

Step by step



Screw-retained restorations







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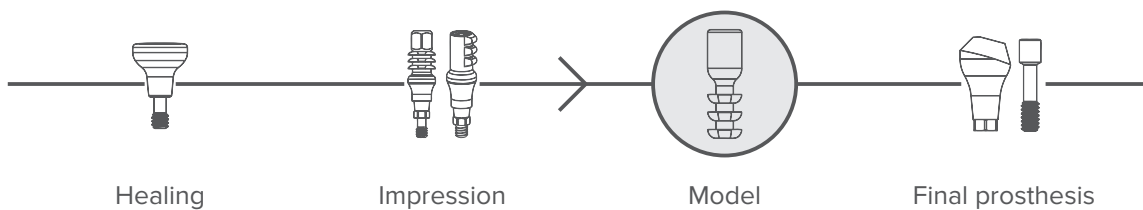
Important notes

Meaning of icons

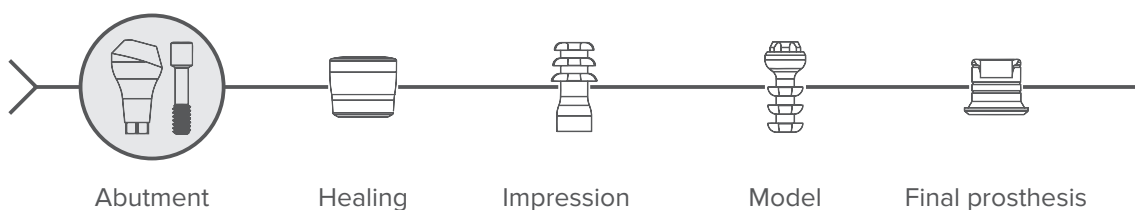
-  Procedure that apply only for single restoration
-  Procedure that apply only for multiple restoration
-  1.25mm hex screwdriver
-  1.25mm ball hex screwdriver

The procedure sequence, as seen below, illustrates the different restorative stages and can be found throughout the manual for easy usage. The stage of the treatment procedure being reviewed is highlighted with color.

Restoration on implant level



Restoration on abutment level



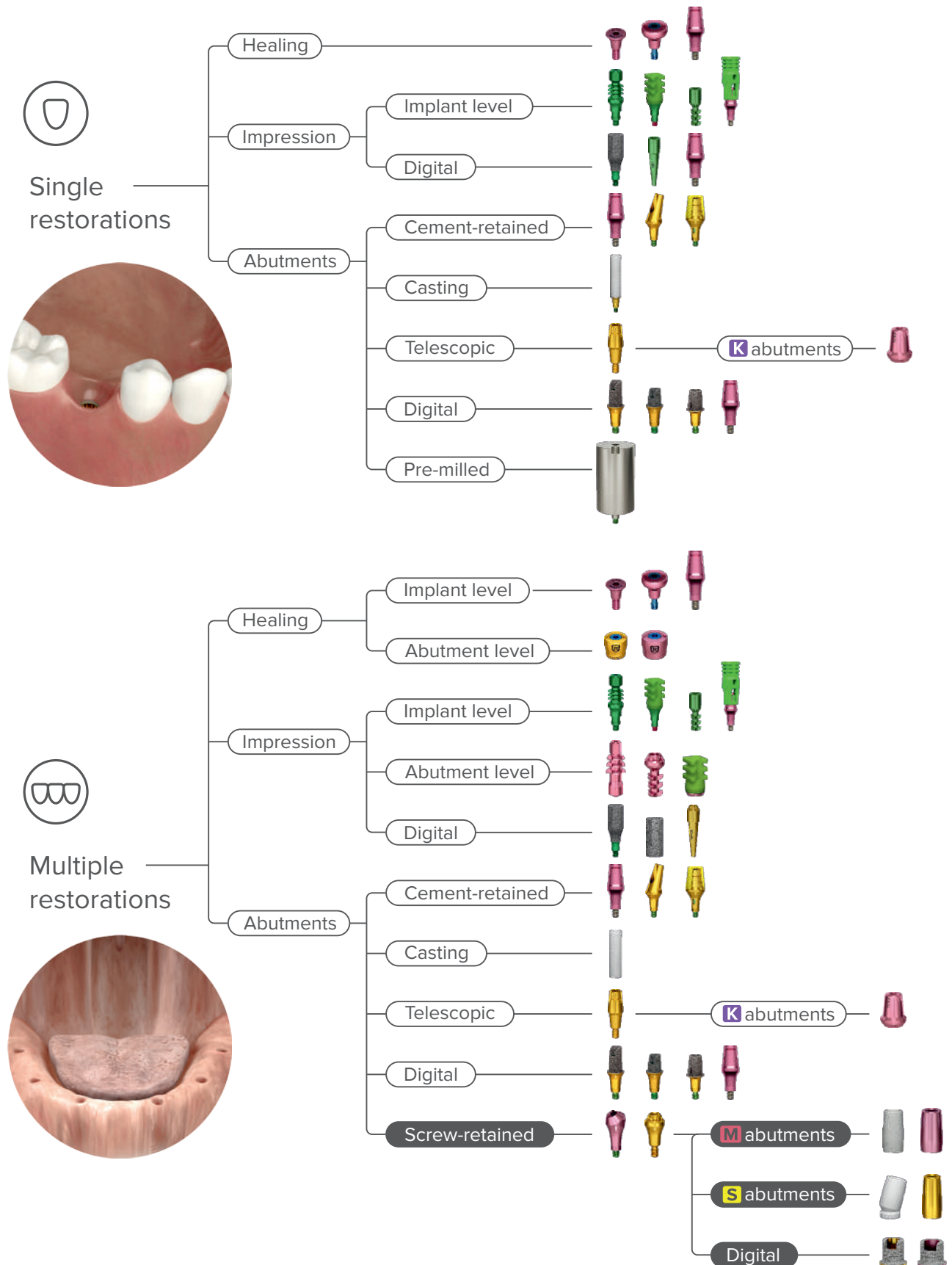
Clinician steps. Procedures that apply for prosthodontists are marked red.

Laboratory steps. Procedures that apply for technicians in the dental lab are marked green.

Attention!





















1. Never exceed the recommended tightening torque - 15 Ncm for the screw.
Overtightening of abutment may lead to a screw fracture.
2. Use abutment extractor SR for easier removing ROOTT R healing abutment or abutment.
3. Use pink screw, for laboratory steps.
4. Use green screw, for clinician steps.

Prosthetic options



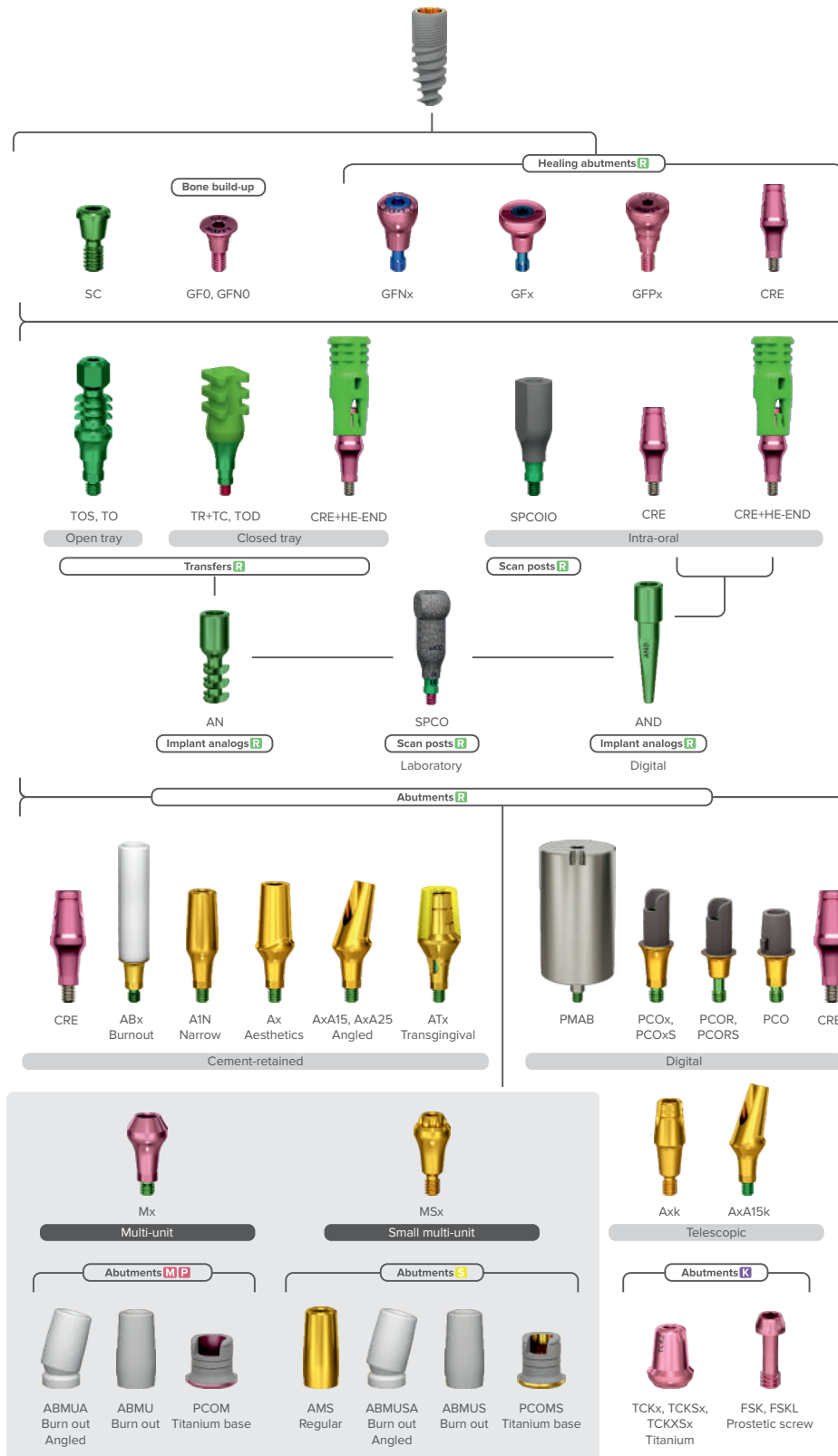
Instruments

Screwdrivers are used for the fixation of all superstructures.

 SD  SDL  SDXL	<p>For ratchet Recommended torque - 15 Ncm</p> 
 SDLB  SDXLB	<p>For ratchet, ball point Recommended torque - 15 Ncm Maximal angulation - 20 °</p> 
 SDH  SDHL  SDHXL	<p>For handpiece Recommended speed - 15-20 rpm Recommended torque - 15 Ncm</p> 
 SDM  SDML	<p>Manual For laboratory use</p> 
 SDAO	<p>For AO connection</p> 
 ETAO	<p>Handle for AO connection For all AO instruments</p>
 SR  SRL	<p>Abutment extractors For easier superstructure removing</p>
 TW50 TW70	<p>Torque wrench Torque wrench is suitable for all instruments with a head for ratchet. Maximal torque is 50 Ncm or 70 Ncm..</p>

Implant level restorations

Implant level describes a restoration connected directly to the implant interface.



Additional section about usage of carrier CRE



Carrier

Each ROOTT **R** implant comes with a free multi-functional part (CRE) which is made of the same material as implants & abutments.

- Can be used as a healing abutment, modified with composite.
- Can be used as a scan post.
- Can be used as a temporary or regular abutment.
- With HE-END holder can be used as a closed tray transfer.
- With HE-END holder can be used as a scan post.



Healing period

Clinician steps



Make individual healing abutment.
Use anatomic profile generator bar –
manufactured or created individual
using software and 3D printer.
Use flowable composite to create
desired healing abutment profile.



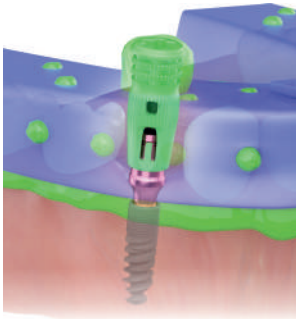
Polish the composite surface.
Trim CRE part above composite.
Use as a one stage healing abutment.
Healing period 3-6 months.

Note! For detailed information how to work with healing abutment see on page 10.

Impression technique



Clinician steps



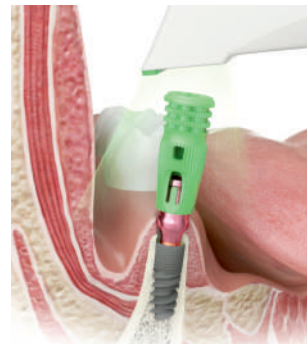
Closed tray impression technique with HE-END as transfer cap

Mount holder HE-END on carrier. Inject impression material around the transfer. Fill the impression tray with impression material and seat the impression tray into the mouth. After the impression dry, the impression is removed, HE-END holder stays in the impression.



Direct scan

Use CRE carrier as usual intra-oral scan post. Scan with intra-oral scanner. Send files to the laboratory.



Direct scan via HE-END

Mount holder HE-END on carrier. Use this combination as a usual intra-oral scan post. Scan with intra-oral scanner. Send files to the laboratory.

Laboratory steps

Laboratory scanning

Use CRE carrier as usual laboratory scan post, separately or in combination with holder HE-END. Scan in the laboratory and send files to the computer.



Note! For detailed information how to work with transfers and scan posts see on pages 12-13.

Model



Laboratory steps



Prepare stone model using standard methods.



Use appropriate libraries to make model. Print created 3D model. Put digital analog inside, put soft tissue on top.

Healing period



After surgical procedures begins the healing period. Depending on the situation there are two different solutions: one stage surgical technique and two stage surgical technique.

Cover screw

It is packed with implant, can be find screwed in green holder's HE-body. Used to cover the implant during two stage surgery technique.



SC

Bone build up screws

Used for bone build up procedure with or without bone graft, to create bone profile.



GF0 GFN0

Healing abutments, narrow

Used to heal soft tissue and to create emergence profile. Suitable in cases of insufficient space.



GFN2 GFN4 GFN6

Healing abutments, regular

GF1, GF2, GF3, GF4, GF5, GF6, GF7
Used to heal soft tissue and to create emergence profile. Color coding.



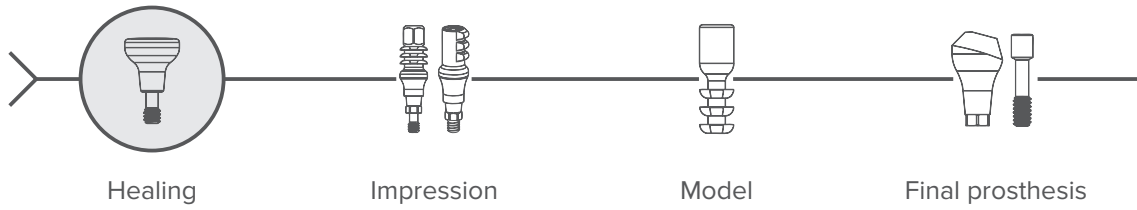
GF1 GF2 GF3 GF4 GF5 GF6 GF7

Healing abutments, one-piece

Used to heal soft tissue and to create emergence profile. Simple usage. No screw.



GFP3 GFP4 GFP5



Clinician steps



Bone build up

Specially designed and developed to create and maintain a space over the implant platform. Will also keep the soft tissue far from the implant platform during the healing and the osseointegration period. Can be used with bone graft or without. The implant should be placed 1 mm under the bone level. Healing period 2 months.



Two stage surgical technique

In the two-stage surgical procedure, the implant platform is covered with cover screw to prevent tissue overgrowth during the healing phase of the implant and for better osseointegration. Healing time 3-6 months. The implant is uncovered during a second surgical procedure and a healing abutment is placed for soft tissue healing. Healing time 2-4 weeks.



One stage surgical technique

In a one stage procedure, a healing abutment is placed immediately after implant placement. No need for a second surgery. Healing period 3-6 months. Implant should have good primary stability.

Note! Sterilize products before use.

Impression technique



Implant Impression is an important step accurately relating an analog of the implant to the other structures in the dental arch. Conical connection together with hex allows to transfer the exact position of the implant into the laboratory model. There are a few types of impression technique: open tray, and closed tray (with cap or direct).

Open tray transfers

Useful in cases of multiple divergent implants, when high accuracy is required.



TO

TOS

Closed tray transfer, with cap

Is used when there is insufficient clinical height in the distal parts of the upper and lower jaws and when implant axes diverge by up to 20°.



TR+TC

Closed tray transfer, direct

Useful in cases of limited inter-arch distance.



TOD

Scan posts

Digital impression is more precise, time saving, no traditional impression needed, less components to handle.



SPCOIO
Intra-oral



SPCO
Laboratory

Implant analogs

Implant analog is necessary for efficient and safe laboratory work. The laboratory receives the impression for fabrication of the model or digital files and produces a working model with removable gingival material.



AN



AND
Digital analog

Carrier

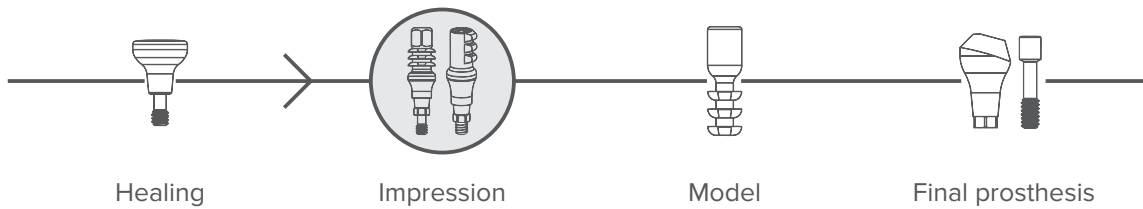
With the holder HE-END can be used as a closed tray transfer. Can be used as a scan post. With the holder HE-END can be used as a scan post.



CRE



CRE+HE-END



Impression



Clinician steps



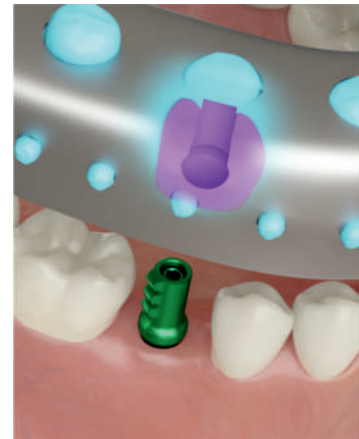
Open tray impression technique

Appropriate transfer is placed to implant and screwed by hand. Inject impression material around the transfer. Use an individual impression tray, or make a hole for the screw. Fill the impression tray with impression material and seat the impression tray into the mouth. After the impression dry, the screw is unscrewed and the impression removed. Transfer stays in impression.



Closed tray impression technique with transfer cap

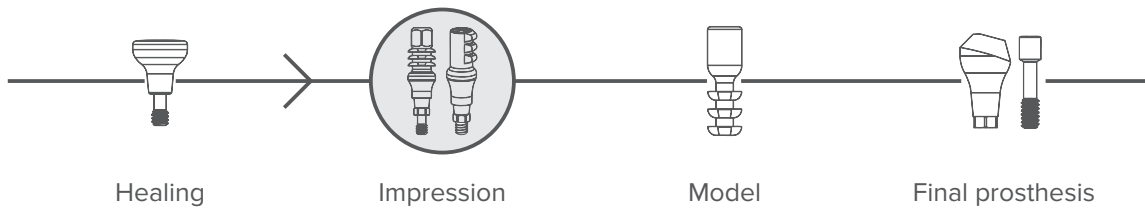
Place appropriate transfer to implant. Tight by hand. Mount TC cap on transfer and push until it clicks. Inject impression material around the transfer. Fill the impression tray with impression material and seat the impression tray into the mouth. After the impression dry, the impression is removed, and the TC cap stays in the impression.







Closed tray impression technique, direct method

Place appropriate transfer to implant. Tight by hand. Inject impression material around the transfer. Fill the impression tray with impression material and seat the impression tray into the mouth. After the impression dry, the impression is removed, transfer stays in mouth.

Note! Sterilise products before use.



Scanning

Scan posts					
Intra-oral	+	-	+	+	
Laboratory	-	+	+	+	

Clinician steps



Attach intra-oral scan post to implant in patient's mouth. The digital impression is taken directly on the patient using an intraoral scanner. Scan intra-oral scan post.



Scan occlusion. Scan mouth without scan post.



Send files to laboratory.

Laboratory steps



Take stone model. Attach laboratory scan post to analog.

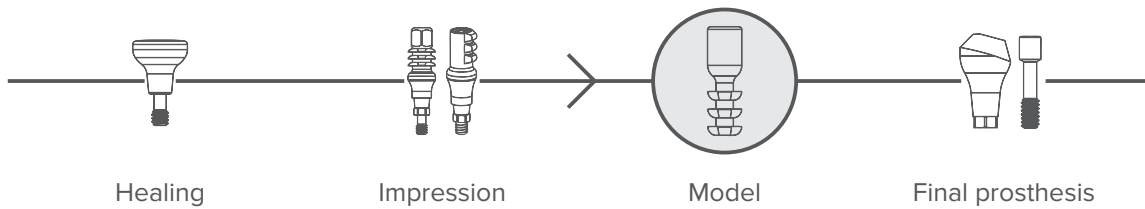


Scan model with scanpost.



Send files to computer.

Note! For aesthetic reasons make sure that the side with flat surface is facing toward the inner side, there will be abutments screw channel.



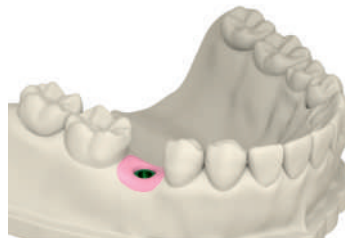
Model



Laboratory steps



Attach analog to transfer and put to impression. Inject gingiva mask around analog. Fill impression tray with stone material.



Take off stone model after transfer model hardens. Unscrew transfer's screw and remove from stone model. Stone model is with analog and ready for use.

Digital

Laboratory steps



Laboratory receives files.



Use appropriate libraries to make model.



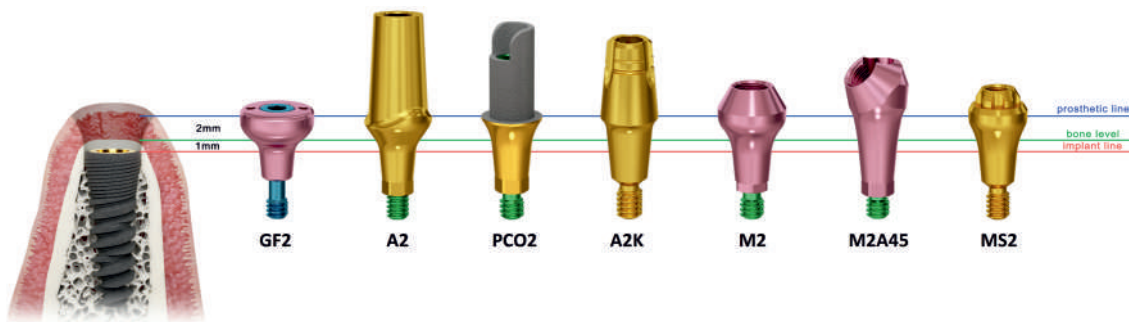
Print created 3D model. Put a digital analog inside, put soft tissue on top.

Prosthesis



Dental technician selects appropriate abutment, after consultation with the clinician, modifies if needed. Laboratory fabricates a crown with conventional casting technique, veneering the crown.

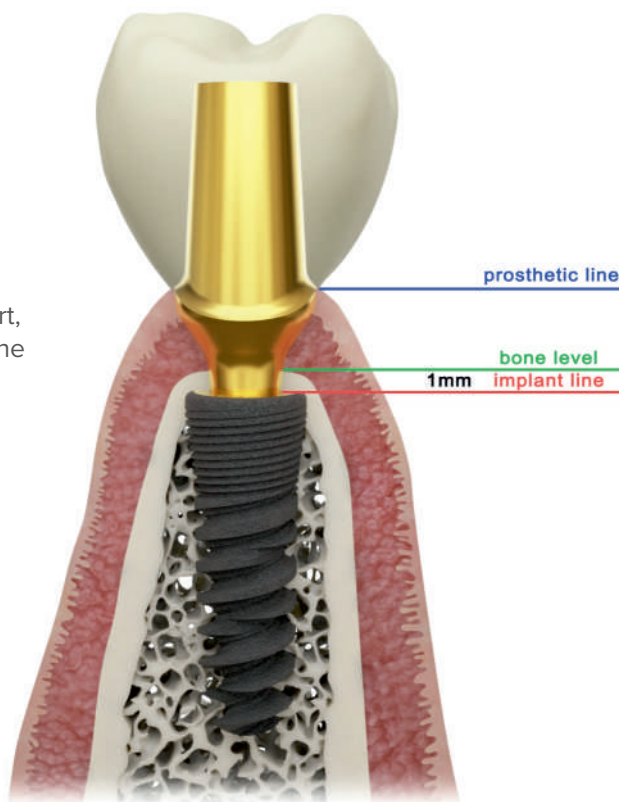
The abutment should be selected in the gingiva height analogous to the healing abutment. A mismatching profile of the structure may result in compression of the gingiva*.



An abutment is a component that is intermediate between the implant and the restoration.

The abutment provides the retention, support, stability and optimal position necessary for the definitive restoration.

Fixed prosthesis can be cement-retained, screw-retained or telescopic fixation.



*See Annex 1 for healing abutments and abutments compatibility



Screw-retained

The screw-retained restoration procedure allows for simple and easy retrieval, and upholding of abutments during routine checkups, with minimal risk of damage to the existing restoration. It is a secure and easy way to maintain a prosthetic restoration.

All abutments are supplied with two screws:
for laboratory use - pink
for clinical use - green
Recommended maximum torque - 15 Ncm

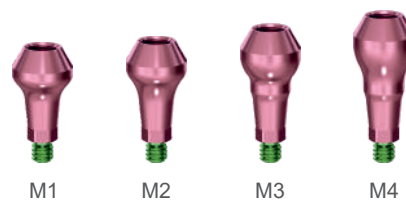


Implant level

Abutment, multi-unit

M1, M2, M3, M4

M abutments are used to create multiple unit screw-retained restorations for majority of clinical case due to a wide body of screw which withstand axial loads.



Abutment, multi-unit, small

MS1, MS2, MS3, MS4

MS abutments are a single body abutments used to create multiple unit screw-retained restorations in areas of insufficient space for wide body screw.



Abutment level

Burn-out abutments

ABMU, ABMUA, ABMUS, ABMUSA

The custom castable abutment offers the clinician the option of making a custom metal framework and also can correct angulation.



Straight abutment for intra-oral welding

AM, AMS

This technique increase precision and eliminates micro movement, consequently improving the overall success rate of immediately loaded, splinted implants. Mostly used for temporary restorations.



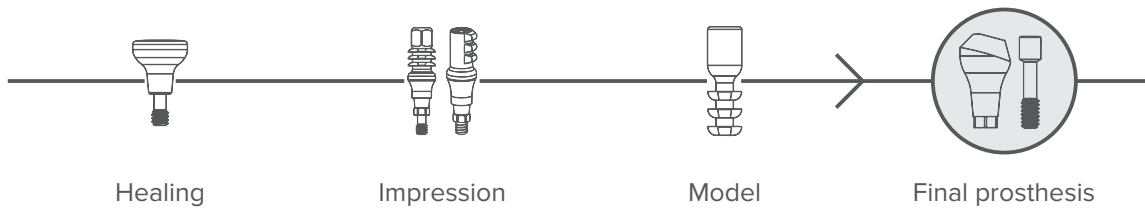
Abutment, titanium base

PCOM, PCOMS

Titanium base is used for creating multiple restorations with a digital workflow.

Angled access for tunnel from 0° to 20°.





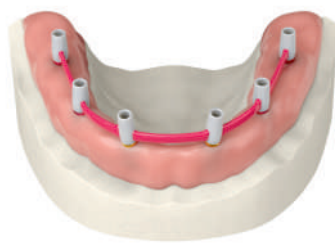
Burn-out abutments



Laboratory steps



Connect appropriate multi-unit abutments to analog.



Connect burn-out abutments and fabricate metal frame using standard modeling, casting methods.

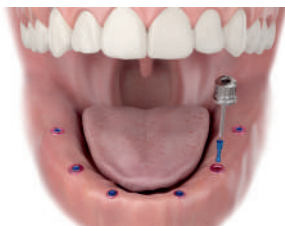


The metal framework is tried in the patient's mouth and corrected if necessary.

Clinician steps



Porcelain firing is performed over the metal framework.



Remove one healing abutment at a time and immediately replace it with an abutment.

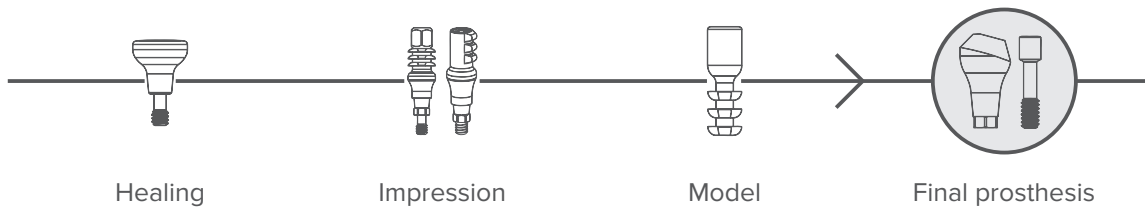


Connect multi unit abutments to implant and hand-tighten using a dedicated screwdriver.



Fix the final restoration to abutments. Screw channel should be filled with composite.

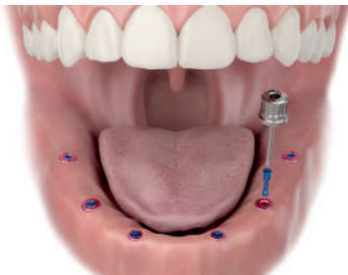
Note! Screws for MS platform are a relatively weaker than screws for M platform and have to be used in low load areas. Only for multiple restoration.



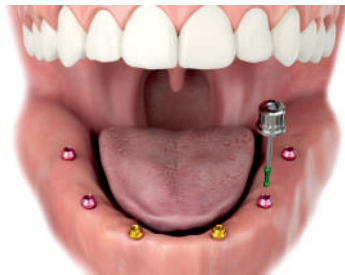
Intra-oral welding



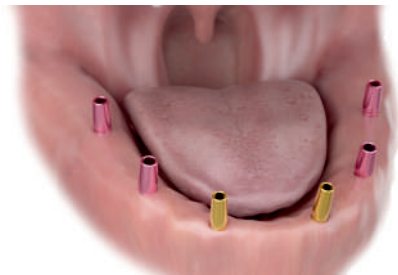
Clinician steps



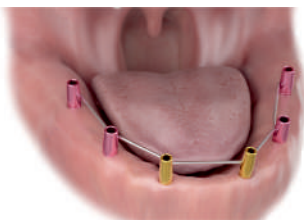
Remove one healing abutment at a time and immediately replace it with an abutment.



Connect multi unit abutments to implant and hand-tighten using a dedicated screwdriver.



Mount on top welding abutments.



Bending, alignment and intraoral welding of titanium wire.



Improve framework as needed.

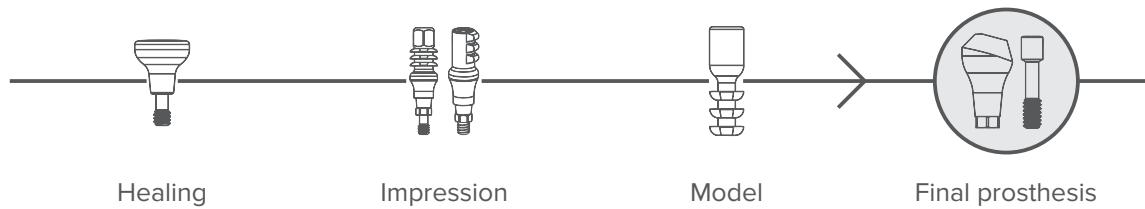


Fabricate prosthesis in the chosen way. Use acrylic resin to fixate prosthesis to the framework in patient mouth.



Remove prosthesis with framework inside. Polish and improve as needed. Screw final restoration.

Note! Only for multiple restoration.



Titanium base abutments



Libraries

ROOTT digital library enhances dental specialist capabilities. Time-efficient and accurate restorations. Scan implant position, create functional and aesthetic prosthesis. Library folders for ROOTT R names are: Trate_ROOTT_R_(appropriate abutment)_(material)

Extraoral/intraoral scan using PCOM, PCOMS

Step 1. Upload .stl file to chosen software. Extraoral/intraoral scan posts shall be visible.

Step 2. Choose abutment that will replace scan post:

- Implant + abutment, material, e.g. ROOTT R_MS1_PCOMS_zro.
- Abutment, cement gap size in microns, screw channel, e.g. PCOMS 35µm screw channel standard.
- Choose scanned detail and screw channel angle, e.g. PCOMS 35µm Extraoral scan 0°.

Step 3. Mark an area to detect scan post position.

Step 4. Program will replace scan post to abutment.

Step 5. a) Design metal bar/framework using MU digital abutment. Transfer CAD file to milling machine.
b) Design prosthesis on abutments. Transfer CAD file to milling machine.

Laboratory steps

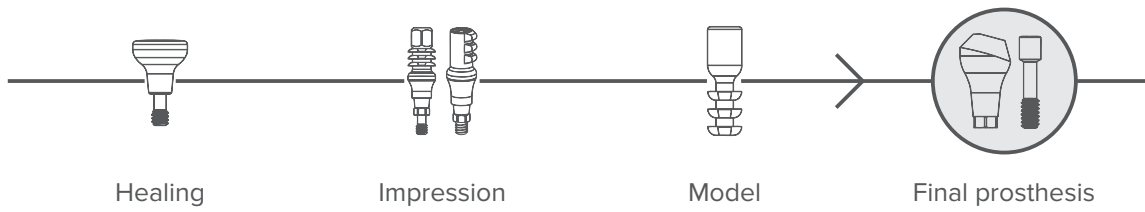


Option a.
Mill designed metal bar or framework.



Option b.
Choose raw material for prosthesis and place to milling machine.

Note! Only for multiple restoration.



Mill the prosthesis.



Sinter the finished prosthesis according to the recommendations of the raw material producer. Post-process as normal and dye, if required.

Laboratory steps

Option a



Connect appropriate multi unit abutments to analog.



Connect milled metal bar or framework.

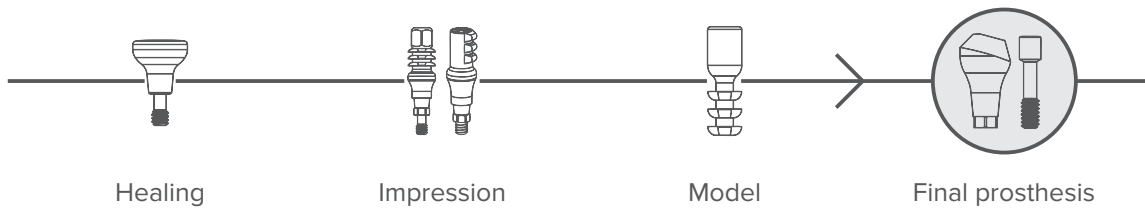


Fabricate prosthesis in the chosen way.



Clean excess cement, polish prosthesis.

Note! Only for multiple restoration.



Laboratory steps

Option b



Connect appropriate multi unit abutments to analog.



Connect multi unit titanium base to multi unit abutments.

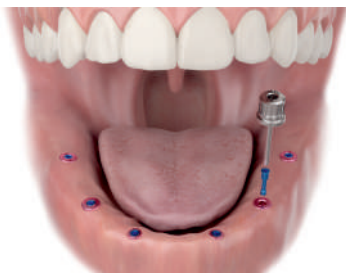


Before cementation, close access holes with filling material. Cement prosthesis to abutments.

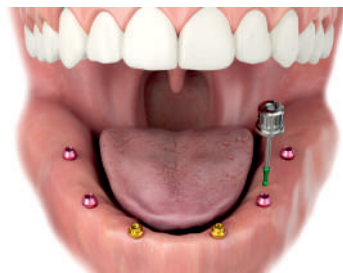


Clean excess cement, polish prosthesis.

Clinician steps



Remove one healing abutment at a time and immediately replace it with an abutment.



Connect multi unit abutments to implant and hand-tighten using a dedicated screwdriver.

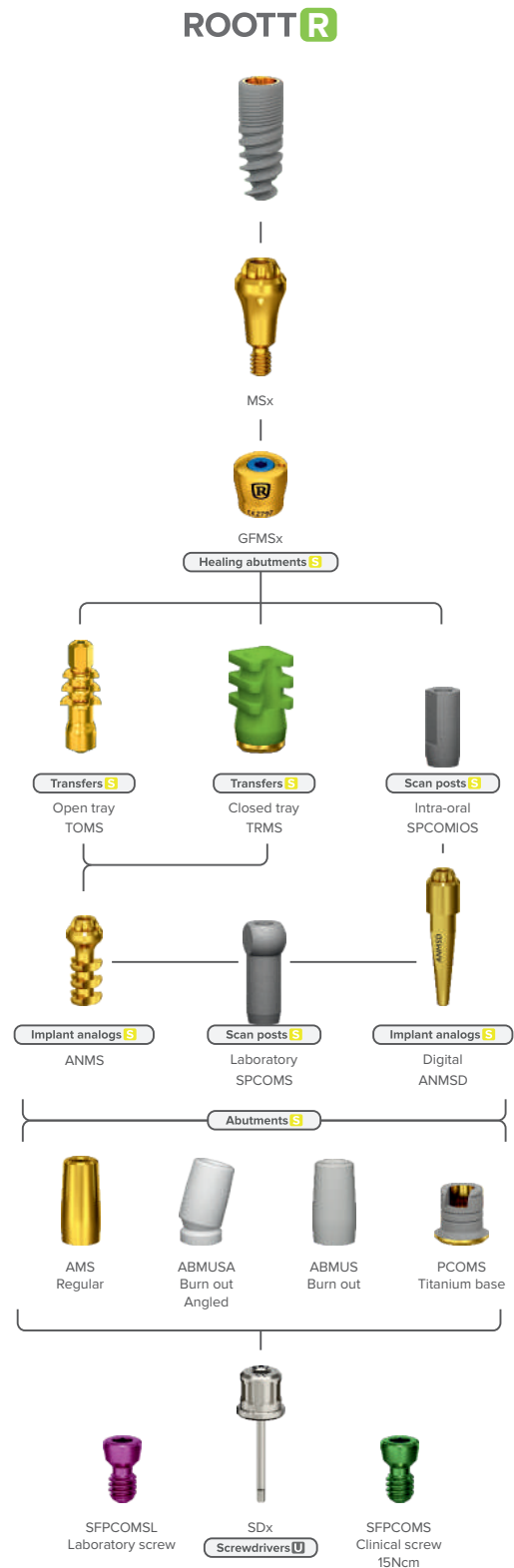
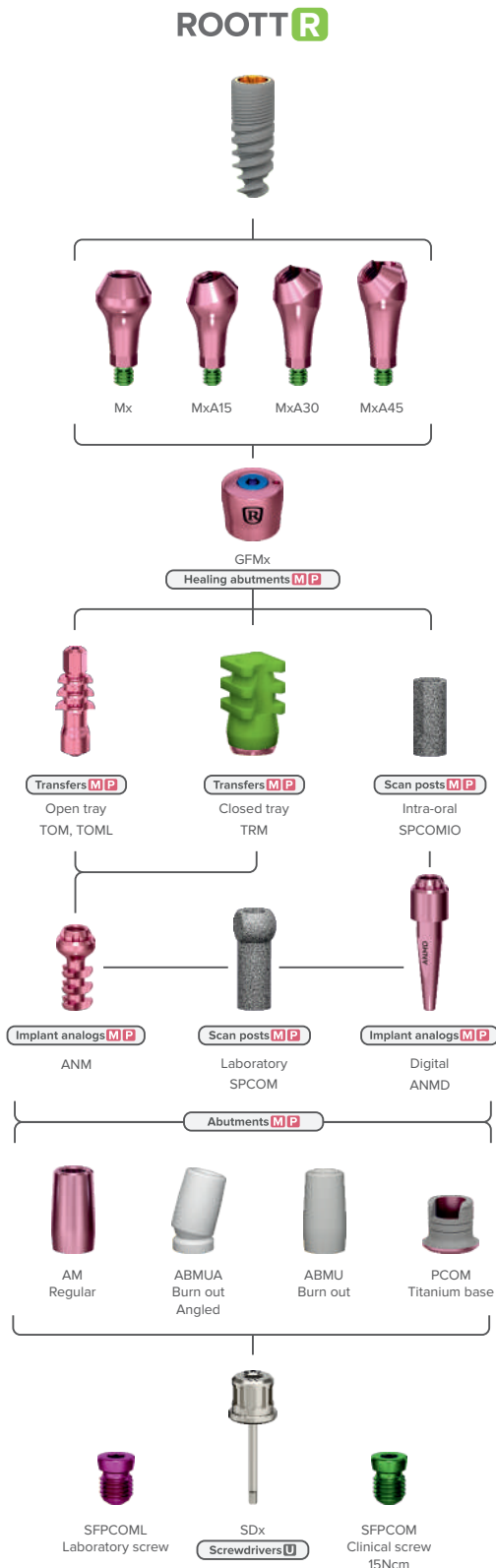


Fix the final restoration to abutments. Screw channel should be filled with composite.

Note! Only for multiple restoration.

Abutment level restorations

Abutment level describes a restoration that will be connected to abutments and will be used two sets of screws.





Healing period

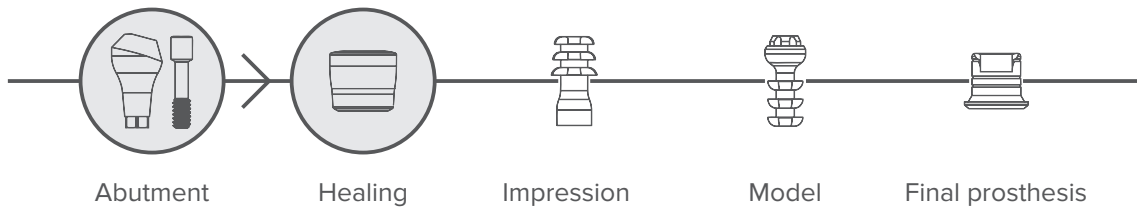
After surgical procedures begins the healing period. Abutment level healing is more precision, less tension on gingiva around prosthesis.

Healing abutments, M implant line
GFM0, GFM2, GFM4, GFM6
Used to heal soft tissue and to create emergency profile.
Pink color - M implant line.
Different color screws.



Healing abutments, S implant line
GFMS0, GFMS2, GFMS4, GFMS6
Used to heal soft tissue and to create emergency profile.
Gold color - S implant line.
Different color screws.





Clinician steps



Connect multi unit abutments to implants and hand-tighten using a dedicated screwdriver.



Screw on abutments appropriate healing abutments. Sew up around and leave for the healing period and osseointegration of the implant. Healing period is around 3 months.



Impression technique

Implant Impression is an important step accurately relating an analog of the implant to the other structures in the dental arch. For highly precise transfer is recommended that the impression has been taken from abutment level. Use M/S implant line analogs. There are a few types of impression technique: open tray, and closed tray.

Open tray transfers

TOM, TOMS

Open tray transfers are used in cases where high accuracy is needed



TOM



TOMS

Closed tray transfer, with cap

TRM+TC, TRMS+TC

Is used when there is insufficient clinical height in the distal parts of the upper and lower jaws and when implant axes diverge by up to 20°.



TRM



TRMS

Scan posts

SPCOMIO, SPCOMIOS - intra-oral

SPCOM, SPCOMS - laboratory

Digital impression is more precise, less time needed. For screw-retained technique scan from abutment level, use ROOTT M or ROOTT S intra-oral scan posts or scan laboratory model with laboratory scan posts.



SPCOMIO



SPCOMIOS



SPCOM



SPCOMS

Implant analog

ANM, ANMS, ANMD, ANMDS

Implant analog is necessary for efficient and safe laboratory work. The laboratory receives the impression for fabrication of the model or digital files and produces a working model with removable gingival material.



ANM



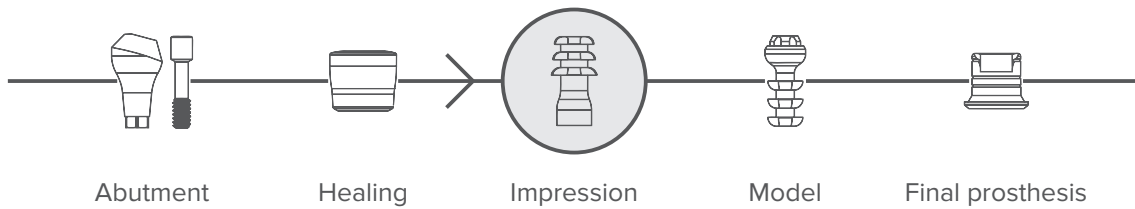
ANMS



ANMD



ANMDS



Impression



Clinician steps



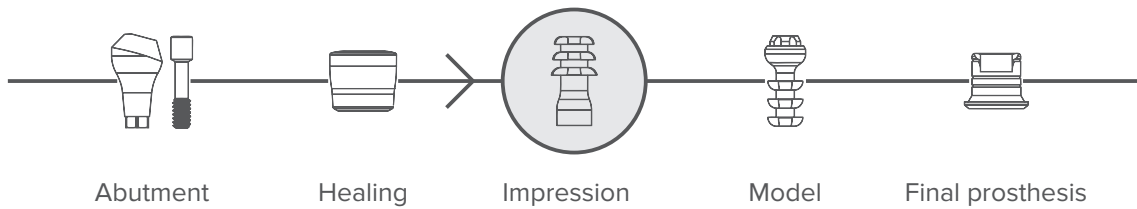
Open tray impression technique

Appropriate transfers are placed on multi unit abutments and screwed by hand. After the impression dry, screws are unscrewed and the impression removed. Transfers stay in impression.



Closed tray impression technique With transfer cap

Place appropriate transfers on multi unit abutments. Tight by hand. Put TC caps on transfers and push until it clicks. After the impression dry, the impression is removed, TC caps stay in the impression.



				
Scan posts	Mx(Ax)+SPCOMIO	MSx+SPCOMIOS	Mx(Ax)+SPCOM	MSx+SPCOMS
Intra-oral	+	+	-	-
Laboratory	-	-	+	+

Scanning

Clinician steps



Attach intra oral scan posts to implants in the patient's mouth. The digital impression is taken directly on the patient using an intraoral scanner.



Scan scan posts, occlusion and mouth without scan posts.



Send files to the laboratory.

Laboratory steps



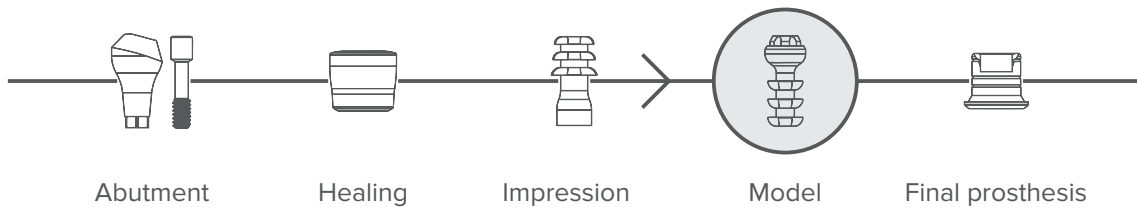
Take a stone model. Attach laboratory scan posts to analogs.



Scan model with scan posts.



Send files to the computer.

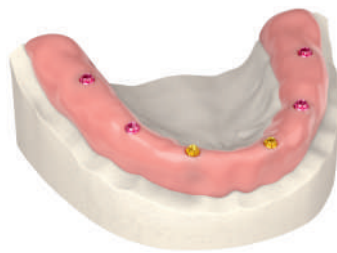


Model

Laboratory steps



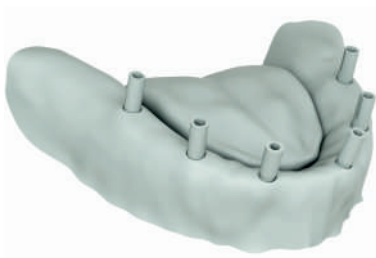
Attach analogs to transfers and put to impression. Inject gingiva mask around analog. Fill impression tray with stone material.



Take off stone model after model hardens. Unscrew all transfer's screws and remove from stone model. Stone model is with analogs and ready for use.

Digital

Laboratory steps



Send files to the laboratory.



Use appropriate libraries to make model.



Print created 3D model. Put digital analogs inside.



Prosthesis

Screw-retained

The screw-retained restoration procedure allows for simple and easy retrieval, and upholding of abutments during routine checkups, with minimal risk of damage to the existing restoration. It is a secure and easy way to maintain a prosthetic restoration.

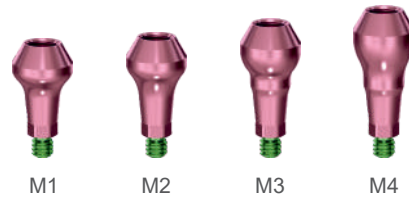
All abutments are supplied with two screws:
for laboratory use - pink, for clinical use - green
Recommended maximum torque - 15 Ncm



Implant level abutments

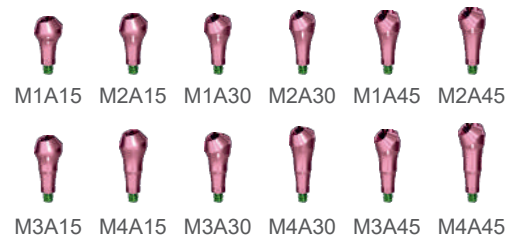
Abutment, multi-unit M1, M2, M3, M4

M abutments are used to create multiple unit screw-retained restorations for majority of clinical case due to a wide body of screw which withstand axial loads.



Abutment, multi-unit, 15°, 30°, 45°

M1A15A, M2A15A, M3A15A, M4A15,
M1A30, M2A30, M3A30, M4A30,
M1A45, M2A45, M3A45, M4A45
Angled multi-unit abutments allow inserting ROOTT R type implants at a wider range of angles.



Abutment, multi-unit, small

MS1, MS2, MS3, MS4
MS abutments are a single body abutments used to create multiple unit screw-retained restorations in areas of insufficient space for wide body screw.



Abutment level abutments

Burn-out abutments

ABMU, ABMUA, ABMUS, ABMUSA
The custom castable abutment offers the clinician the option of making a custom metal framework and also can correct angulation.



Straight abutment for intra-oral welding AM, AMS

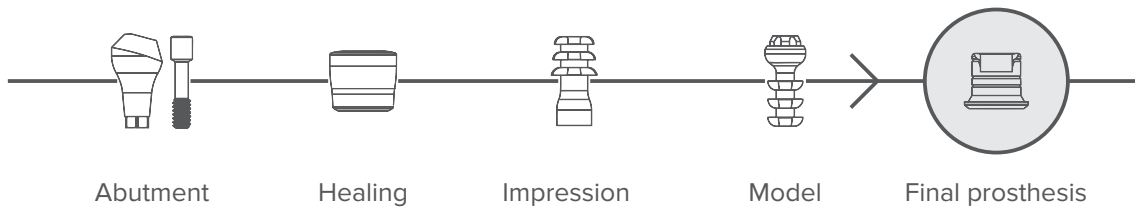
This technique increases precision and eliminates micro movement, consequently improving the overall success rate of immediately loaded, splinted implants. Mostly used for temporary restorations.



Abutment, titanium base

PCOM, PCOMS
Titanium base is used for creating multiple restorations with a digital workflow. Angled access for the tunnel from 0° to 20°.

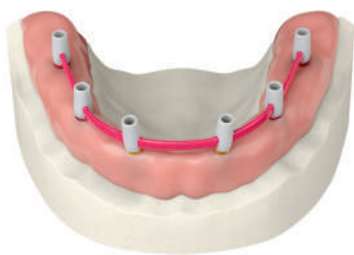




Burn-out abutments



Laboratory steps



Connect burn-out abutments to implant analog. Fabricate metal frame from burn-out abutments using standard modelling, casting methods.



The metal framework should be tried in the patient's mouth and corrected if necessary.



Porcelain firing is performed over the metal framework.

Clinician steps

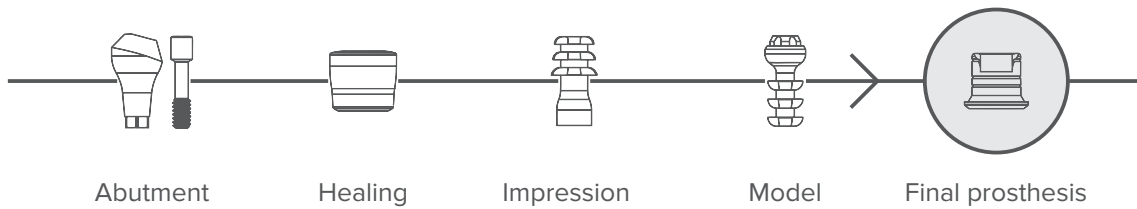


Remove healing abutments.



Fix the final restoration to abutments. Screw channel should be filled with composite.

Note! Screws for MS platform are a relatively weaker than screws for M platform and have to be used in low load areas.



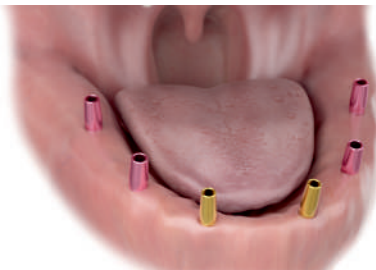
Intra-oral welding



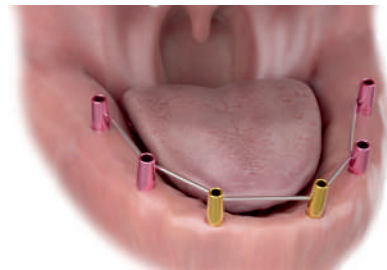
Clinician steps



Remove healing abutments.



Mount on top welding abutments.



Bending, alignment and intraoral welding of titanium wire. Improve framework as needed.



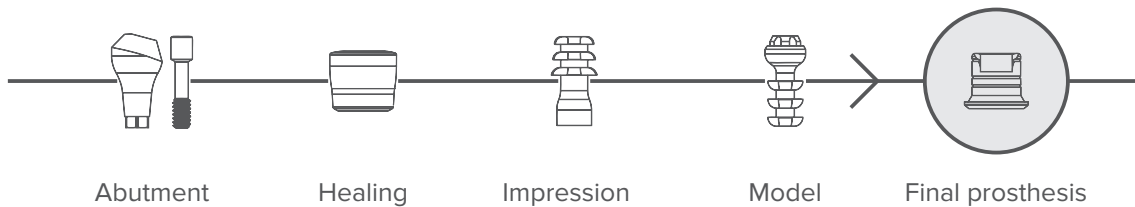
Fabricate prosthesis in the chosen way. Use acrylic resin to fixate prosthesis to the framework in the patient mouth.



Remove the prosthesis with the framework inside. Polish and improve as needed.



Screw final restoration.



Titanium base abutments



Libraries

ROOTT digital library enhances dental specialist capabilities. Time-efficient and accurate restorations. Scan implant position, create functional and aesthetic prosthesis. Library folders for ROOTT R names are: Trate_ROOTT_R_(appropriate abutment)_(material)

Extraoral/intraoral scan using PCOM, PCOMS

Step 1. Upload .stl file to chosen software. Extraoral/intraoral scan posts shall be visible.

Step 2. Choose abutment that will replace scan post:

- Implant + abutment, material, e.g. ROOTT R_MS1_PCOMS_zro.
- Abutment, cement gap size in microns, screw channel, e.g. PCOMS 35µm screw channel standard.
- Choose scanned detail and screw channel angle, e.g. PCOMS 35µm Extraoral scan 0°.

Step 3. Mark an area to detect scan post position.

Step 4. Program will replace scan post to abutment.

Step 5. a) Design metal bar/framework using MU digital abutment. Transfer CAD file to milling machine. Design prosthesis on created metal bar/framework. Transfer CAD file to milling machine;

b) Design prosthesis on abutments. Transfer CAD file to milling machine.

Laboratory steps

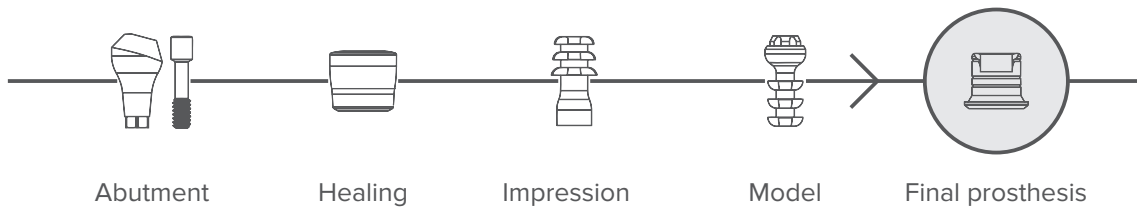


Option a.
Mill designed metal bar or framework.



Option b.
Choose raw material for prosthesis and place to milling machine.

Note! Only for multiple restoration.



Mill the prosthesis.



Sinter the finished prosthesis according to the recommendations of the raw material producer. Post-process as normal and dye, if required.

Laboratory steps

Option a



Connect multi unit titanium base to multi unit abutments.



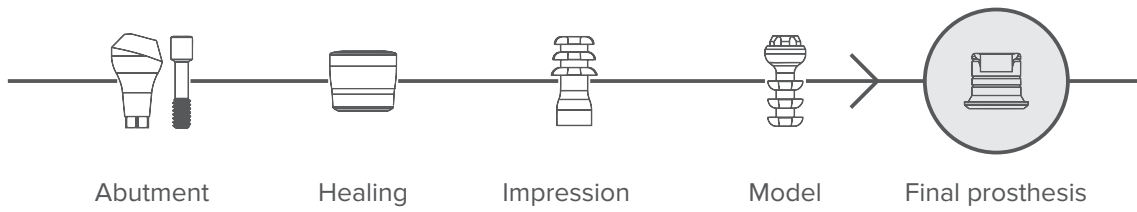
Connect milled metal bar or framework to implant analogs.



Cement prosthesis to metal bar or framework. Don't forget before cementation to close access holes with filling material.



Clean excess cement, polish prosthesis.



Laboratory steps

Option b



Connect multi unit titanium base to multi unit abutments.

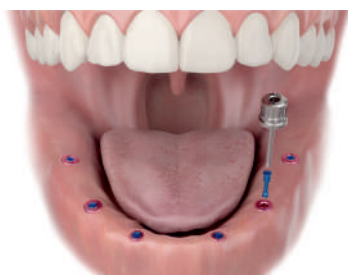


Before cementation, close access holes with filling material.
Cement prosthesis to abutments.



Clean excess cement, polish prosthesis.

Clinician steps








Remove one healing abutment.



Fix the final restoration to abutments. Screw channel should be filled with composite.

Compatibility

healing abutments with abutments

Healing abutments				Abutments											
	GF1				M1		M1A15		M1A30		M1A45				
	GF2				M2		M2A15		M2A30		M2A45				
	GF3				M3		M3A15		M3A30		M3A45				
	GF4		GF5		GF6		GF7		MA4		M4A15		M4A30		M4A45
	GFP3				M3		M3A15		M3A30		M3A45				
	GFP4		GFP5		M4		M4A15		M4A30		M4A45				
	GFN2				MS1		MS2								
	GFN4				MS3		MS4								




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Medical devices under these instructions are in compliance with established in EU regulatory requirements.

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