Zygomatic Implants
for the Extra Maxillary Approach

NORIS Medical
ENGINEERED FOR HEALTH
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Zygomatic Implant - Indications for Use

The Zygomatic implant placement is a highly predictable procedure with a high success rate in restoration of atrophic jaws, without the need for complex bone augmentation procedures.
Zygomatic Implant - Extramaxillary Approach

• Noris Medical Zygomatic implant is placed following the extramaxillary protocol; this is a modification of the traditional Branemark technique.

• In the Extramaxillary approach a bypass of the maxillary sinus is being made in a manner that prevents damage to the sinus membrane.

• The Zygomatic implant is anchored in the zygomatic bone; the resulting torque is very high.

• The implant prosthetic platform is being shifted buccally to a more appropriate position of the restoration.

• The design of Noris Medical Zygomatic implant is an unthreaded body ending with an aggressive thread at the apical part of the implant.

• A special drill design allows the clinician to create a clean tunnel preparation with minimal risk of membrane damage.

• A 45° angle Multi-Unit abutment will provide the angle correction needed.
Zygomatic Implant

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Cover Screw Included with all implants NM-S5023

• Especially designed for the extramaxillary approach
• Available in lengths from $35\text{mm}$ to $57.5\text{mm}$ with $2.5\text{mm}$ increments
• $2.43\text{mm}$ internal hex. connection
• Smooth body to reduce periopathogens adherence
• Deep threads for excellent stability in the zygomatic bone
• RBM treated surface at the threaded part, increases the BIC
Tools

Zygomatic Step Drills

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Zygomatic Burs for groove preparation

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Zygomatic Surgical Kit

NM-X2118
Drill Sequence

Bone Type

D1
D2
D3
D4

ø2.8
ø3.2
ø4.2
ø2.5
## Multi-Unit Components

### Straight

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### Angulated 17°

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Included with all multi-unit bases

### Angulated 30°

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### Angulated 45°

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Included with all multi-unit bases

**Recommendation:** Tighten the base at a torque of 25 Ncm.

**Recommendation:** Tighten the screw at a torque of 20 Ncm.
### Abutments

**Universal Abutment**
- Screw: NM-S7102
- Ø 4.8mm H 12mm

**Castable Abutment**
- Screw: NM-S7102
- Ø 4.8mm H 12mm

**Healing Cap**
- Screw: NM-S7102
- Ø 4.8mm H 4.3mm

**Star Hex. Drivers**

- **Short Driver**
  - Ø 1.25mm L 7mm
  - NM-X7006

- **Long Driver**
  - Ø 1.25mm L 14mm
  - NM-X7007

**Straight Multi-Unit Drivers**

- **Short Driver**
  - Ø 2.0mm L 6mm
  - NM-X1016

- **Long Driver**
  - Ø 2.0mm L 10mm
  - NM-X1017

- **Short Motor Mount**
  - Ø 2.0mm L 20mm
  - NM-X1120

- **Long Motor Mount**
  - Ø 2.0mm L 25mm
  - NM-X1125

**Transfers & Analog**

- **Open Tray**
  - Screw: NM-S7111
  - Ø 4.8mm H 11mm
  - NM-T7111

- **Closed Tray**
  - Screw: NM-S7102
  - Ø 4.8mm H 8mm
  - NM-T7102

- **Plastic Cap**
  - Plastic Cap: NM-S7102
  - Ø 4.8mm H 11mm
  - NM-T4402

- **Analog**
  - Analog: NM-S7102
  - Ø 4.8mm
  - NM-T7151

- **Screw**
  - NM-S7102

*Recommendation: Tighten the screw at a torque of 15 Ncm.*
The Passive Fit Castable Abutment Kit consists of three parts aimed for the fabrications of accurate metal reinforced prostheses. The Castable Sleeve Positioner is used for locating the Castable Sleeve on the plaster model, ensuring passive fit of the fabricated metal cast when cemented to the Titanium Abutments.

* Recommendation: Tighten the screw at a torque of 15 Ncm.
Prosthetic rehabilitation of the upper jaw, after major bone resorption, is very challenging from both surgical and prosthetic points of view. The absence of teeth leads to cessation of the stimulation of the alveolar bone. The stimulation is caused by the physiological load which is transferred to the alveolar bone and prevents resorption.

Shortly after the teeth extraction the process of alveolar bone resorption starts. The ongoing resorption is progressively continuing over the years until reaching atrophy. Installation of dental implants at this stage, using conventional techniques, is very difficult due to extensive bone resorption and the accompanied pneumatization of the maxillary sinuses.

The conventional treatment options for these patients are mostly augmentation procedures, which are meant to increase the volume of the load bearing bone.

The bone for the augmentation is taken from different sources, such as: the iliac crest, or intraoral origin, like the mandibular ramus, the intermental region etc. Augmentation procedures are very complicated and require a long recovery period.

An additional treatment option for atrophic maxilla is the placement of Zygomatic implants. The Zygomatic bone was found to be suitable for installation of dental implants. In 1998 Branemark presented the Zygomatic implant as an optional solution for the treatment of oncologic patients. This solution was expanded later on to Atrophic Maxilla. Long implants were found to be a good alternative for complicated augmentations procedures. Even though they are not easy to install, they present promising outcomes (1, 2, 3).

Noris Medical Zygomatic Implant was especially designed for implantation in the Extramaxillary approach. The Extramaxillary approach enables the positioning of the prosthetic connection on the Alveolar Ridge, unlike the other methods in which the prosthetic unit is more palatinially positioned (4). This location is more correct and easier for the rehabilitation process.

In the Extramaxillary approach, the implant’s stability is being achieved only by the Zygomatic bone. For this reason the implant is designed with a spiral and deep retentive thread shape at its apex, while the rest of the implant is smooth. The diameter of all the Zygomatic Implants is 4.2mm and their lengths vary between 35mm and 57.5mm.
Case Description

68 years old female patient

Medical history:
• Controlled high blood pressure;
• Balanced Type II diabetes;
• Bilateral mastectomy in 2008;

Clinical and radiological findings:
Combination Syndrome;
Pneumatization of the Maxillary Sinuses;
Severe resorption of the upper alveolar ridge;
Perimplantitis and mucositis around implant in position of tooth 31.

Treatment Plan

After radiological and CT assessments it was decided to install two Tubero Pterygoid Palatine Implants, 4 Zygomatic implants at the Extramaxillary approach and one implant in the incisive canal.

The surgical procedure was done in the Split Mouth technique, in order to reduce the exposure time of the bone.

After the installation of the implants, augmentation was done, using Calcium Sulfate + HA.

Correction of angulation was achieved by using Multi-Units in angulation of 17, 30, 45 degrees as found necessary.

In the lower jaw, the removable prosthesis was changed to fixed prosthesis, on Multi-Unit bases, as well. Rehabilitation was performed on the day of the surgical procedure.

A few hours after the operation, the patient received two provisional acrylic bridges reinforced by induction welded Titanium (grade 5) bar.
Panoramic and CT illustrate the Pneumatization of the Maxillary Sinuses and the Severe resorption of the upper Alveolar Ridge (Figs 1, 2).

Combination Syndrome.
Upper Jaw


5. The integrity of the Schneiderian Membrane can be observed (Figs 5, 6).

6.

Correcting the Angulation using a 45° Multi-Unit Abutment.

The surgical procedure was done by Split Mouth technique in order to reduce the exposure time of the bone during the installation of the Zygomatic Implants. Two Implants were placed on each side (Figs 9, 10).

After the installation of the implants, augmentation was done using Calcium Sulfate + HA.
Transfers were mounted and fixed on the Multi-Units in order to take an impression using the Open Tray technique but the impression was taken without using a tray (Figs 12, 13, 14).

Upper jaw provisional Acrylic Bridge reinforced by induction welded Titanium (grade 5) bar.

Impressions of the lower jaw, using Snap-On Transfers
Lower jaw provisional acrylic bridge reinforced by induction welded Titanium (grade 5) bar.

In the upper jaw Two Tubero Pterygoid Palatine Implants, four Zygomatic implants at the Extramaxillary approach and one implant in the incisive canal were installed.
References:


