SURGICAL PROTOCOL

AISER • SWISS QUALITY AT ITS PEAK

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1. INTRODUCTION

AISER IMPLANT SYSTEM is the result of extensive research aimed at providing **cutting-edge technologies** designed for real practice.

The best equipment to give your patients **simply the best.**

2. IMPLANT SYSTEM

3. IMPLANT PROCEDURE

3.1. Pre-operative Phase

This phase consists in all the stages from the moment of diagnosis to the start of surgery.

In this phase the surgery is planned, the outpatient department is organised accordingly, appointments are made, appropriate prescriptions are given to the patient in advance so that they experience the least traumatic and safest treatment possible.

Diagnostic Tools

Cone Beam Computed Tomography is the most useful examination type nowadays for diagnostic and preparatory purposes of implant surgery, which allows to obtain information about the cranial mass in its defined parts, the soft tissues, with considerably reduced radiation emission and with an incredibly high quality.

The quality of detail obtained from scanning leads to more accurate diagnosis and comprehensive treatment planning. Measurements of distances, bone density and angles, with the possibility of three-dimensional reconstructions for implant simulations and virtual implant insertion.

Bone Density Classification

Misch in 1988 extended this classification to entire craniofacial district, on the base of the micro-structural characteristics of bone tissue.

He classified 5 different bone typologies:

Type D1: thick cortical bone and sparse spongiosa.
Type D2: bone with thick cortical and narrow mesh spongiosa.
Type D3: bone with thin cortical and tightly meshed spongiosa.
Type D4: bone with thin cortical and large mesh spongiosa.
Type D5: immature and demineralised bone.

D1 bone is never observed in the maxilla, but it is present in the mandible at the level of the symphyseal region and in cases of high bone atrophy. The poor blood supply that characterize this kind of tissue, usually slows down the healing process;
The high density of the the tissue requires particular attention to overtorque in implant placement, and overheating during the drilling procedure.

D2 density is the most frequently observed typology: it represents optimal bone quality and can be present in the mandible and frontal area of the maxilla.
The cortical is sufficiently thick to ensure high primary stability.
Good vascularisation of the spongiosa provides the best results on healing time and quality of osseointegration.

Bone Density Classification

Misch in 1988 extended this classification to entire craniofacial district, on the base of the micro-structural characteristics of bone tissue.

He classified 5 different bone typologies:

Bone density D3 is very common in the maxilla.
Its characteristics are comparable to that of D2 tissue, although, with lower spongiosa vascularisation and thinner cortical.

D4 bone is usually found only in the maxilla and rarely in mandible. In 40% of cases D4 typology is found in the posterior portion of the maxilla, and only in 10% of cases in the anterior portion. It is a very low density bone, with this kind of tissue both the achievement of an adequate primary stability and the healing process can be difficult.

D5 bone in Misch's classification is an immature or demineralized bone, not suitable for surgical procedures

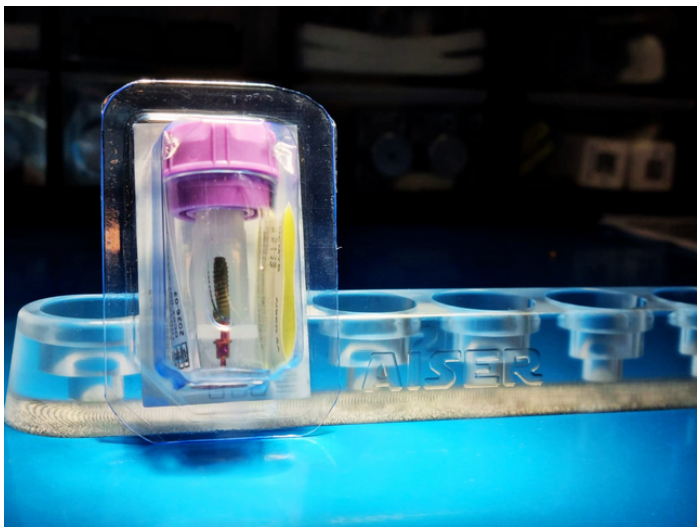
The CT data assign each volumetric unit (voxel) a numerical value based on the average tissue density in that specific volume.
This value falls into a standardized scale expressed in Hounsfield Units (HU) between a value of -1500 and a value of +2595. A value of 0 identifies the density of water and a value of -1500 corresponds to the density of air.

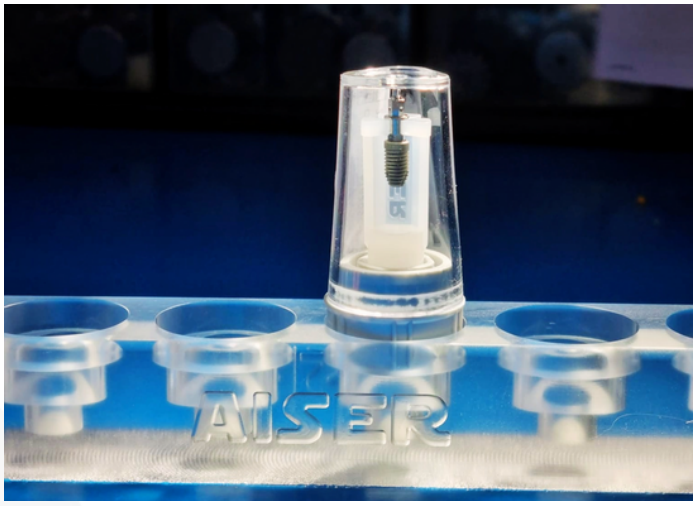
Bone structures on the Hounsfield scale vary in densities between +150 and +1500.

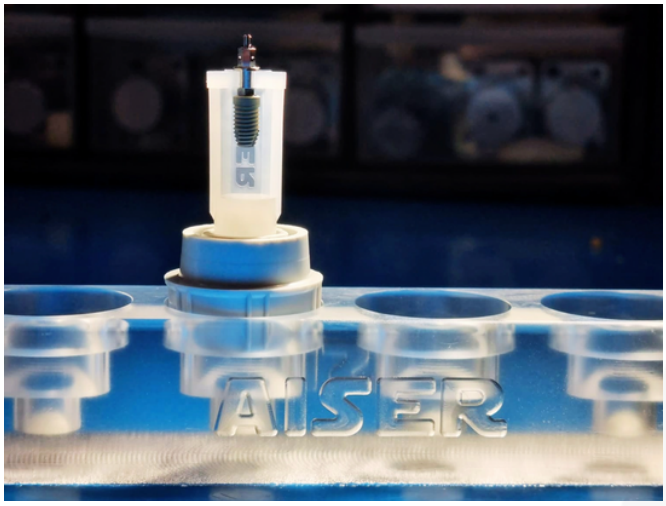
3.2. Intra-operative Phase

The primary goal is to perform minimally traumatic implant surgery with a predictable outcome.
To achieve this kind of results, unnecessary tissue damage must be avoided and any intra/extra-oral contamination of the implant site must be minimised.

Implant Site Preparation







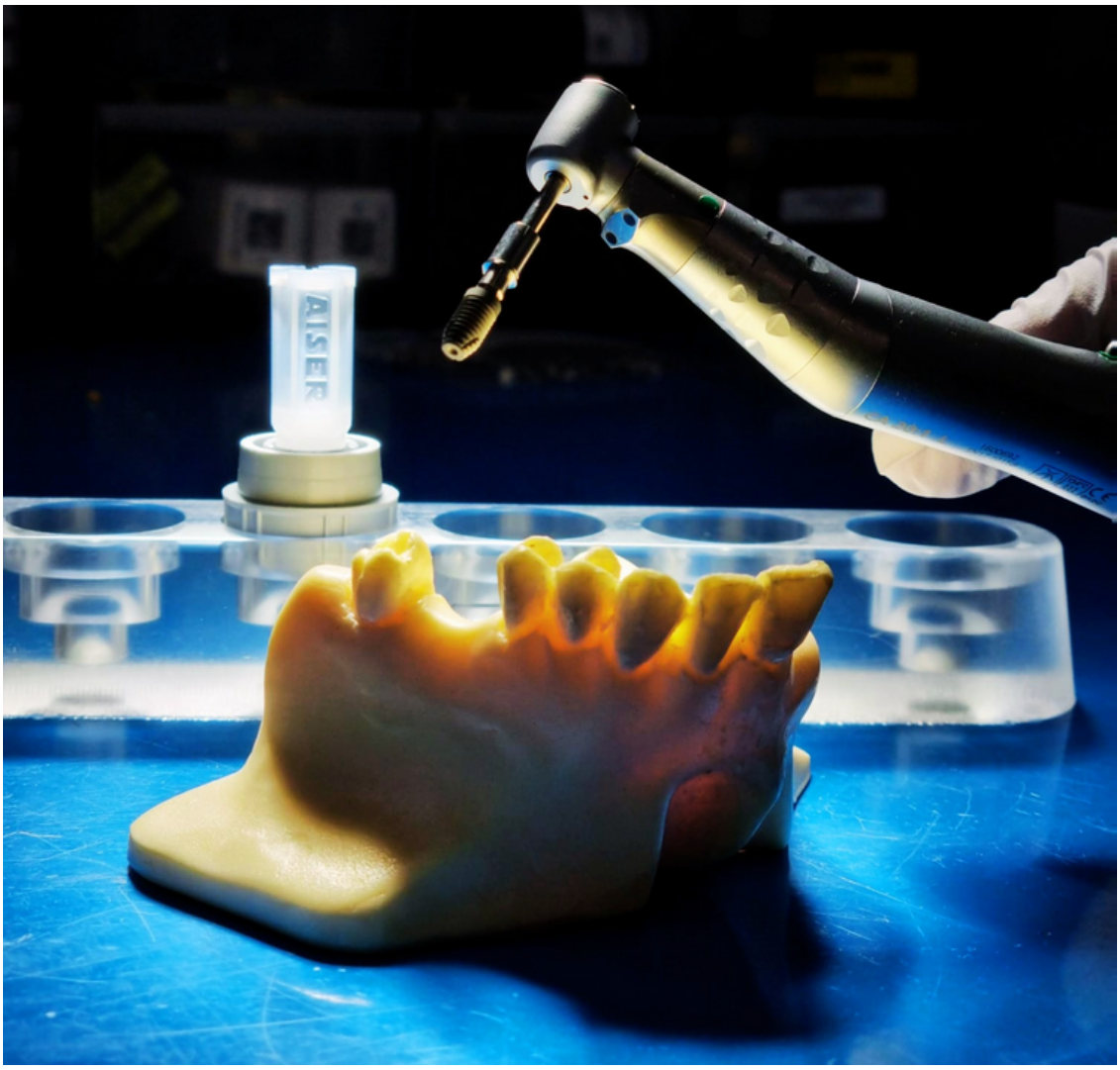
Implant Site Preparation

General considerations and overview of the milling procedures:

- Use only sharp cutters.
- Do not use cutting instruments more than 15 times.
- Use the surgical diary to keep track of the number of uses for each drill.
- Apply intermittent drilling technique.
- Apply light pressure only.
- Respect the drilling sequence and use drills in ascending order.
- Do not exceed speed limits (800 rpm).
- Ensure appropriate cooling with pre-cooled sterile saline (NaCl)
- Choose the appropriate drilling procedure for the different types of bone according to the attached table.

Alveolar Ridge Preparation

Carefully reduce and flatten the selected ridge to create a flat bone surface in an area sufficiently large for implant insertion;
using the pilot drill mark the implant axis by drilling to a depth of 6 mm;
check the inclination of the site and then continue to the final length of the selected implant proceeding with the next drill steps;
In case of D1 bone, tapping with a the dedicated tap for the chosen diameter is recommended.



Implant Insertion

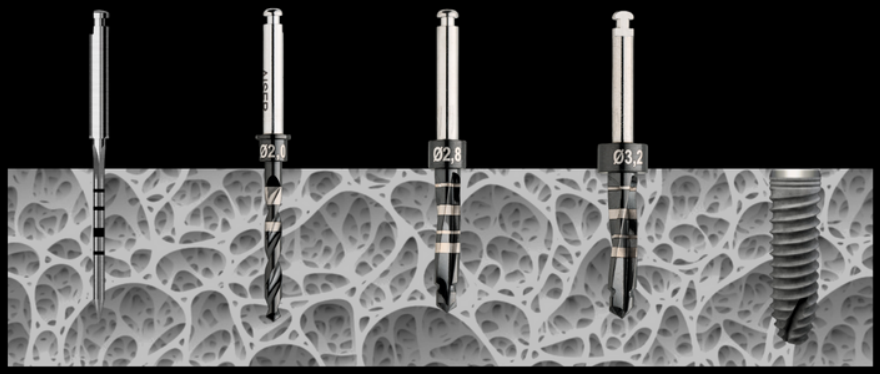
At this point, implant placement is carried out using a contra-angle handpiece or manually, depending on the surgeon's preference.

Positioning will be carried out at the speed and with Torque force as indicated in the individual tables. Cover screw will then be positioned and the surgical site will be
sutured.
If preferred/possible, a healing screw will be positioned and sutured with trans-mucosal passage of the screw in order not to intervene later with surgical re-entry.

Aiser Implant - Themys Ø 3,5 mm

Aiser Tytan - Themys - Ø 3,5 mm

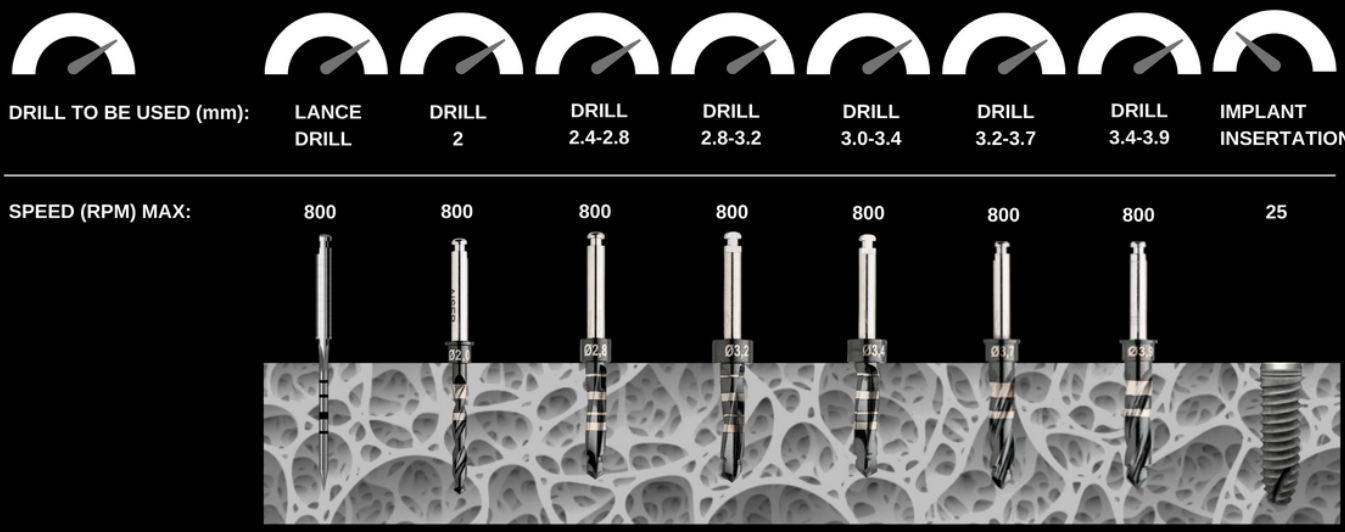
DRILL TO BE USED (mm):	LANCE DRILL	DRILL 2	DRILL 2.4-2.8	DRILL 2.8-3.2	IMPLANT INSERTATION
SPEED (RPM) MAX:	800	800	800	800	25



D1 – Very Hard Bone	✓	✓	✓	✓	✓
D2 – Hard Bone	✓	✓	✓	✓	✓
D3 – Soft Bone	✓	✓	✓		✓
D4 – Very Soft Bone	✓	✓			✓

Aiser Implant - Themys Ø 4,3 mm

Aiser Tytan - Themys - Ø 4,3 mm

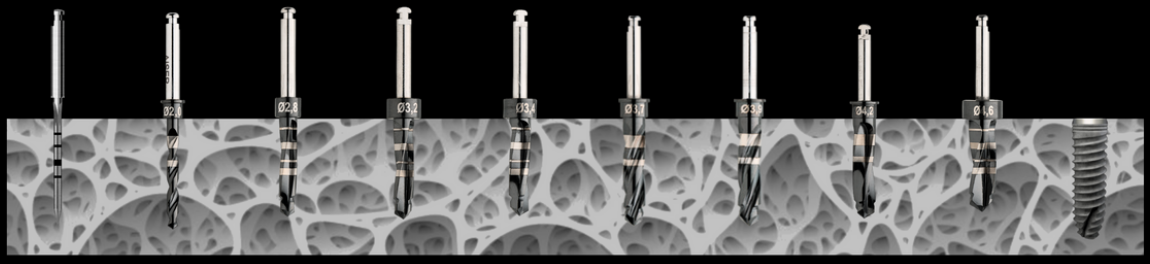


DRILL TO BE USED (mm):	LANCE DRILL	DRILL 2	DRILL 2.4-2.8	DRILL 2.8-3.2	DRILL 3.0-3.4	DRILL 3.2-3.7	DRILL 3.4-3.9	IMPLANT INSERTATION
SPEED (RPM) MAX:	800	800	800	800	800	800	800	25
D1 – Very Hard Bone	✓	✓	✓	✓	✓	✓	✓	✓
D2 – Hard Bone	✓	✓	✓	✓	✓	✓		✓
D3 – Soft Bone	✓	✓	✓	✓	✓			✓
D4 – Very Soft Bone	✓	✓	✓	✓				✓

Aiser Implant - Themys Ø 5,0 mm

Aiser Tytan - Themys - Ø 5,0 mm

DRILL TO BE USED (mm):	LANCE DRILL	DRILL 2	DRILL 2.4-2.8	DRILL 2.8-3.2	DRILL 3.0-3.4	DRILL 3.2-3.7	DRILL 3.4-3.9	DRILL 3.8-4.2	DRILL 4.2-4.6	IMPLANT INSERTATION
SPEED (RPM) MAX:	800	800	800	800	800	800	800	800	800	25
D1 – Very Hard Bone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D2 – Hard Bone	✓	✓	✓	✓	✓	✓	✓	✓		✓
D3 – Soft Bone	✓	✓	✓	✓	✓	✓	✓			✓
D4 – Very Soft Bone	✓	✓	✓	✓	✓	✓				✓



Aiser Implant - Themys Ø 5,5 mm

Aiser Tytan - Themys - Ø 5,5 mm

DRILL TO BE USED (mm):	LANCE DRILL	DRILL 2	DRILL 2.4-2.8	DRILL 2.8-3.2	DRILL 3.0-3.4	DRILL 3.2-3.7	DRILL 3.4-3.9	DRILL 3.8-4.2	DRILL 4.2-4.6	DRILL 4.2-5.0	IMPLANT INSERTATION
SPEED (RPM) MAX:	800	800	800	800	800	800	800	800	800	800	25
D1 – Very Hard Bone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D2 – Hard Bone	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
D3 – Soft Bone	✓	✓	✓	✓	✓	✓	✓	✓			✓
D4 – Very Soft Bone	✓	✓	✓	✓	✓	✓	✓				✓

3.3. Post-operative Phase

After surgery, an X-ray of the implant site is recommanded to check the results. Painkillers and cold therapy can be administered if needed.