PROTON
DENTAL
DESIGN

This document outlines the imaging requirements for submitting cases that require CBCT and intraoral scans.

General Guidelines

Essential Photographs for Smile Design

For optimal esthetic assessment, capture high-quality images in the following views:

- **Full Smile** – Showcases the patient's natural expression.
- **Exaggerated Smile** – Displays maximum lip and tooth visibility.
- **Retracted Bite** – Provides a clear view of the gum structure and occlusion.
- **Lateral view** – Required to determine position and inclination of anterior teeth.

Photography Tips:

- Ensure the patient wears any existing prosthesis during the photoshoot.
- Have the patient maintain direct eye contact with the camera.
- Capture images **before** taking physical impressions to keep lips and gums clean.
- If an **immediate-load provisional** is planned, accurately document the **shade** selection.

Impressions or Scans:

- Use **full-arch impressions/scans** for the best fabrication of surgical guides.
- For an **immediate removable prosthesis**, include a full **palatal scan** in the impression/scan.
- For fully **edentulous patients**, **fiduciary markers** should be used.
- If **vertical dimension adjustments** are required due to missing posterior support:
    - Capture the digital bite at the **intended vertical dimension.**
    - Alternatively, **order a bite rim**, adjust as needed, and register the centric relation bite using the wax rim.
- Always **verify bite accuracy** post-processing by comparing digital scans to the patient's actual occlusion.

CBCT Scans

Patient Positioning for CBCT Scans

For optimal imaging, **for dentate** patients, position the patient with their **mouth open** during the CBCT scan. If available, use the CBCT bite fork to stabilize their bite.

CBCT Acquisition Guidelines

- Recommended **voxel size**: 250 µm for detailed imaging.
- **Maxillary Arch Scans** – The **Field of View (FOV)** should encompass the **entire maxilla and sinuses**.
- **Mandibular Arch Scans** – Ensure the **FOV** includes the **complete mandible**.
- If scanning **single arches separately**, send individual scans for each surgical arch.
- **Verify scan quality** before patient dismissal to ensure accuracy.

Important Note: Avoid submitting CBCT scans composed of multiple stitched images, as they may compromise accuracy.

Specific Guidelines

Follow the relevant section for your case to ensure accurate digital treatment plans and surgical guides that meet both surgical and aesthetic needs, while minimizing requests for additional details.

Available Treatment Categories

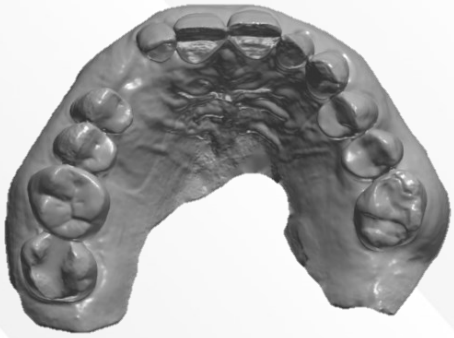
- **Dentate Arch** – Guidance on cases involving full dental arches.
- **Partially Edentulous Arch** – Instructions for cases where some teeth are missing.
- **Edentulous Arch** – Steps for cases where no teeth are present.

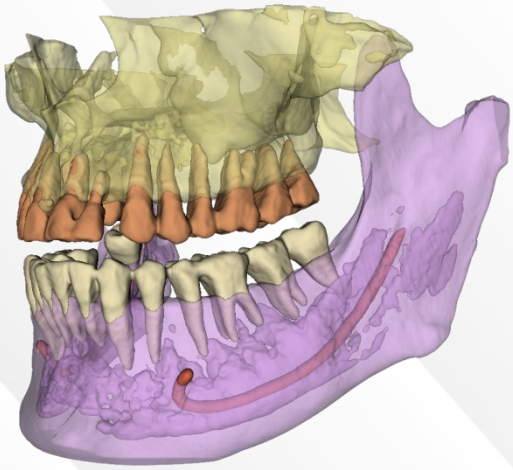
PROTON DENTAL DESIGN

Dentate Arch

Impression Tips:

- Verify the bite scan reflects the patient's bite.
- Full-arch impressions/scans provide the best results for surgical guide development.
- Impression/scan of the opposing dentition (non-surgical arch).



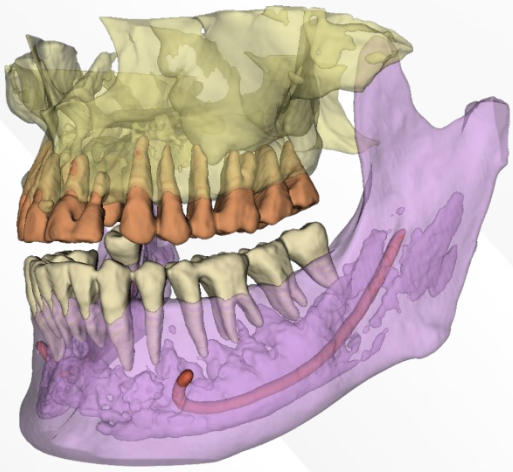


PROTON DENTAL DESIGN

Partially Edentulous Arch

Impression Tips:

- Scan without partial denture.
- Scan with partial denture.
- Bite registration with partial denture

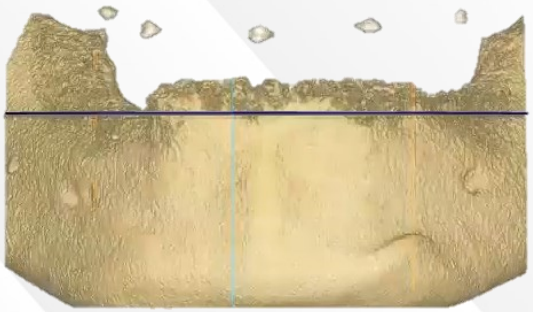


PROTON DENTAL DESIGN

Edentulous Arch

Impression Best Practices:

- If the patient wears an **existing prosthesis**, ensure it is **well-fitting** for use as a reference.
- Before recording impressions, **reline the denture** as needed.
- Scan **oral and intaglio surfaces** of the patient's existing prosthesis, 360°.
- For patients **without** an existing **denture**, bite blocks and fiduciary markers are required.
- Take bite registration in **centric relation**



There are two ways to capture the scans for the prosthesis of an edentulous patient, **a) Intraoral Scanner + CBCT** and **b) Dual-Scan CBCT**.

1. **Prosthesis Scan**

    a) **Intraoral Scanner + CBCT**
        i. Place 5 to 6 CT markers on the prosthesis.
        ii. With your intraoral or tabletop scanner scan both intaglio and oral surfaces (360°).
        iii. Verify scan quality before proceeding to the next step.

    b) **Dual-Scan CBCT Scan:**
        i. Place 5 to 6 CT markers on the prosthesis.
        ii. Depending on your CBCT scanner you might need to spray the dentures with a radiopaque coating.
        iii. Position the prosthesis on a foam pad or cardboard box within the CBCT scanner.
        iv. Recommended voxel size: 250 µm for optimal accuracy.
        v. Verify scan quality before proceeding to the next step.

2. **CBCT – Patient Scan:**

- Ensure the **CT markers** remain unchanged from the first scan.
- In patients with **full arch dentures** capture the **image in occlusion.**
- Position the patient in an **exaggerated smile** during scanning.
- Recommended **voxel size**: **250 µm** for precise imaging.
- **Maxillary Surgical Arch**: The **Field of View (FOV)** must capture the **full maxilla and sinuses**.
- **Mandibular Surgical Arch**: The **FOV** should include the **entire mandible**.
- If scanning **single arches separately**, submit individual scans for each **surgical arch**.
- **Verify scan quality** before dismissing the patient to prevent inaccuracies.