scan Spray

BTS(Bite Tray Impression scan

Dentium CT Viewer

Web: 11/20/2020
Age: 75
Exam date: 10/14/2020

Import Case

Select Mark
Create Graph
Create FDI

Technical Parameters

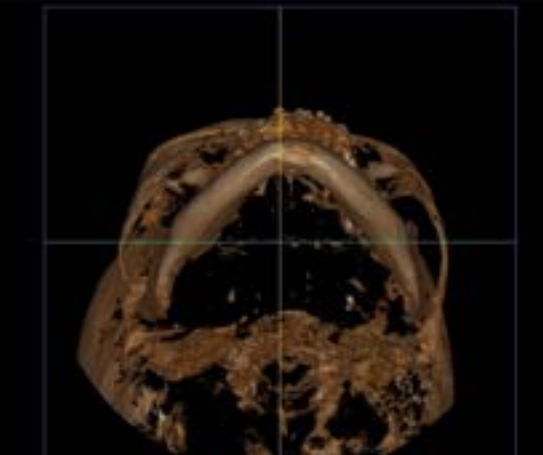
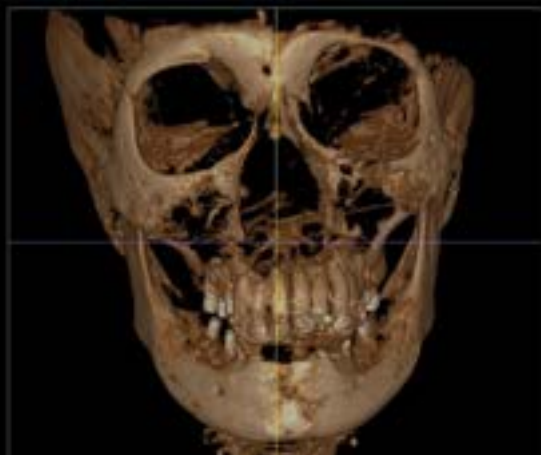
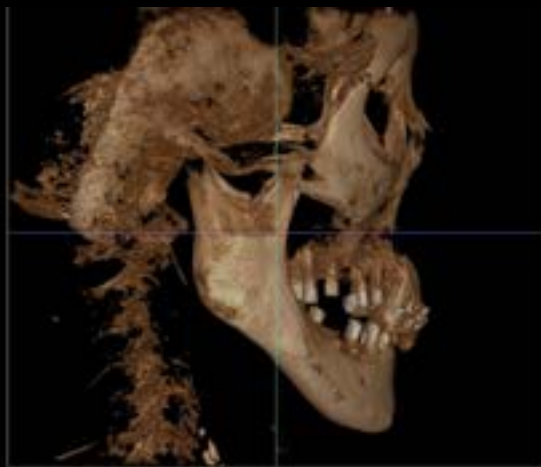
Series Type
Hard Tissue

Overview

Image Settings

Reset

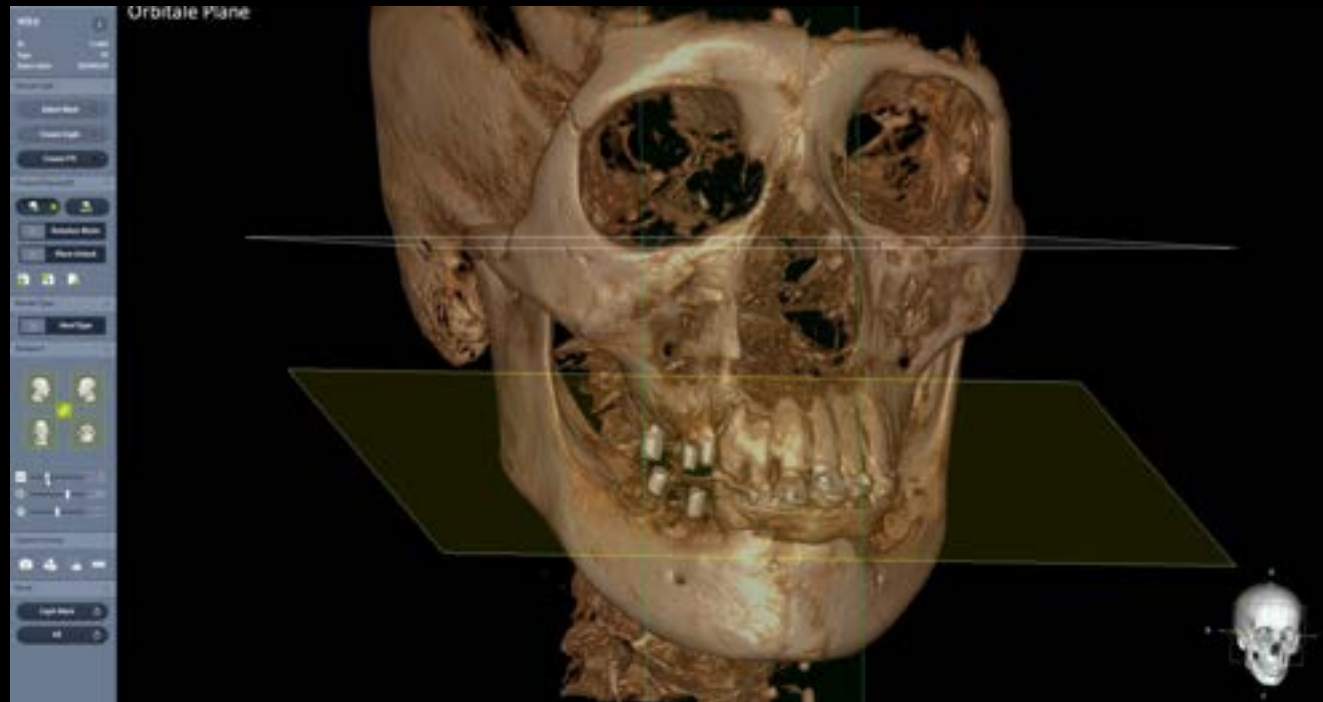
Copy Mark
AP



Dentium CT Viewer

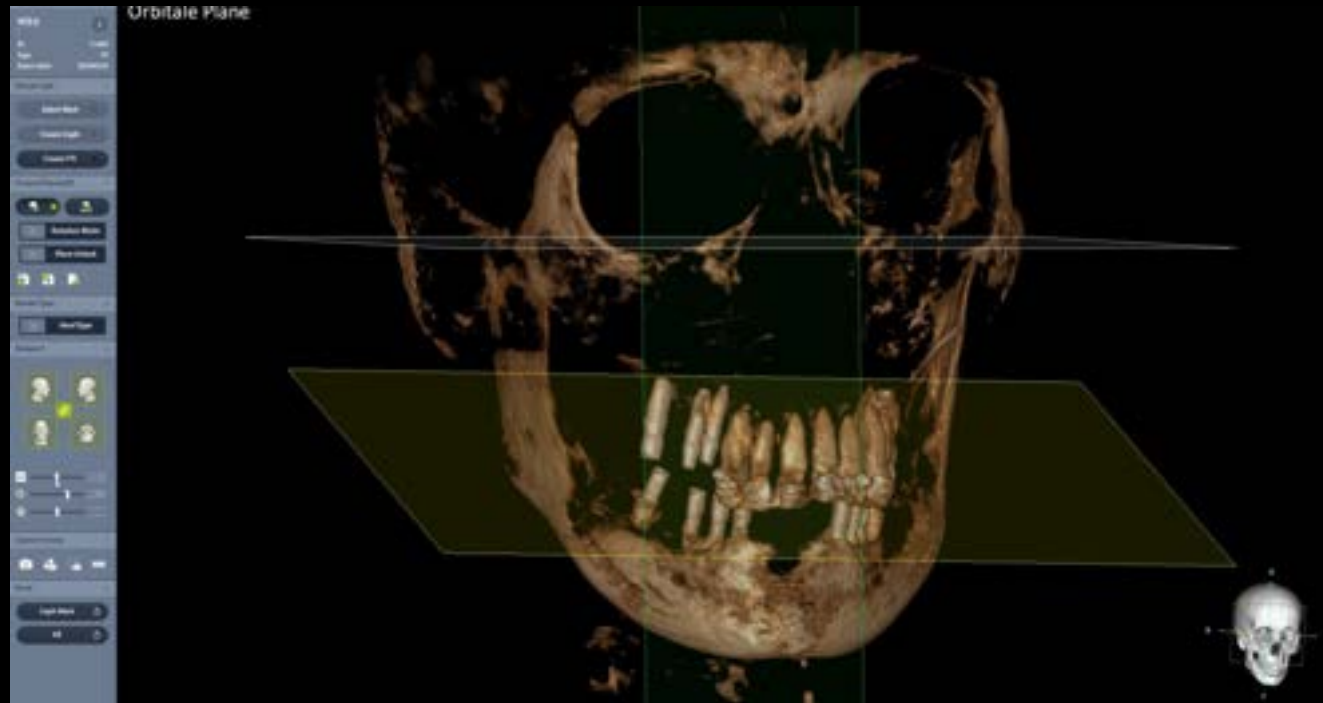


Dentium CT Viewer



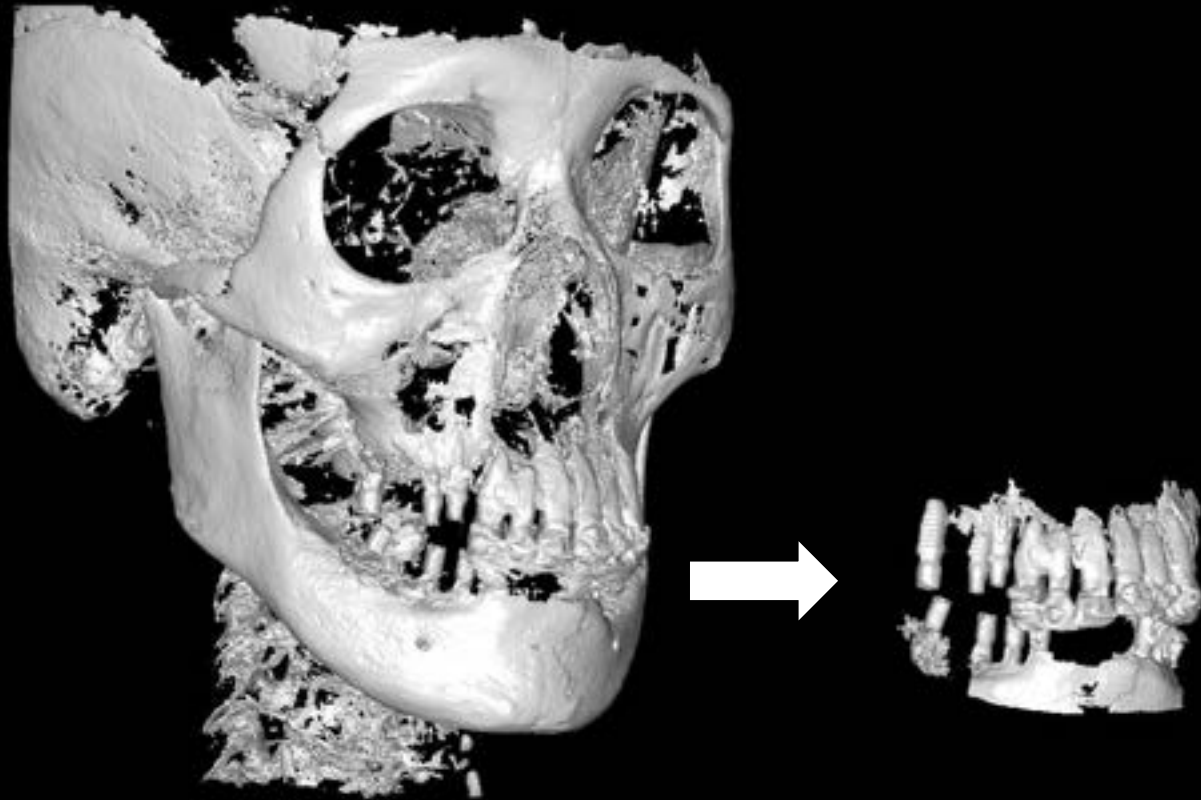
Adjust HU values and Hard Tissue STL data import

Dentium CT Viewer



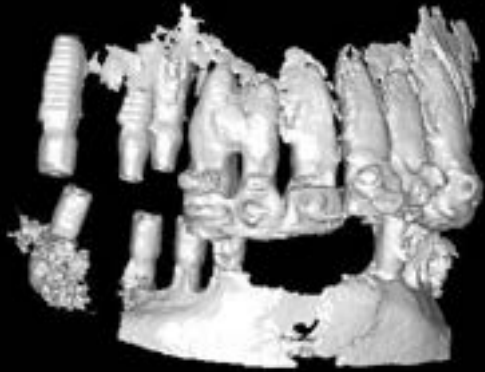
Adjust HU values and Hard Tissue STL data import

Dentium CT Viewer

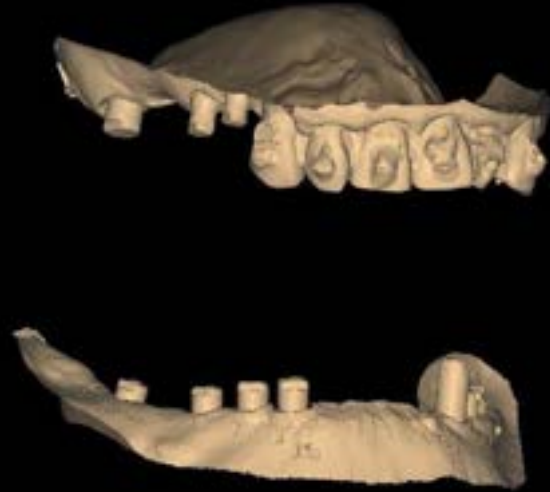


Dicom STL data mesh Edit

CT Check Bite



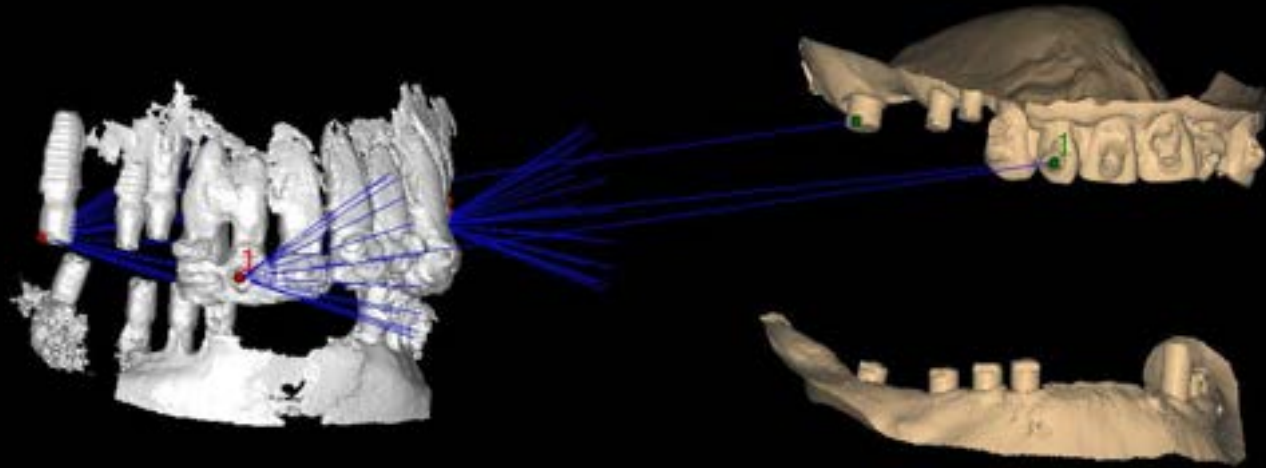
1st provisional cr ct check bite



BTS scan data

Digital mounting

CT Check Bite



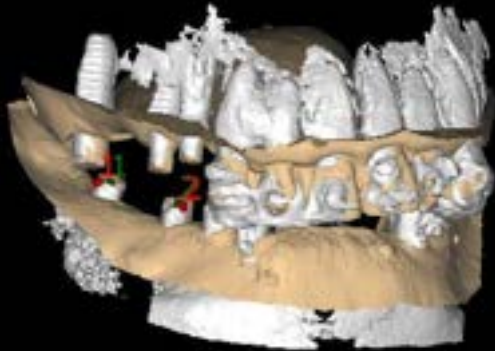
Digital mounting

CT Check Bite



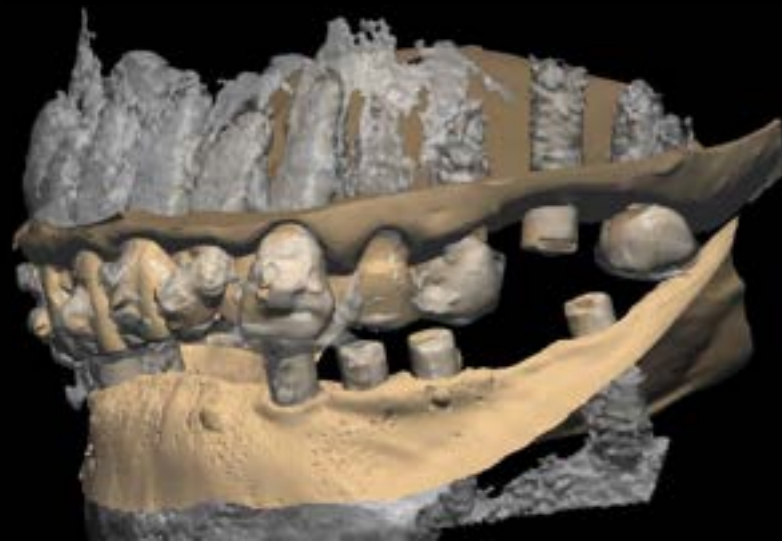
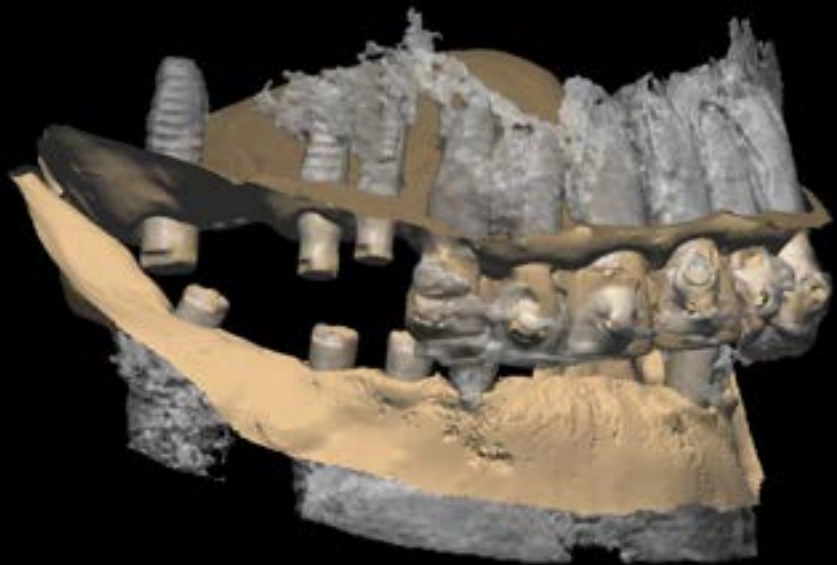
Digital mounting

CT Check Bite



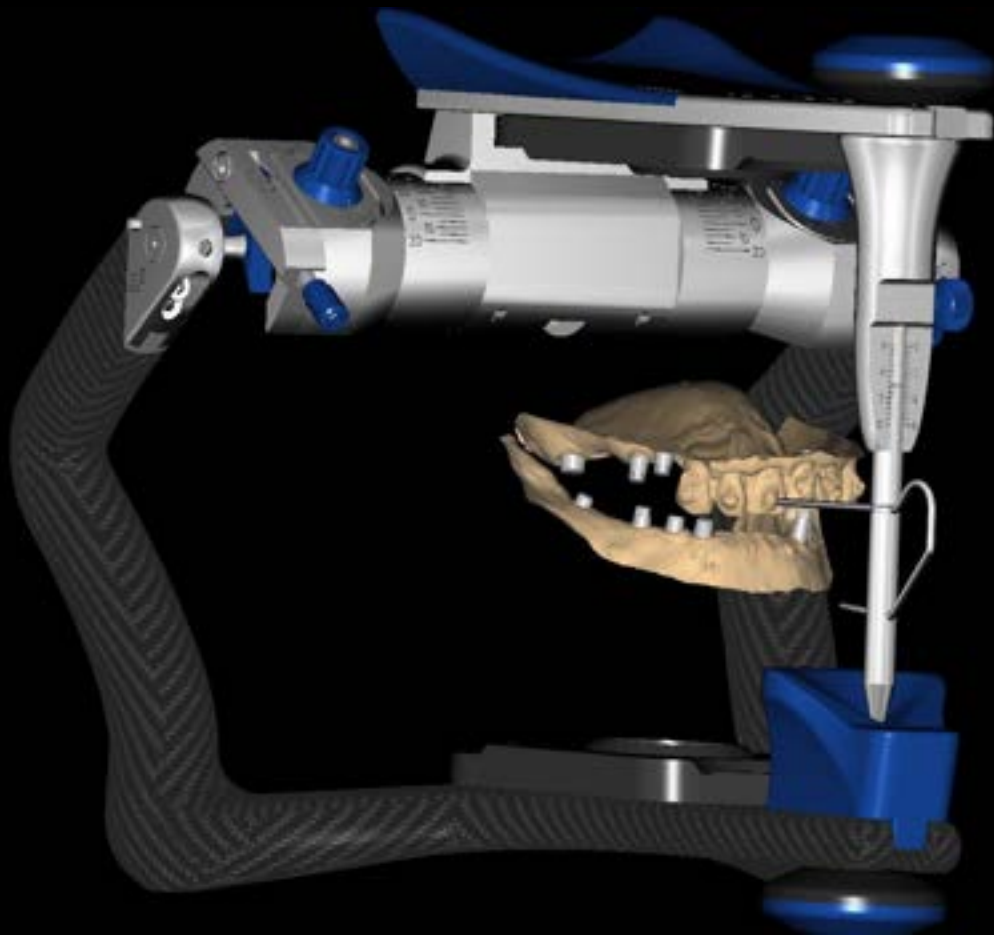
Digital mounting

CT Check Bite



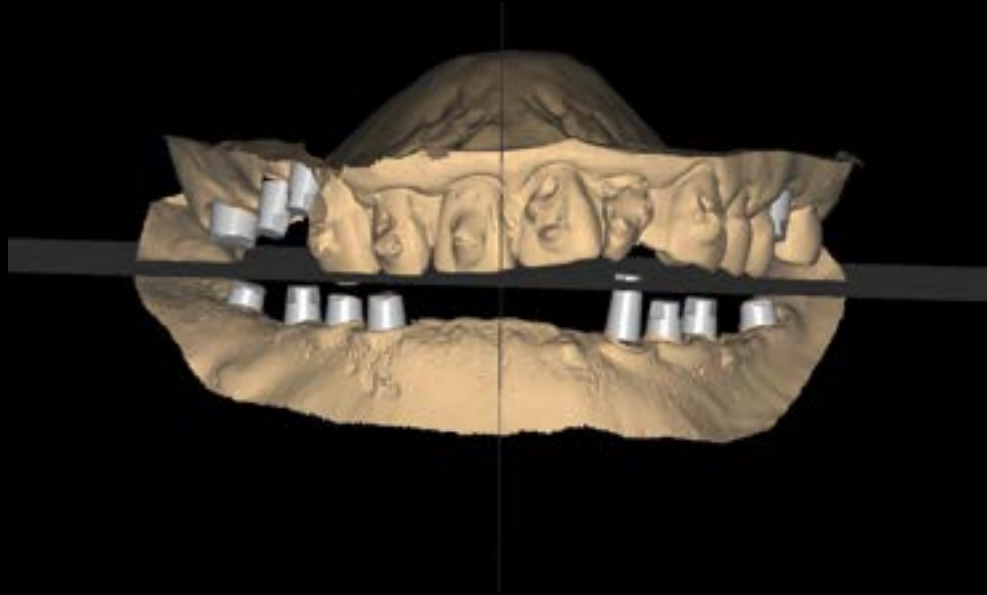
Digital mounting

Virtual Articulator



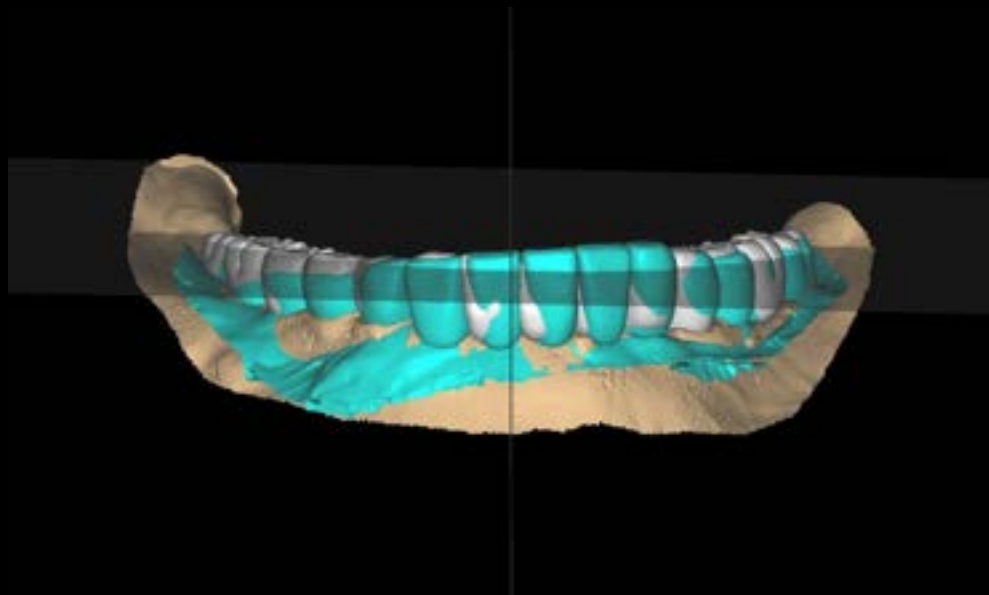
VD 2mm up

Cad Design



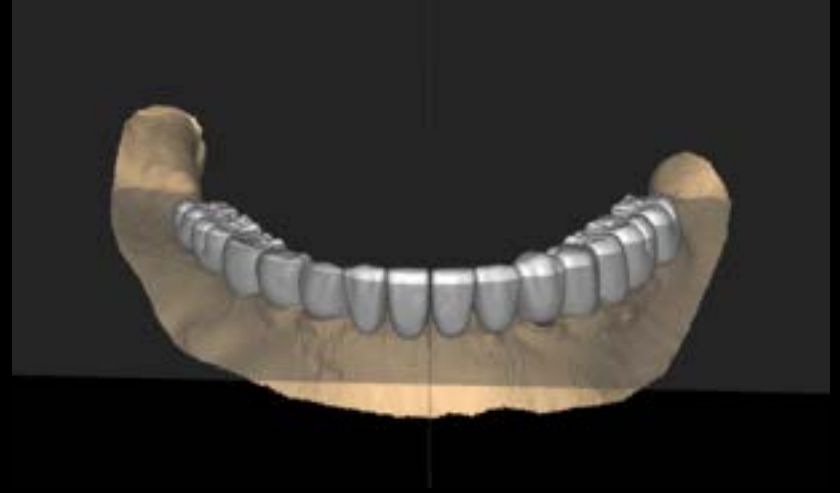
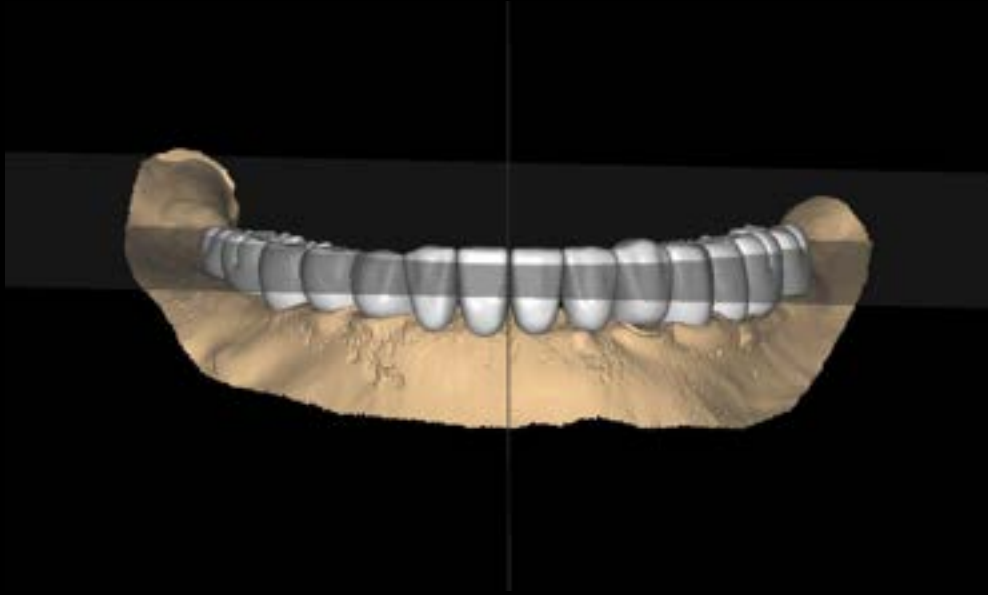
AI Occlusal Plane

Cad Design

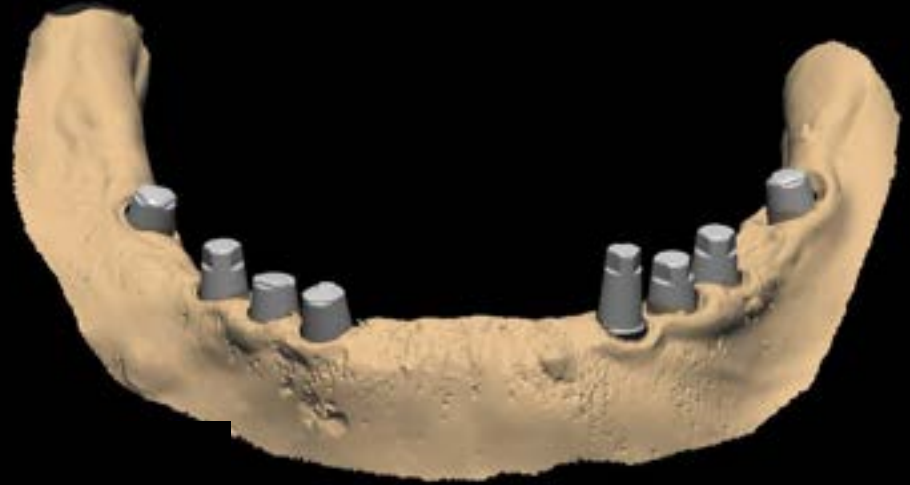
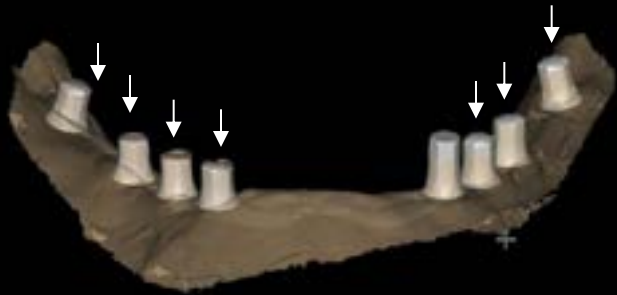


AI Occlusal Plane

Cad Design

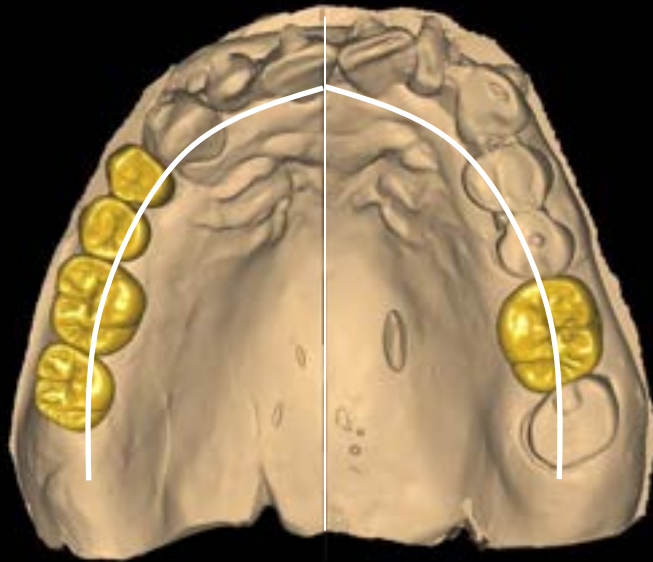


AI Occlusal Plane

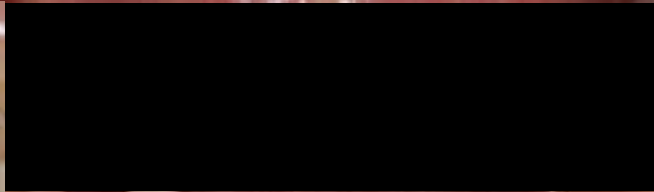


Digital Abutment

CT data with Orthodontics diagnose



Provisional restoration



2nd Provisional restoration



1st provisional cr



2nd provisional cr





Virtual Set up



Virtual Set up



Treatment direction reestablished through Dr-DT-DH discussion

Virtual Set up



Provides a more intuitive intraoral view and allows estimation of tooth reduction amount

Cad Design



Provisional restoration

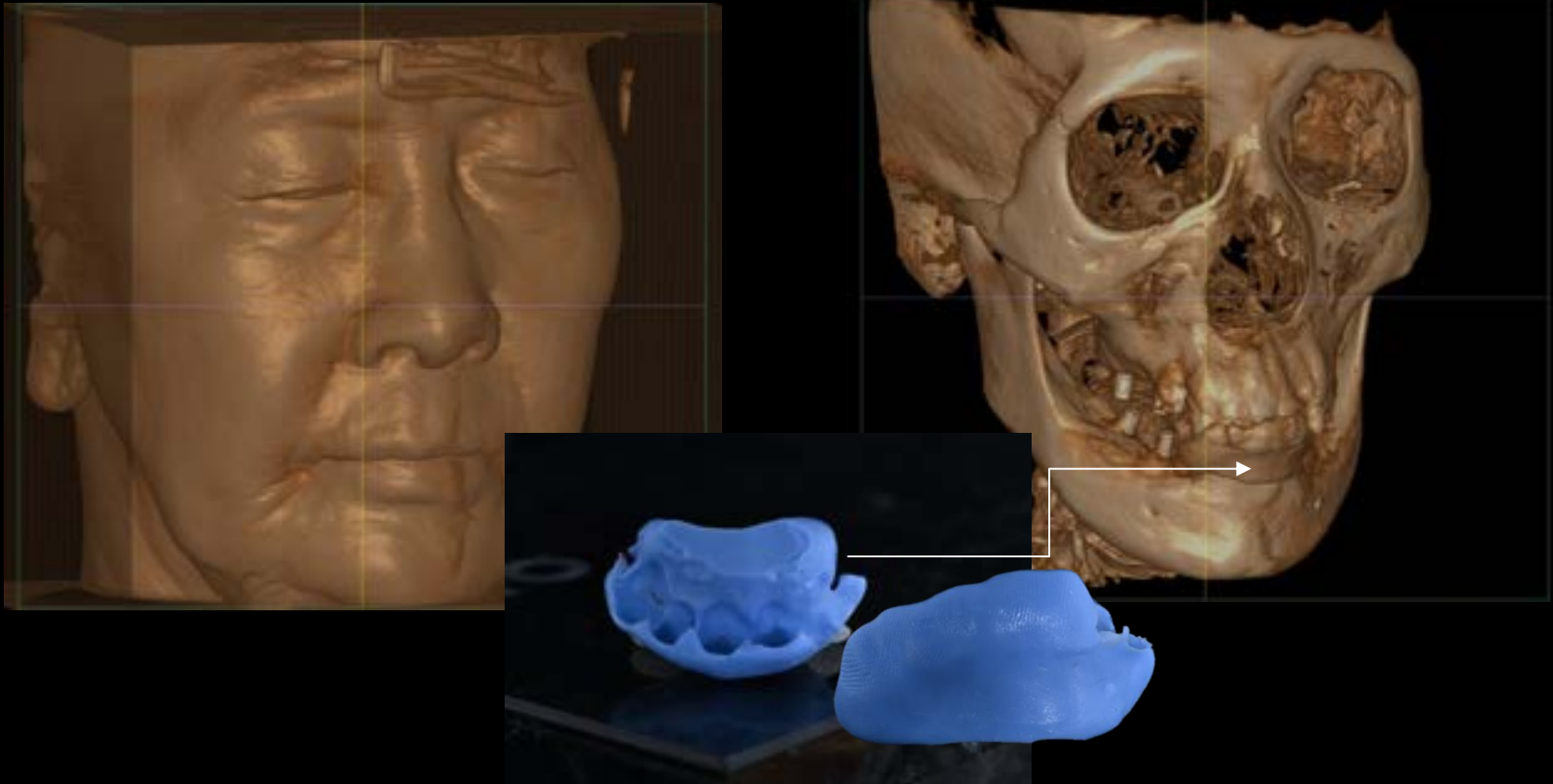


Putty index



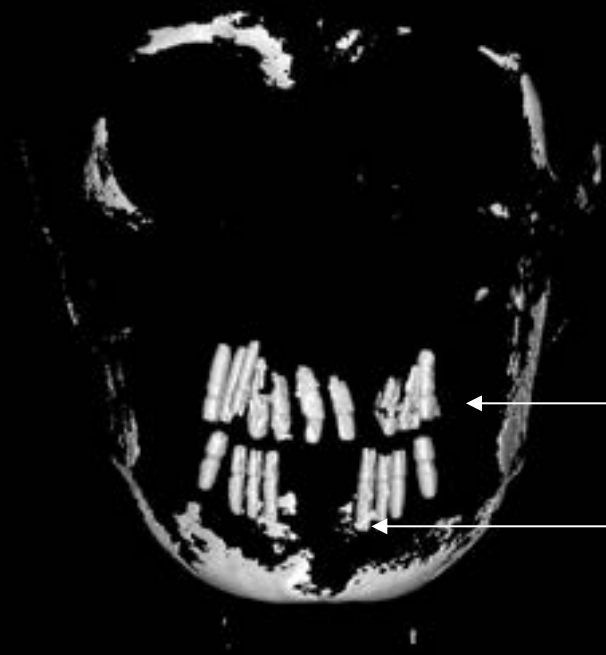
CT was taken using a putty index reproducing the occlusal relationship of the provisional restoration that the patient had already adapted to, after VD increase, for final prosthesis fabrication

Putty index



CT was taken using a putty index reproducing the occlusal relationship of the provisional restoration that the patient had already adapted to, after VD increase, for final prosthesis fabrication

CT Check Bite



CT Check bite



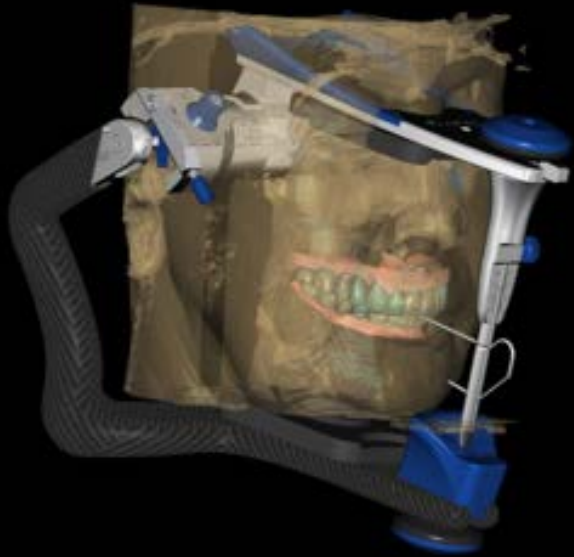
Shining 3D Aoral 3 Wireless data

CT Check Bite



CT Check bite + los scan data

Cad Design

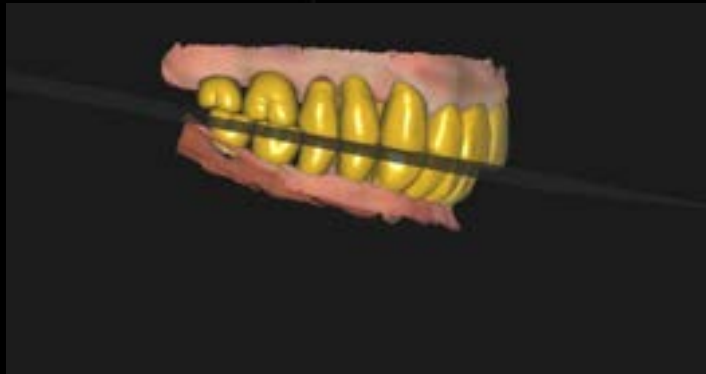


Final Design VD 1mm Up



All bright Digital abutment & Ti base abutment

Cad Design



Cad Design



Virtual Articulator



Zirconia Block



rainbow
Shine-T

- Maximum Strength
- Natural Aesthetic

bright 3-Layer
No coloring & Stain

Zirconia Block



rainbow
Shine-T

- Maximum Strength
- Natural Aesthetic



bright 3-Layer
No coloring & Stain

Final Prosthesis



Final Prosthesis



Final Prosthesis



Denture VD



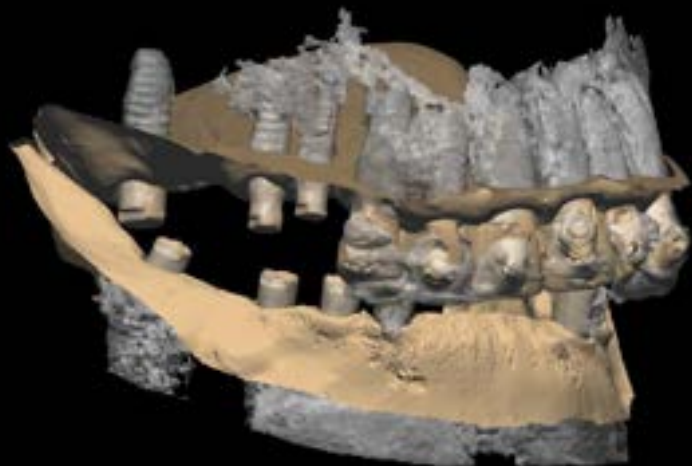
1st VD 2mm up



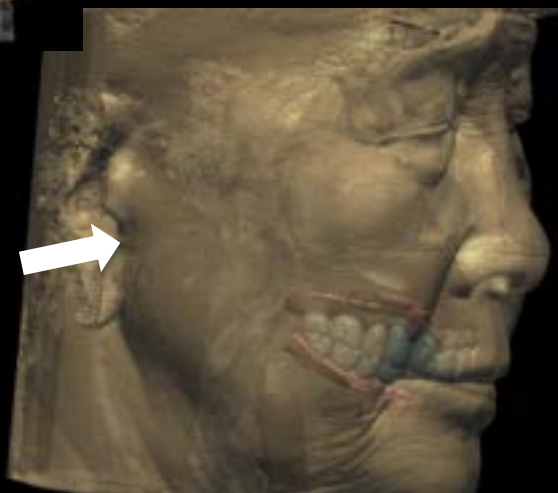
2nd VD 1.5mm up



Final VD 1mm up



VD 4.5mm up



Botox was administered to the masticatory muscles to assist with adaptation during VDO increase

Final Prosthesis

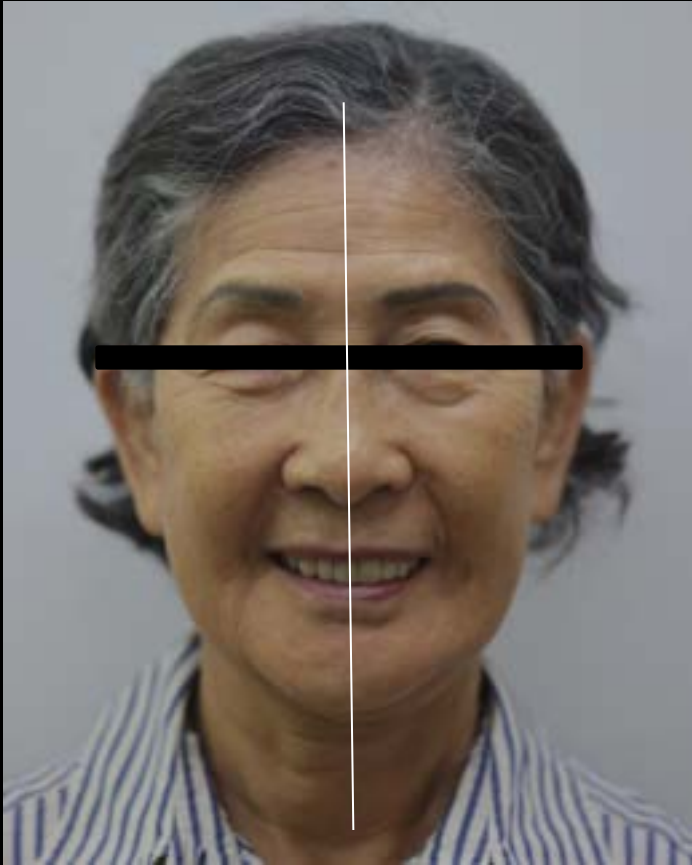


Before



After

Final Prosthesis







Occlusal protocol for full-mouth rehabilitation

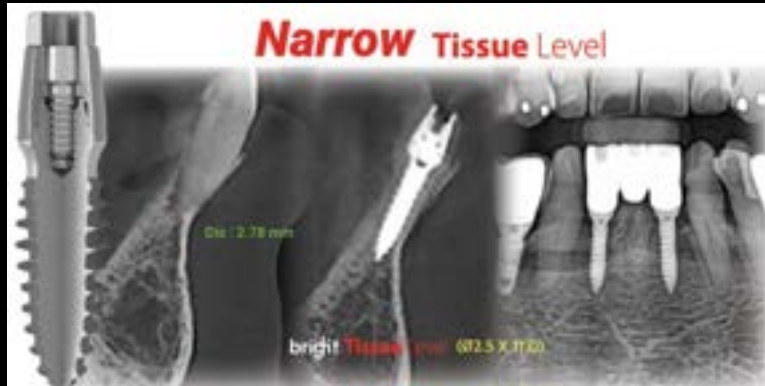


Prosthesis Delivery day



After One Week

With two visits during the following week



Minimalism Surgery

Model-less
(BTS, IOS, BOS)
(Virtual Articulator)

Only Custom Abutment?
(Digital Abutment, Ti-Base
Abutment)



Simple Digital Prosthesis

Dental Lab Materials
zirconia (3 layer block, bright mono block, Shine T block)
3D printing Flexible Resin

CT data (AI Occlusal Plane)
(Dicom – STL)
(CT Viewer → Dental Cad)

Thank you