

medartis®

PRECISION IN FIXATION

SURGICAL TECHNIQUE – STEP BY STEP

MODUS® 2  
Intermaxillary  
Fixation System IMF



MODUS®

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For further information regarding the MODUS product line visit [www.medartis.com](http://www.medartis.com)

# Introduction

## Product Materials

All MODUS 2 implants are made of pure titanium (ASTM F67, ISO 5832-2) or titanium alloy (ASTM F136, ISO 5832-3). All of the titanium materials used are biocompatible, corrosion-resistant and non-toxic in a biological environment.

The instruments are made of stainless steel, PEEK, aluminum or titanium.

## Indications

MODUS 2 IMF is indicated for temporary perioperative fixation and/or stabilization of occlusion.

## Contraindications

- Pre-existing or suspected infection at or near the implantation site
- Known allergies and/or hypersensitivity to implant materials
- Inferior or insufficient bone quality to securely anchor the implant
- Patients who are incapacitated and/or uncooperative during the treatment phase
- Blocking of cranial sutures/growth plates with plates and screws
- Not intended for use in direct contact with the dura mater and the central nervous system
- The IMF screws cannot be used in unstable fractures

## Color Coding

### Screw Diameter

2.0

### Color Code

Blue

### Plates and Screws

Implant plates gold

Implant screws green

Fixation plates, rigid

SpeedTip screws  
(self-drilling)

## Symbols


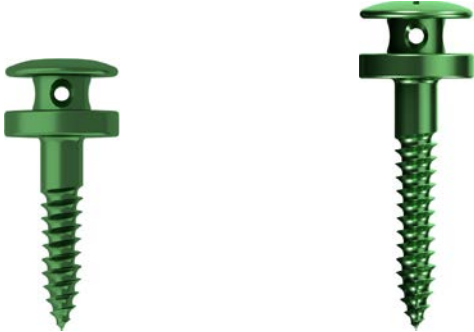


HexaDrive



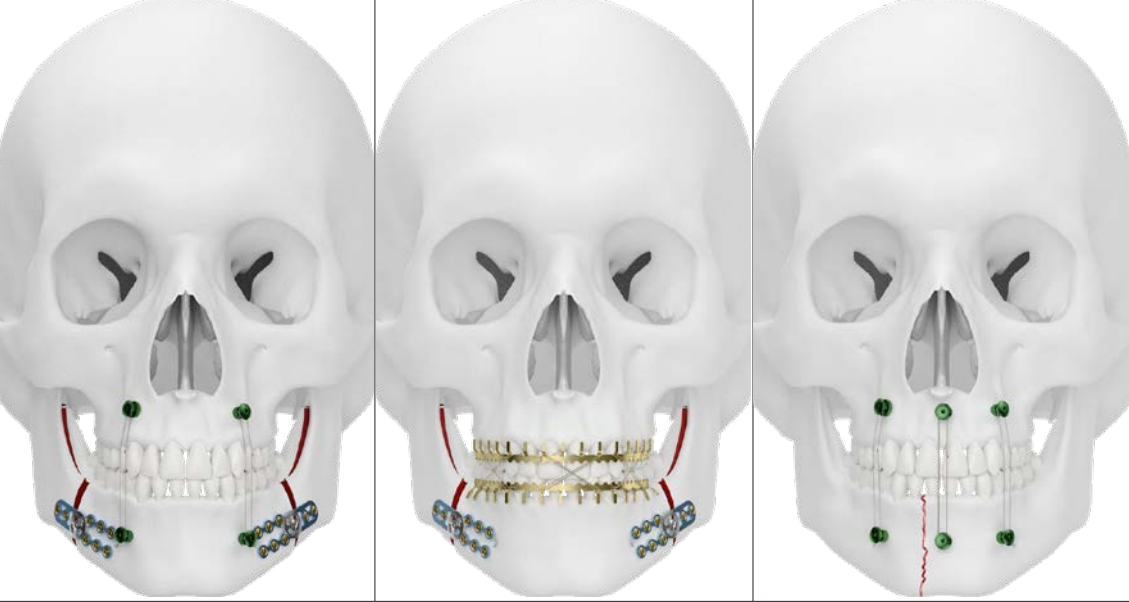
# System Overview

MODUS 2 IMF is available in the following designs.

| Description                             | Examples  |
|---|---|
| 2.0 IMF SpeedTip Screws without Plateau |  <p style="text-align: center;"> <span data-bbox="497 1055 639 1081">M2-5248.08</span> <span data-bbox="863 1055 1005 1081">M2-5248.11</span> <span data-bbox="1228 1055 1370 1081">M2-5248.14</span> </p> |
| 2.0 IMF SpeedTip Screws with Plateau    |  <p style="text-align: center;"> <span data-bbox="497 1525 639 1552">M2-5249.08</span> <span data-bbox="863 1525 1005 1552">M2-5249.11</span> </p>   |
| Titanium Arch Bar                       |  <p style="text-align: center;">M-4450</p>  |

# Treatment Options

The table below lists typical clinical findings which can be treated with the MODUS 2 IMF.

| Description             | Examples   |  |  |
|-------------------------|--|--|--|
|                         | Perioperative fixation of the occlusion during orthognathic or orthodontic surgery with IMF screws | Perioperative fixation of the occlusion during orthognathic or orthodontic surgery with titanium arch bars | Immobilization of a fractured jaw (immediate measure)              |
| 2.0 IMF SpeedTip Screws |                 |  |  |
|                         | M2-5248.08<br>M2-5248.11<br>M2-5248.14<br>M2-5249.08<br>M2-5249.11                                 | M-4450   | M2-5248.08<br>M2-5248.11<br>M2-5248.14<br>M2-5249.08<br>M2-5249.11 |

The above-mentioned information is a recommendation only. The operating surgeon is solely responsible for the choice of the suitable implant for the specific case.

# Instrument Application

## General Instrument Application

### Picking up the Titanium Arch Bar

For the removal of the titanium arch bar (M-4450), the use of conventional anatomical forceps is recommended.

Grasp the arch bar as close as possible to the medial pin and extract it vertically from the container.



### Cutting the Titanium Arch Bar

A conventional wire cutter (e. g. Aesculap – DP560R) can be used to cut the arch bar.

Visually check the desired cutting line before cutting. Ensure that enough material is left on the arch bar to keep the adjacent pin intact.



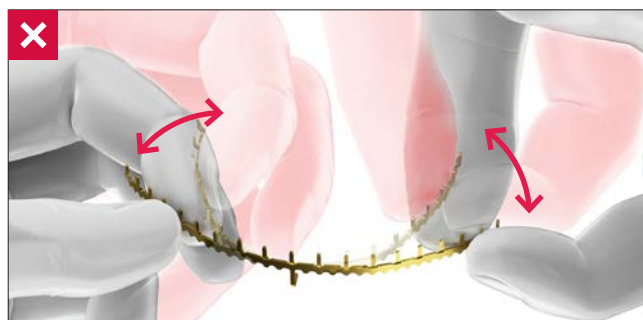
### Bending the Titanium Arch Bar

The titanium arch bar can be bent by hand to adapt it to the dental arch.



### Caution

Repeatedly bending the titanium arch bar in opposite directions may cause the arch bar to break.



## Drilling

With very hard bone it may still be necessary to pre-drill despite the use of self-drilling SpeedTip IMF screws.

A color-coded twist drill is available for MODUS 2 IMF screws. It is color coded with a ring.

| Screw Diameter | Color Code |
|----------------|------------|
| 2.0            | Blue       |

Drills for SpeedTip IMF screws Ø 2.0 (drill Ø 1.5)

| Dental  | Stryker |       |
|---------|---------|-------|
| M2-3159 | M2-3169 | 25 mm |



### Caution

It is recommended not to exceed the maximum speed of 1'000 revolutions per minute. Higher speeds can lead to over-heating of the bone.

## Screw Pick-Up

The screwdriver handle M2-2001 is compatible with the screwdriver blade M2-2005. The screwdriver blade features the patented HexaDrive self-holding system.



M2-2001  
Screwdriver Handle, Type 2



M2-2005  
Screwdriver Blade, HD6, 95 mm

To remove the screws from the implant container, insert the appropriately color-coded screwdriver blade perpendicularly into the screw head of the desired screw and pick up the screw with axial pressure.

**Notice**

The screw will not hold without axial pressure!

Vertically extract the screw from the compartment.

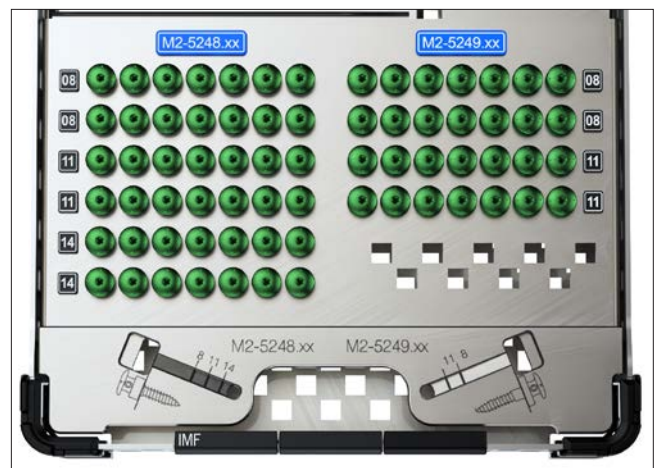
**Notice**

Picking up the screw repeatedly may lead to permanent deformation of the self-retaining area of the HexaDrive inside the screw head. Therefore, the screw may no longer be able to be picked up correctly. In this case, a new screw has to be used.

Check the screw length at the corresponding length measuring module of the container: the screw length is determined at the tip of the screw.

**Notice**

Different length measuring modules are available for the IMF screws M2-5248.xx and M2-5249.xx. Ensure that the screws are checked at the corresponding length measuring module.



## Explanation of MODUS 2 IMF Implants

For the explanation of MODUS 2 IMF screws, use the appropriate screwdrivers.

For removal of the MODUS 2 titanium arch bar, conventional wire cutters and forceps can be used.

**Notice**

Only original MODUS 2 instruments are recommended for the explanation of MODUS 2 IMF screws.

# Surgical Technique

## IMF Screws Application

Information on the application of the MODUS 2 IMF screws.

M2-5248.08 2.0 IMF SpeedTip screw, without plateau, 8 mm

M2-5248.11 2.0 IMF SpeedTip screw, without plateau, 11 mm

M2-5248.14 2.0 IMF SpeedTip screw, without plateau, 14 mm

M2-5249.08 2.0 IMF SpeedTip screw, with plateau, 8 mm

M2-5249.11 2.0 IMF SpeedTip screw, with plateau, 11 mm



### Determining the Screw Position

Screw placement sites are selected considering anatomical structures (i. e. root apices, neurovascular bundles or nasal mucosa) and fracture positions.

In the maxilla, the screws are placed above or between the root apices.

In the mandible, the screws are placed below or between the root apices.

#### Caution

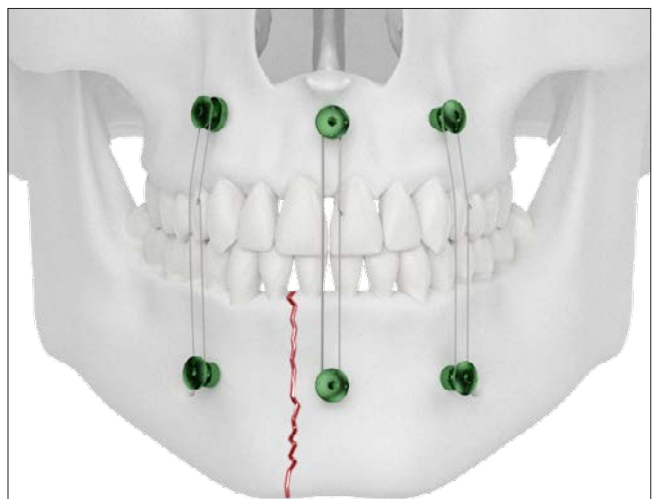
When inserting the screws, attention must be paid to the course of the inferior alveolar nerve.

#### Notice

For an intermaxillary fixation, a minimum of two screws in the maxilla and two screws in the mandible is recommended.

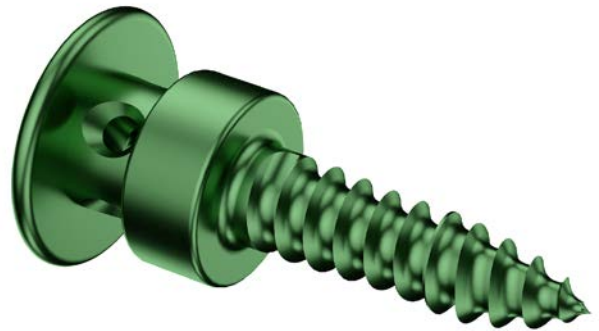
#### Caution

Do not insert MODUS 2 IMF into root apices. This can lead to an injury of the root apices and/or breakage of the screw.



## Inserting the Screws

All MODUS 2 IMF screws feature a self-drilling thread, which in most cases makes pre-drilling unnecessary.



Insert the first screw in the desired position.



Insert the remaining screws.



### Notice

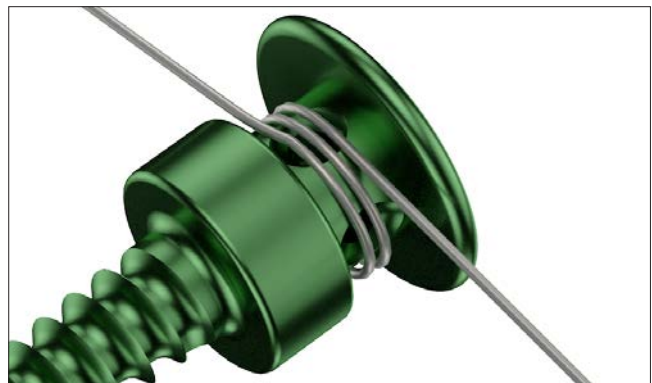
An unexpected increase of the tightening torque in cortical bone can occur when using MODUS 2 IMF screws. If so, remove the MODUS 2 IMF screw and drill a hole using the twist drill (see section "Drilling").

## Intermaxillary Fixation with Ligature Wires

Thread the ligature wire (maximum diameter 0.7 mm) through the through bore of the screw. For easy orientation, the through bores are placed parallel to the markings on top of the screw head.



Alternatively, the ligature wire can be wrapped around the grooves in the screw head.



Fix the ligature wire using any forceps. Bend the wire ends into an atraumatic position and cut them.



## Intermaxillary Fixation with Elastomeric Ligatures

Place the elastomeric ligatures into the grooves of the screw heads in the maxilla and mandible.



## MODUS 2 IMF Titanium Arch Bar Application

Information on the application of the MODUS 2 IMF titanium arch bar.



M-4450S  
Titanium Arch Bar, 129 mm, 2/Pkg

### Adapting the Titanium Arch Bar to the Maxilla

Bending of the medial pin for easier positioning of the arch bar.



Adapt the arch bar to the dental arch (see section “Bending the Titanium Arch Bar”).

#### Notice

The medial pin should be placed between the two incisors on the sagittal plane.



Shorten the arch (see section “Cutting the Titanium Arch Bar”).



Fix the arch bar with three ligature wires per quadrant.



Shorten the ligature wires.

**Notice**

For shortening of the ligature wires any wire cutter can be used.



Tighten and bend the ligature wires.

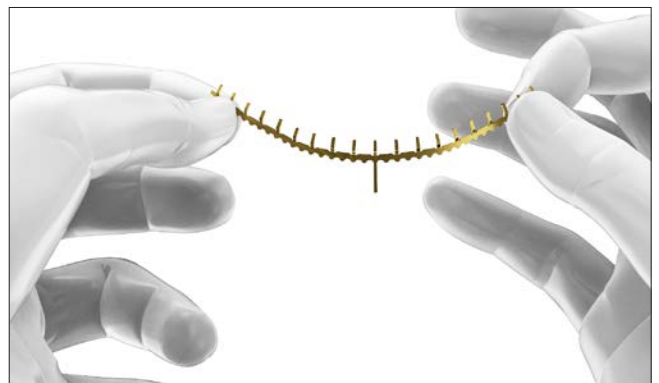


Cut off the medial pin.



## Adapting the Titanium Arch Bar to the Mandible

Curved pre-bending of the arch bar to imitate the Spee curve of the mandible.



Align the arch bar to the mandibular teeth.



The next steps are analogical to the adaptation of the arch bar to the maxilla.

Intermaxillary fixation with elastomeric ligatures or ligature wires.

### Notice

If individual pins have contact with the mucosa, the pins concerned must be bent away slightly in order to prevent soft tissue irritation.

The length of the pins allows for the use of 2–3 elastomeric ligatures per pin.



# Appendix

## Implants and Instruments

For detailed ordering information, please refer to the MODUS 2 IMF Product Information, also available at [www.medartis.com](http://www.medartis.com).

### Titanium Arch Bar

| Art. No. |
|----------|
| M-4450   |
| M-4450S  |

### Screws

| Art. No.    |
|-------------|
| M2-5248.08  |
| M2-5248.08S |
| M2-5248.11  |
| M2-5248.11S |
| M2-5248.14  |
| M2-5248.14S |
| M2-5249.08  |
| M2-5249.08S |
| M2-5249.11  |
| M2-5249.11S |

### RCI

| Art. No. |
|----------|
| M2-3159  |
| M2-3159S |
| M2-3169  |
| M2-3169S |

### Instruments

| Art. No. |
|----------|
| M2-2001  |
| M2-2005  |

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