

SURGICAL TECHNIQUE

# 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

### Titanium arch bar

cpTi (ASTM F67)

### Screws

Ti6Al4V (ASTM F136)

### Instruments

Stainless steel, aluminum, aluminum alloy, cpTi (ASTM F67), Nitinol, PA, PEEK, POM, PP, PPSU, PTFE, silicone

### Containers

Stainless steel, aluminum alloy, PEEK, PP, PPSU, silicone

## 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

## Indications

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

## Contraindications


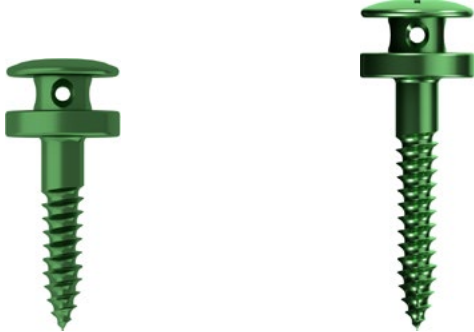

- Preexisting or suspected infection at or near the implantation site
- Known allergies and/or hypersensitivity to implant materials
- Inferior or insufficient bone quality to securely anchor the implant
- Patients who are incapacitated and/or uncooperative during the treatment phase
- Blocking of growth plates with plates and screws
- Unstable, comminuted, displaced and/or bi-maxillary fractures.

The IMF system is contraindicated in pediatric patients, as there is insufficient clinical evidence for this patient group.






# 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 1014 596 1037">M2-5248.08</span> <span data-bbox="858 1014 957 1037">M2-5248.11</span> <span data-bbox="1225 1014 1324 1037">M2-5248.14</span> </p>
2.0 IMF SpeedTip Screws with Plateau	 <p style="text-align: center;"> <span data-bbox="497 1485 596 1507">M2-5249.08</span> <span data-bbox="858 1485 957 1507">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 M2-5248.11 M2-5248.14 M2-5249.08 M2-5249.11	M-4450	M2-5248.08 M2-5248.11 M2-5248.14 M2-5249.08 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

#### Caution

Wrong cutting of the titanium arch bar may result in sharp edges and lead to injuries of the surrounding tissue.

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.



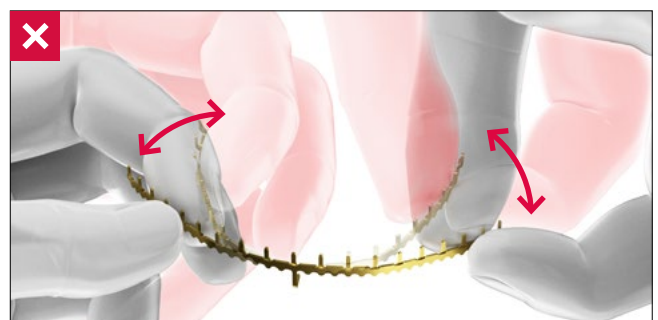
### Bending the Titanium Arch Bar

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 predrill 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



## Screw Pick-Up

The screwdriver handle M2-2001 is compatible with the screwdriver blade M2-2005. The screwdriver blade features the 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.

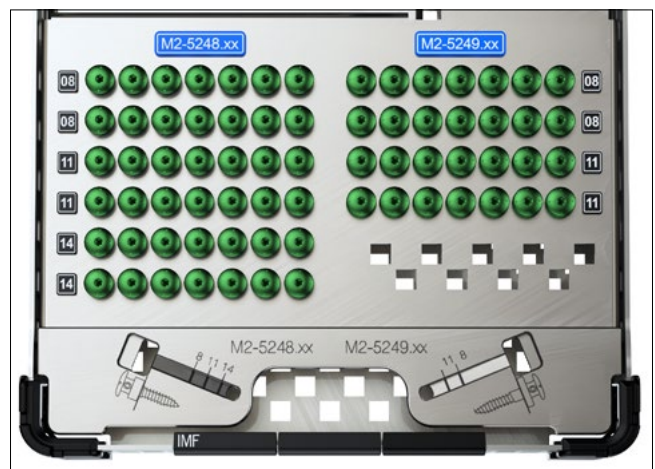
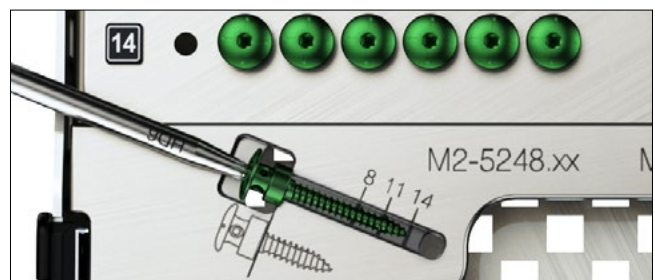
**Caution**

Vertically extract the screw from the compartment. 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.



# Surgical Techniques

## 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.

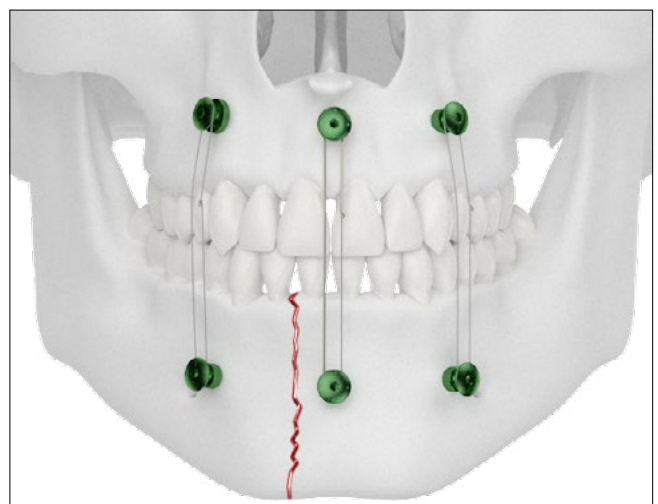
In the mandible, the screws are placed below or between the root apices.

### Caution

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

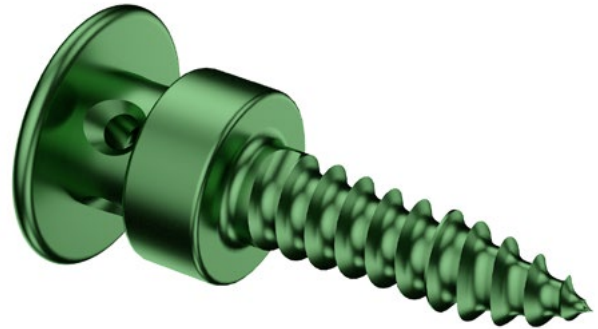
When inserting the screws, attention must be paid to the course of the inferior alveolar nerve.

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.

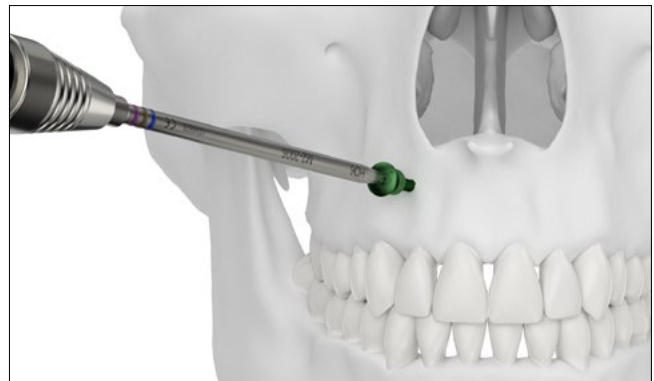


## Inserting the Screws

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



Insert the first screw in the desired position.



Insert the remaining screws.



### **Notice**

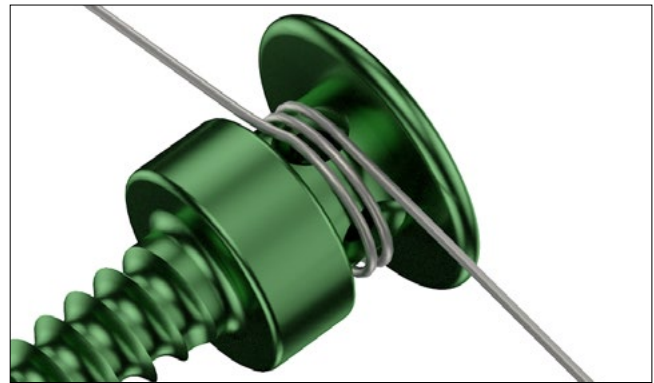
An unexpected increase of the tightening torque in cortical bone can occur when using MODUS 2 IMF screws. If so, remove the MODUS 2 IMF screw and drill a hole using the twist drill (see section "Drilling").

## 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.



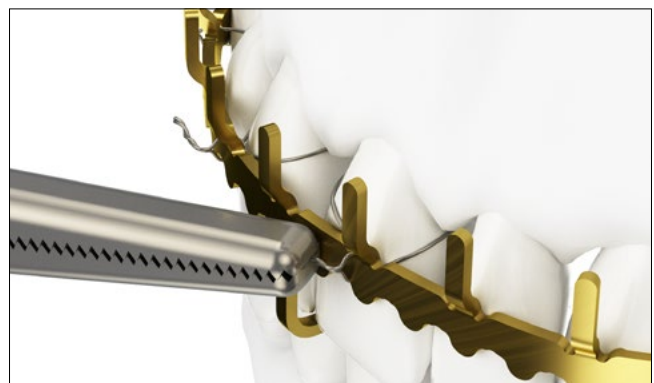
Shorten the ligature wires.

**Notice**

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



Tighten and bend the ligature wires.



Cut off the medial pin.

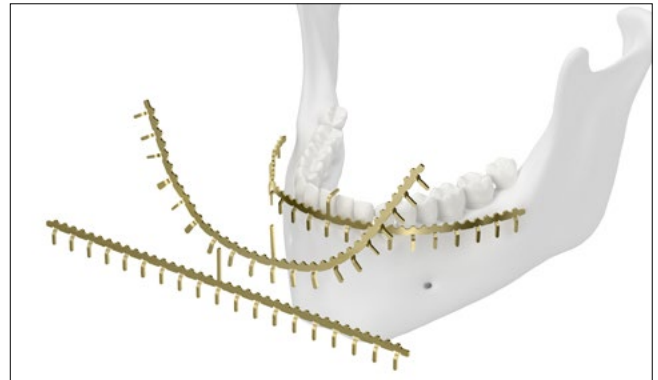


### Adapting the Titanium Arch Bar to the Mandible

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.



# Explantation

## Explantation of MODUS 2 IMF Implants

For the explantation 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.

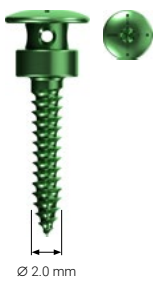
### **Caution**

Only original MODUS 2 instruments are recommended for the explantation of MODUS 2 IMF screws. When removing the screws, ensure that the screwdriver/screw head connection is aligned in axial direction, and that a sufficient axial force is used between blade and screw.

# Implants, Instruments and Containers

## 2.0 IMF SpeedTip Screws, HexaDrive 6

Material: Ti6Al4V (ASTM F136)



Length	Art. No.	STERILE	Description	Pieces / Pkg
8 mm	M2-5248.08	M2-5248.08S	without plateau	2
11 mm	M2-5248.11	M2-5248.11S	without plateau	2
14 mm	M2-5248.14	M2-5248.14S	without plateau	2

## 2.0 IMF Screws with Plateau, HexaDrive 6

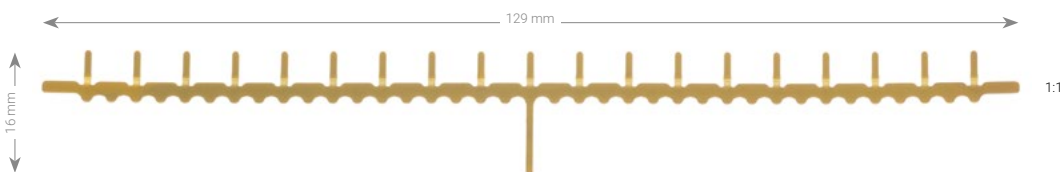
Material: Ti6Al4V (ASTM F136)



Length	Art. No.	STERILE	Description	Pieces / Pkg
8 mm	M2-5249.08	M2-5249.08S	with plateau	2
11 mm	M2-5249.11	M2-5249.11S	with plateau	2

## Titanium Arch Bar

Material: cpTi (ASTM F67)  
Plate thickness: 0.7 mm



Art. No.	STERILE	Length	Pieces / Pkg
M-4450	M-4450S	129 mm	2

### Twist Drills Ø 1.5 mm (Core Hole 2.0 Screws)



M2-3159



M2-3169

Art. No.	STERILE	Stop	Length	Shaft End	Pieces / Pkg
M2-3159	M2-3159S	25 mm	55 mm	Dental	1
M2-3169	M2-3169S	25 mm	68 mm	Stryker J-Latch	1

### Screwdriver Handle



1:2

M2-2001

Art. No.	Description	Length	Pieces/Pkg
M2-2001	type 2 (hand-driven small, AO coupling)	190 mm	1

### Screwdriver Blade



Art. No.	System Size	Description	Length	Pieces/Pkg
M2-2005	HD6	self-holding	95 mm	1

## Cases,Trays



M2-6004.001 containing M2-6004.002 and M2-6004.003\* /  
M2-6004.004\* (excl. implants and instruments)

Art. No.	Description	Dimensions (W x L)	Pieces / Pkg
M2-6004.001	implant case, IMF	120 x 240 mm	1
M2-6004.002	implant tray, IMF	120 x 240 mm	1
M2-6004.003*	instrument tray, IMF, Stryker	76 x 148 mm	1
M2-6004.004*	instrument tray, IMF, Dental	76 x 148 mm	1
M-6726	lid for implant and instrument case 120 x 240 mm	120 x 240 mm	1

Additional configurations available on request.

\* Choose between Stryker or Dental instrument tray based on drill coupling.

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