

MIS
REVERSE
ABUTMENT

Step-by-Step
**Implant-Supported
Restorations**





MIS Warranty:

MIS exercises great care and effort in maintaining the superior quality of its products. All MIS products are guaranteed to be free from defects in material and workmanship. However, should a customer find fault with any MIS product after using it according to the directions, the defective product will be replaced.

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A new approach to implant-supported restorations

The Reverse Abutment is a versatile structure exclusive to MIS, with advantages that are inherent in its ability to be adjusted to the height and shape of the gingival as well as to the angle of the implant, and to be fully compatible with the crown. The Reverse Abutment allows customization of gingival height and angulations, while retaining the advantages of a standard abutment.

Advantages

Flexibility of use, compatible to all standard and wide MIS internal hex. Implant platforms. ■ Adjustment to implant angle, many angular changes are possible. ■ Simplicity of laboratory work for the technician and reduced costs. ■ Precision parts guarantee accuracy of restoration and passivity of fit. ■ Screwing and unscrewing of the abutment and healing screw is avoided to prevent injury of the connection between implant and structure. ■ Final crown can be made before implantation. ■ Additional developments are in process to fabricate the zircon caps for single crowns.

General Information

1. The initial planning of the implant surgery is extremely important. The dentist performing the prosthetic stage of treatment should be an active participant, together with the surgeon, in the decisions affecting the choice of the implant, the type of the prosthesis (cemented or screw-retained) and the three-dimensional positioning of the implant. This is a prosthetic-driven procedure.
2. Bridge reconstruction is considered in cases where a number of teeth are missing. For a proper and easy bridge reconstruction, parallel insertion and accurate spacing of the implant are essential.



Is proud to present the Reverse Abutment system manual. This illustrated manual will guide you step by step through the reverse abutment fabrication procedure, while listing the MIS components to be used at each step. MIS scientists and engineers are committed to researching and developing new products and technologies and to passing on procedural and product information through training and instruction.

Questions, comments or requests will be addressed promptly by contacting MIS specialists directly through our e-mailing address: service@mis-implants.com. MIS' Internet website can be accessed at www.mis-implants.com. This on line site highlights current products and reflects all new discoveries and developments.

6.

GBK Kit.

The Gold Base Kit is conveniently designed to house all the necessary components needed for the fabrication of an RA with a gold I.C.E.



Acronyms

- RA Reverse abutment
- I.C.E Implant connection element
- IE Intermediary element
- P.C.E Prosthesis connection element

Standard element gold base Kit, SP.

MK-RAGS1

Wide element gold base Kit, SP.

MK-RAGW1

GBK (Gold Base Kit) include the following items:



MD-RSM48
Standard abutment analog.

MW-RSM48
Wide abutment analog.



MD-SO220
Screw internal hex.



MM-MTP53
Impression coping plastic cap.



MD-RAI01
Connector pin.



MD-RAG01
Gold implant connection element.



MM-CHC55
plastic healing cap.

MW-CHC55
Wide plastic healing cap.



MM-RAPE1
Prosthetic connection element- standard.

MW-RAPE1
Prosthetic connection element- wide.



MM-APC49
Burn out anti rotation plastic cap.

MW-APC49
Wide burn out anti rotation plastic cap.



MM-CPC49
Burn out plastic cap.

MW-CPC49
Wide burn out plastic cap.

8.

PBK Kit.

The Plastic Base Kit is conveniently designed to house all the necessary components needed for the fabrication of an RA with a plastic I.C.E.



Standard element plastic base Kit, SP.

MK-RAPS1

Wide element plastic base Kit, SP.

MK-RAPW1

PBK (Plastic Base Kit) include the following items:



MD-RSM48
Standard abutment analog.

MW-RSM48
Wide abutment analog.



MD-SO220
Screw internal hex.



MM-MTP53
Impression coping plastic cap.



MD-RAI01
Connector pin.



MD-CPH13
Plastic cylinder with hex



MM-CHC55
plastic healing cap.

MW-CHC55
Wide plastic healing cap.



MM-RAPE1
Prosthetic connection element- standard.

MW-RAPE1
Prosthetic connection element- wide.



MM-APC49
Burn out anti rotation plastic cap.

MW-APC49
Wide burn out anti rotation plastic cap.



MM-CPC49
Burn out plastic cap.

MW-CPC49
Wide burn out plastic cap.

10.

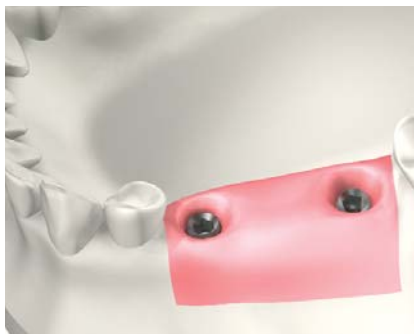
Step 1.

Positioning and adjustment of the Reverse Abutment.

“

The Reverse Abutment acryl base is adjusted (**using scalpel**) to the proper height according to gingival height.



Option 1.

Analog exposure of two nonparallel implants

A.

Analog exposure.

After the healing period, the restoration phase begins. Use the final impression to create a master model. Inside the master, model the implant analogs (MD-RSM10).

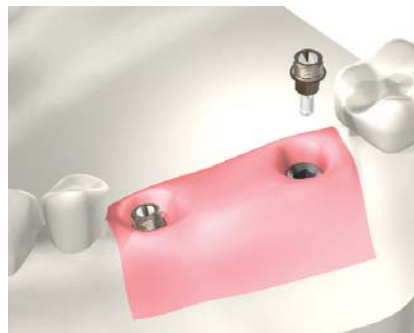


Insert connector pin in gold ICE

B.

Insert connector pin to gold ICE.

The connector pin is inserted into the gold implant connection element (ICE).



Positioning Reverse Abutment gold base on implant analog

C.

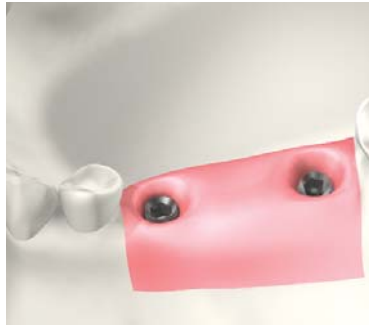
Positioning Reverse Abutment gold base into implant analog

The gold base (MD-RAG01) is seated into the implant analog (MW-RSM10). Check the intimate fitting between analog and assembly.

i

Isolate (with soft wax, Vaseline or microfilm) the top of the assembly corresponding to chamber of screw head.

Option 2.



Analogs exposure of two nonparallel implants

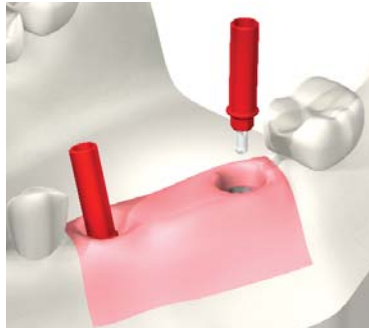
A.

Analog exposure.

After the healing period, the restoration phase begins. Use the final impression to create a master model. Inside the master, model the implant analogs (MD-RSM10).



(1) Insert connector pin in acrylic ICE



(2) Positioning RA acrylic base on implant analog

B.

Insert connector pin in direct plastic cylinder (ICE).

(1) If the chosen element is direct plastic cylinder with hex (MD-CPH13), insert the connector pin from the abutment beneath it until it reaches the connector stopper stair. At this point, execute a roughness over outside surface of the structure up to the border of the abutment shoulder. (2) The plastic cylinder connected to the connector pin is now inserted into the analogs inside the cast model.

C.

Adjusting the Reverse Abutment acrylic base on implant analogs

The Reverse Abutment acrylic base is adjusted to the proper height according to gingival height.



Adjusting the RA acrylic base on implant analog

i

Continue the process as necessary during preparation of abutment models.

Components.



Standard
abutment analog
MD-RSM10



Gold implant
Connection element
MD-RAG01



Plastic cylinder
with hex
MD-CPT13



Connector pin
MD-RAI01

Components.



Connector pin
MD-RAI01



Gold implant
Connection element
MD-RAG01



Impression
coping cap
MM-MTP53



RA parallel pin
MT-RAPP2

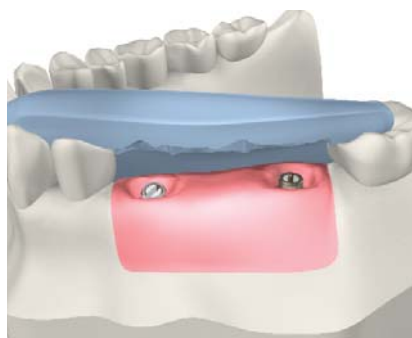
Step 2.

Preparation of the inserion path.

“

A silicone index is prepared, serving as a negative replica of the wax-up. (using Le cron wax carver and vehe wax carver to prepare the wax-up)





Silicone index

A.

Silicone index.

A silicone index is prepared, serving as a negative replica of the wax-up.

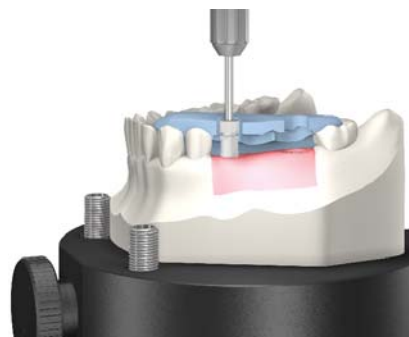


(1) Impression coping plastic cap connect to the parallel pin

B.

Adjusting path of insertion.

At this stage, the path of insertion must be adjusted. Before caps positioning, attach the Impression coping plastic cap (MM-MTP53) to the parallel pin (MT-RAPP2) that connected to parallelometer (1). Through the silicone index positioned on the stone model, determine the path of insertion.



Adjusting path of insertion

i

Always position the flat surface (phase) of the PCE, according to buccal or lingual direction, and check that the screw preparation will not be located on the same side. For single crown, the flat surface reference is essential for avoiding crown rotation.

16.

Components.



Prosthetic connection element
MW-RAPE1

Step 3.

Preparation of the prosthetic connection element.

“

Add retention grooves in the internal area of the PCE in order to increase retention. (using dental hand piece) fill the entire internal area of the PCE with Pattern resin. (using brush)





Preparation of prosthetic connection element

A.

Preparation of prosthetic connection element

Preparation for fitting components:

(1) Sandblast the entire internal surface of the PCE. (2) Add retention grooves in the internal area of the PCE in order to increase retention. (3) Wet the internal surface of the PCE with the acryl monomer.



B.

Inlay of prosthetic connection element.

(1) Apply a thin layer of the pattern resin on the external surface of the I.C.E to be connected with the P.C.E. (2) Fill the entire internal area of the PCE with Pattern resin.



Filling prosthetic connection element

i

It is essential to cover the grooves in the ICE base with Pattern resin in order to fill undercuts for retentions.

Components.



Impression coping
plastic cap
MM-MTP53



Gold implant
Connection element
MD-RAG01



Connector pin
MD-RAI01



Wide burn out anti
rotation plastic cap.
MW-APC49



Wide burn out
plastic cap.
MW-RAPE1



RA parallel pin
MT-RAPP2

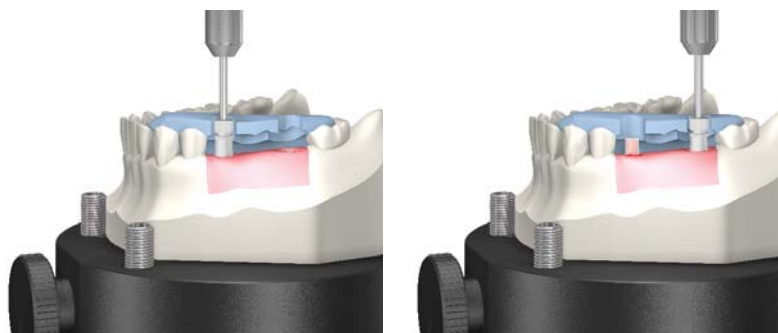
Step 4.

Connecting prosthetic connection element
with Intra crown element.

“

remove any excess of Pattern resin
and contour the area connection.
(using dental hand piece)





Connect the PCE with ICE using parallelometer

A.

Connect the PCE with ICE.

Place the filled prosthetic connection element on the stone model with the assistance of a parallelometer. Refer to required height and exit angulations. Wait a few minutes for hardening before removing the plastic impression coping. The outcome for this stage is the RA abutment model.



Removing excess of pattern resin .



Separate the connector pin from RA model

B.

Preparing the abutment for casting.

(1) once the Pattern resin has cured, the obtained model is disconnected from the implant analog, remove any excess of Pattern resin and contour the area connection. Add Pattern resin or wax where required.
(2) Remove the connector pin from the RA model and check that no excess of Pattern resin remains.

C.

Preparing the abutment prior to drilling.

The final preparation of the RA model before drilling the path is to place on it the burn out anti-rotation plastic cap (MW-APC49) in order to avoid drilling deformations. It is recommended that Microfilm separator material be added between the red coping and model of the abutment.



Preparing the abutment prior to drilling

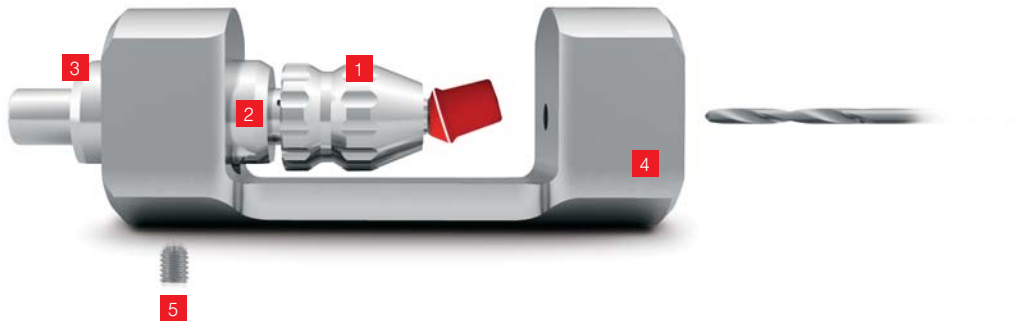
Review

Step 5.






The drilling fixture is a mechanical device for creating the housing of the abutment screw once the PCE and the ICE are definitively connected.

The fixture is made up of four components:

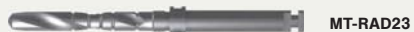
1. The "body," (4) with a $\varnothing 2.3$ mm hole on top; on the bottom, an aperture allowing the positioning of the footer to be activated by an "elen".
2. The footer is for maintaining the model of the RA; it has a $\varnothing 1.8$ mm diameter hole at its base (1,2).
3. The footer screw (5).
4. A stopper used with the acryl ICE (3).



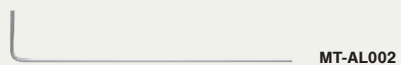
RA Technician kit
MK-RADT1

- MT-RAD10
- 1  Locking fixture nut
 - 2  Drilling guide
 - 3  Stopper
 - 4  Body
 - 5  Footer screw

Additional components



Tools



20.

Option 1

Step 5.

Preparing the housing of the screw on a RA model made with a gold or titanium ICE.

“

Drilling \varnothing 1.8mm and 2.3mm path.
(using dental hand piece)



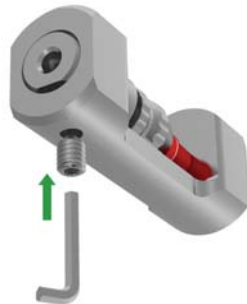


Position the RA model

A.

Position the RA model

Loosen the footer screw and position the model of the RA on the footer. The abutment connection must be completely inserted into the footer. While maintaining the RA well inserted, strongly screw in the foot screw.



The pathfinder activation

B.

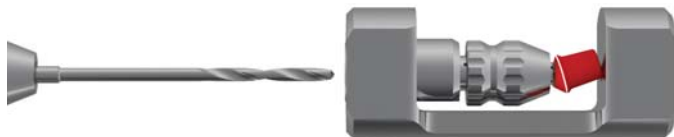
The pathfinder activation

Position the red coping on the RA and engage the footer into the "body" of the pathfinder until the red coping has an intimate contact with the base of the superior part of the pathfinder body. With the allen key, activate the body screw on the lateral side of the pathfinder in order to lock the footer.

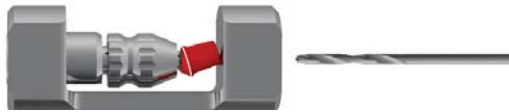
C.

Drilling Ø1.8mm path

Engage the Ø1.8 mm drill from the bottom of the footer and activate the micromotor at the appropriate speed to create a Ø1.8 mm path through the model abutment. Cool and clean with air spray.



Drilling Ø1.8mm path



Drilling Ø2.3 mm path

D.

Drilling Ø2.3 mm path

(1) Engage the Ø2.3 mm drill from the top of the screw driver and activate the micromotor at the appropriate speed to create a Ø2.3 mm path that reaches the chamber of the screw head. (2) Deactivate the body screw with the allen key.



Take off the red coping

E.

Liberate the RA from drilling fixture

(1) Take off the red coping. (2) Deactivate the footer screw to liberate the RA model.

Components.



Connector pin
MD-RAI01



Gold implant
Connection element
MD-RAG01



Prosthetic connection element
MW-RAPE1



Wide burn out anti
rotation plastic cap.
MW-APC49

Option 2

Step 5.

Preparing the housing of the screw on a RA model made with an acryl ICE

“

Drilling $\varnothing 1.8\text{mm}$ and 2.3mm path.
(using dental hand piece)



A.

Position the RA model together with stopper

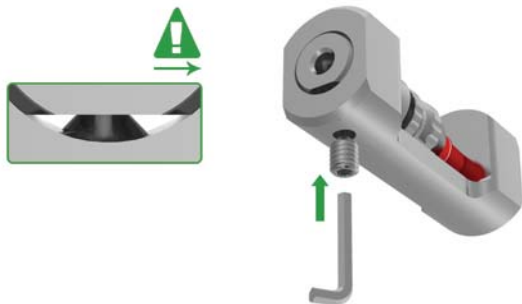


Position the RA model together with stopper

Loosen the footer screw and position the model of the RA on the footer. The abutment connection must be completely inserted into the footer. While maintaining the RA well inserted, screw the stopper onto the bottom of the footer. While maintaining the RA well inserted, screw in the foot screw

B.

The pathfinder activation

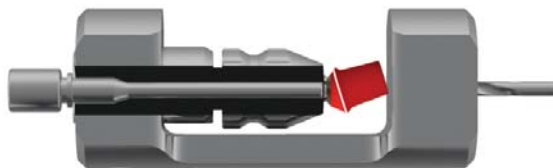


The pathfinder activation

Position the red coping on the RA, and engage the footer into the "body" of the pathfinder until the red coping has an intimate contact with the base of the superior part of the screwdriver body. With the elen key, activate the body screw on the lateral side of the pathfinder in order to lock the footer.

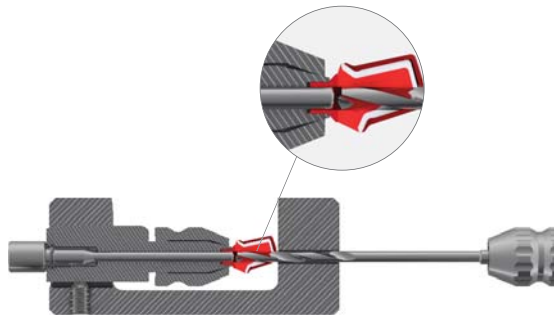
C.

Drilling Ø1.8mm and Ø2.3mm path



Drilling Ø1.8mm and Ø2.3mm path

Engage and center the 1.8 mm drill from the top of the pathfinder and activate the micromotor at the appropriate speed to create a 1.8 mm path to the chamber of the screw head. Use continuous in-and-out motions to do this. Engage the 2.3 mm drill from the top of the pathfinder and activate the micromotor at the appropriate speed to create a 2.3 mm path to the chamber of the screw head.

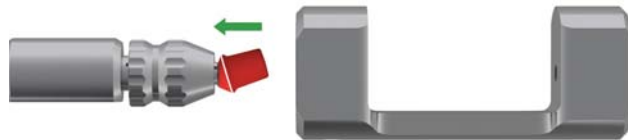


Proper drilling with stopper

D.

Proper drilling with stopper

Stop drilling the path when you feel the metal stopper. Continuation of drilling may result in damage and deformity of the acryl base.



liberate the RA model from drilling fixture

E.

liberate the RA model from drilling fixture

Deactivate the body screw with the elen key. Take off the red coping. Deactivate the footer screw and the stopper to liberate the RA model.

Components.



Connector pin
MD-RAI01



Gold implant
Connection element
MD-RAG01



Prosthetic connection element
MW-RAPE1



Wide burn out anti
rotation plastic cap.
MW-APC49

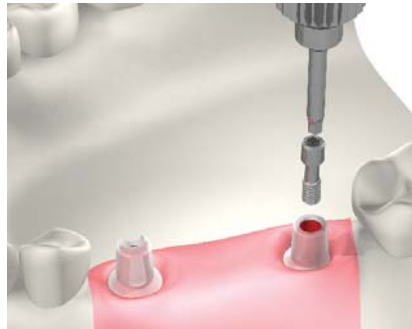
Step 6.

Additional steps for preparing and adjustment the final cast abutment.

“

Follow conventional metal casting techniques, by spruing, investing and casting the framework pattern. (using Le cron wax carver and vehe wax carver)





Checking the drilled abutments on the master model

A.

Checking the abutment fixtures.

Place the drilled abutments on the implant analog (inside the master model), tightening an MD-SO220 screw using the MT-HHR13 hex driver. The direction of the abutments slope should be facing the buccal direction of the implant analogs.

B.

Metal casting.

Follow conventional metal casting techniques, by spruing, investing and casting the framework pattern.



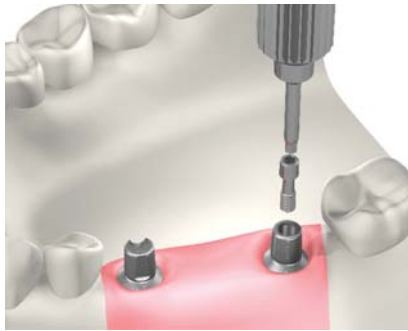
The final cast abutments



Sprued RA abutments

i

The laboratory technician must insure that perfect adaptation and passive fit have been achieved in this stage. Check the cast abutment on the master model to ensure that it fits the abutment's exterior.



Positioning the cast abutments on the master model

C.

Checking the Reverse Abutment on the master model.

The cast Reverse Abutments are placed on the master model (by tightening an MD-S0220 screw using the MT-HHR13 hex driver). Check the fitting and stability on the implants analogs.



The burn out plastic caps placed on the cast RA

D.

Positioning the burn out plastic caps on the cast abutments.

The burn out plastic caps (MM-CPC49) are positioned on the R.A. cast abutments.

i

It is possible to execute this stage directly on the model of the plastic before the casting.

OPTIONAL

For single unit cemented crown cases, maximum retention is accepted with the burn out anti rotation plastic cap (MM-APC49).

Components.



Connector pin
MD-RAI01



Gold implant
connection element
MD-RAG01



Prosthetic connection element
MW-RAPE1



Screw internal hex
MD-SO220



Wide burn out
plastic cap.
MM-CPC49A



Screw hex driver
MT-HHR13

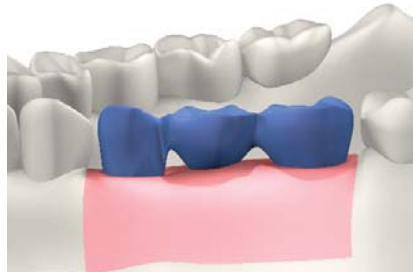
Step 7.

The metal framework formation.



waxing takes place, leaving approximately 1.5 mm of space for the porcelain (using **Le cron wax carver**) Check and adapt the metal framework according to conventional laboratory techniques. (using dental hand piece)



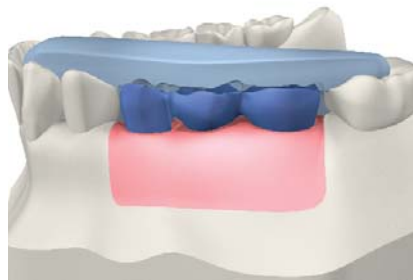


Wax up of RA bridge

A.

Wax up.

On the cast Reverse Abutment and above the burn out plastic caps (MM-CPC49), waxing takes place, leaving approximately 1.5 mm of space for the porcelain, according to the silicone index.

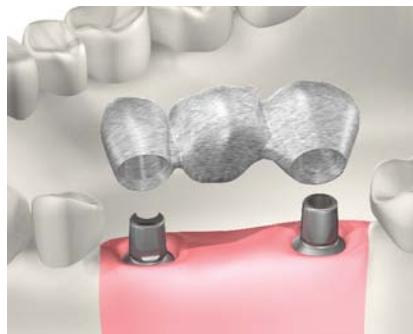


Silicone index and wax-up

B.

Silicone index and wax-up.

The silicone index is used to verify that enough space was left for the porcelain.



Metal framework.

C.

Metal framework.

After adjustment and shaping of the wax bridge (on the wide burn out plastic caps MW-CPC49), conventional metal casting techniques are followed. Metal framework is realized.

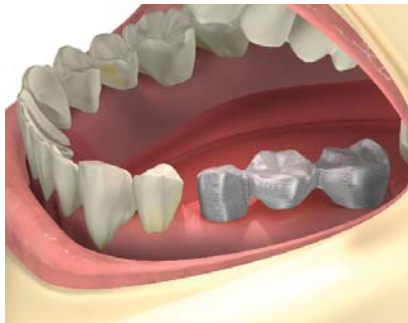


Metal framework seated on the stone model.

D.

Metal casting.

Check and adapt the metal framework according to conventional laboratory techniques.



Metal framework on RA in mouth.

E.

Metal framework try-in.

The Reverse Abutments are positioned in the patient's mouth. Accuracy of the metal framework is verified on the abutments. Special attention must be given to the passivity of fit of the metal framework on the abutments. Use x-ray for confirmation.

Components.



Screw internal hex
MD-SO220



Burn out plastic cap
MM-CPC49A

Step 7

Components.



Screw internal hex
MD-SO220

Step 8.

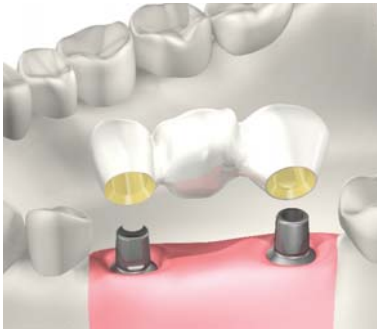
Different options with the Reverse Abutment
in patient's mouth during the healing time.

“

If a temporary bridge is not used,
the plastic healing caps MM-CHC55
could temporarily be cemented. (using
Articulating Paper Forceps)



Option 1.



A temporary bridge cemented using the plastic healing caps MM-CHC55.



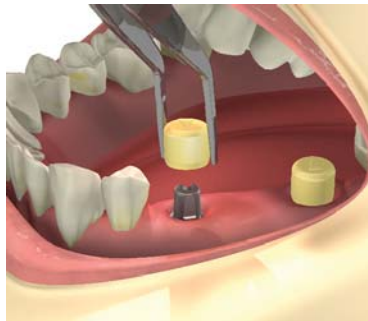
Temporary bridge in patient's mouth.

A.

The making of a temporary bridge using plastic healing caps.

A temporary crown or bridge can be made for the RA abutments using the plastic healing caps (MM-CHC55).

Option 2.



Plastic healing caps on the RA abutments

B.

Additional possibility.

In order to avoid reopening and retightening the RA abutments, it is recommended to leave the RA on the implants at the first metal try-in.

If a temporary bridge is not used, the plastic healing caps MM-CHC55 could temporarily be cemented to RA casted abutments in patient's mouth.

i

The analogs of the reverse abutments could be positioned on a pickup impression that includes the metal framework positioned in the mouth.

Components.



Screw internal hex
MD-SO220



Crown set
MK-0022

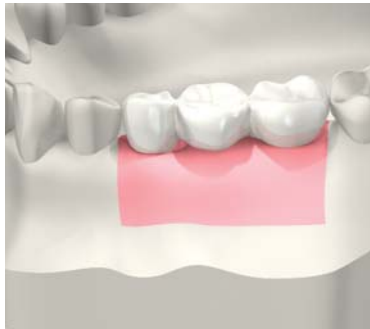
Step 9.

The final operations for positioning the bridge on RA abutments.

“

the bridge is cemented on the RA abutments using the MIS cement crown set.





Porcelaine on master model.

A.

Porcelain bridge preparations.

After selecting the appropriate shade, fuse the porcelain to the metal framework according to conventional laboratory procedures.



Cementation of the completed bridge.

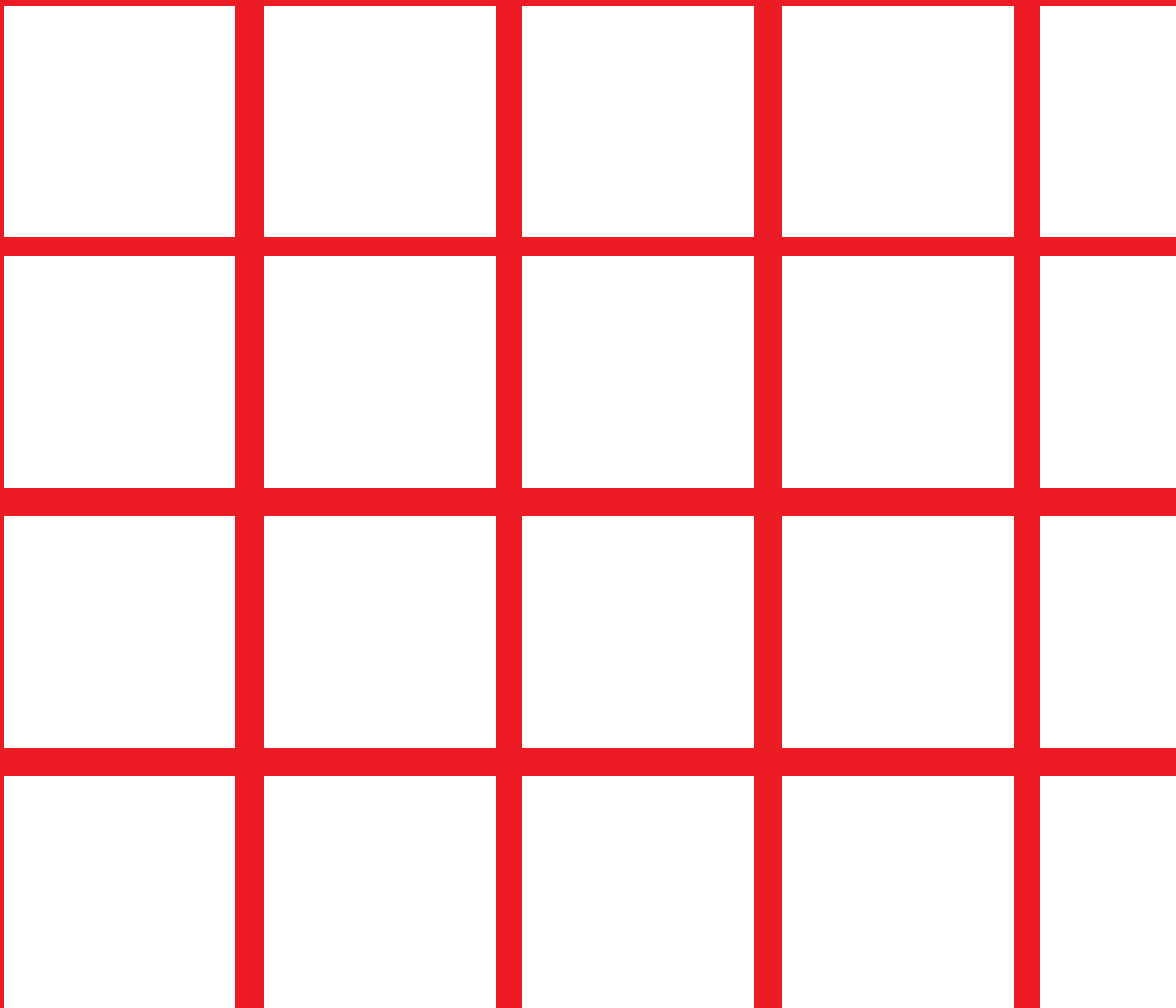
B.

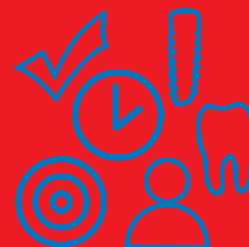
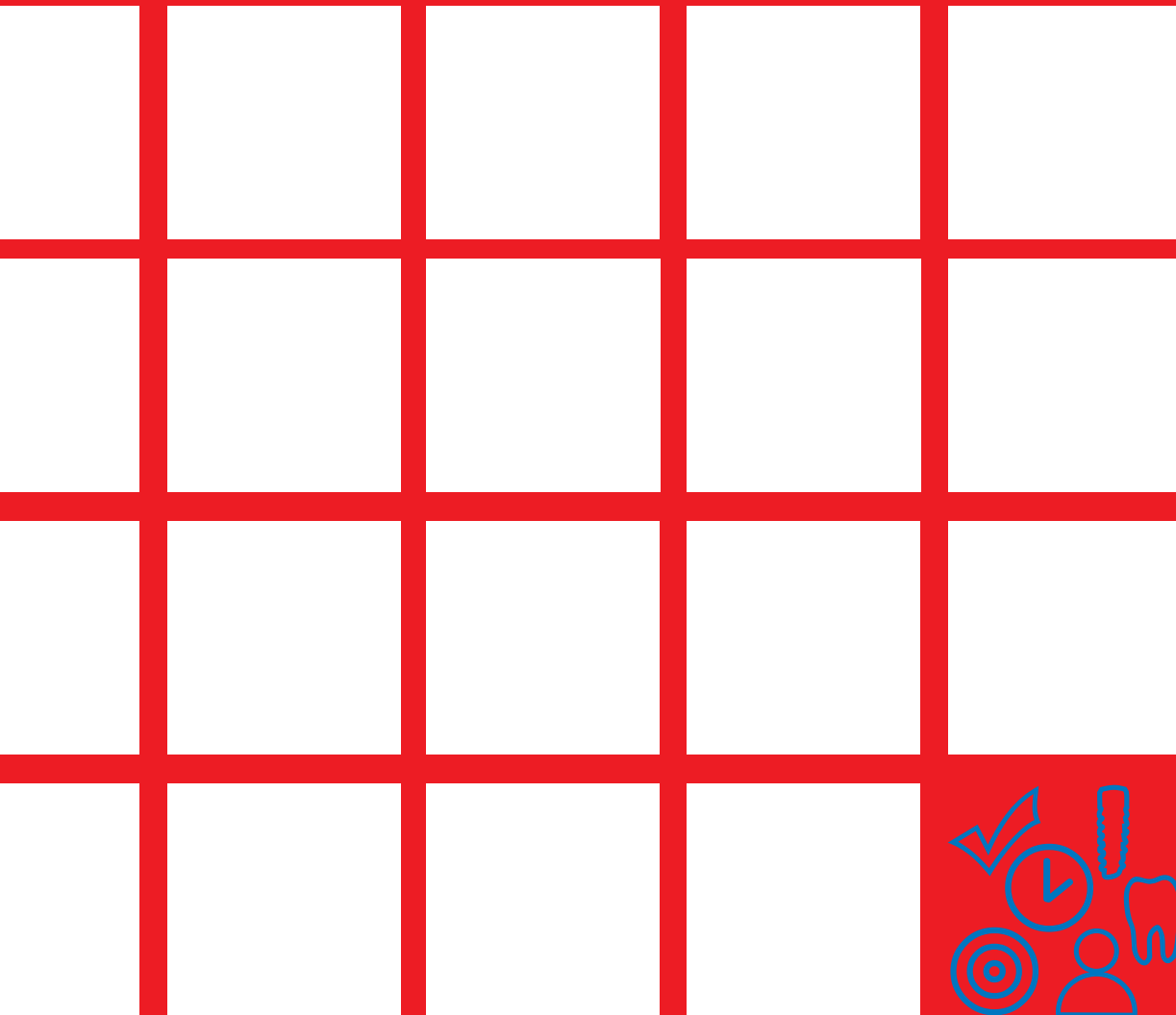
Porcelain try-in.

Once the bridge is completed and adapted (proximal contacts and occlusion of the porcelain bridge in the mouth), the bridge is cemented on the RA abutments using the MIS cement crown set.



Porcelain in mouth





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The logo for MIS (MIS Implants Technologies) features the lowercase letters 'mis' in a stylized, grey, sans-serif font. The 'i' has a vertical line above it, and the 's' has a horizontal line extending to the right.

MIS Implants Technologies Ltd
www.mis-implants.com

The CE mark is a large, white, stylized 'C' and 'E' symbol, indicating conformity with European standards.

0483 | ISO 9001:2000
ISO 13485:2003

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