Step by step

ROOTT

Screw-retained restorations

Content

Important notes

Meaning of icons

Procedure that apply only for single restoration

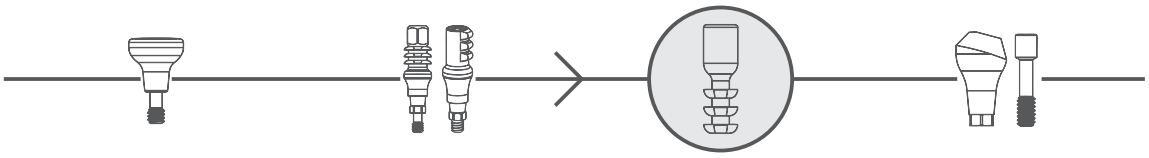
Procedure that apply only for multiple restoration

1.25mm hex screwdriver

1.25mm ball hex screwdriver

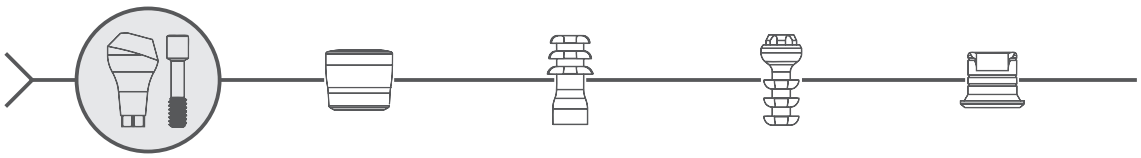
The procedure sequence, as seen below, illustrates the different restorative stages and can be found throughout the manual for easy usage. The stage of the treatment procedure being reviewed is highlighted with color.

Restoration on implant level



Healing Impression Model Final prosthesis

Restoration on abutment level



Abutment Healing Impression Model Final prosthesis

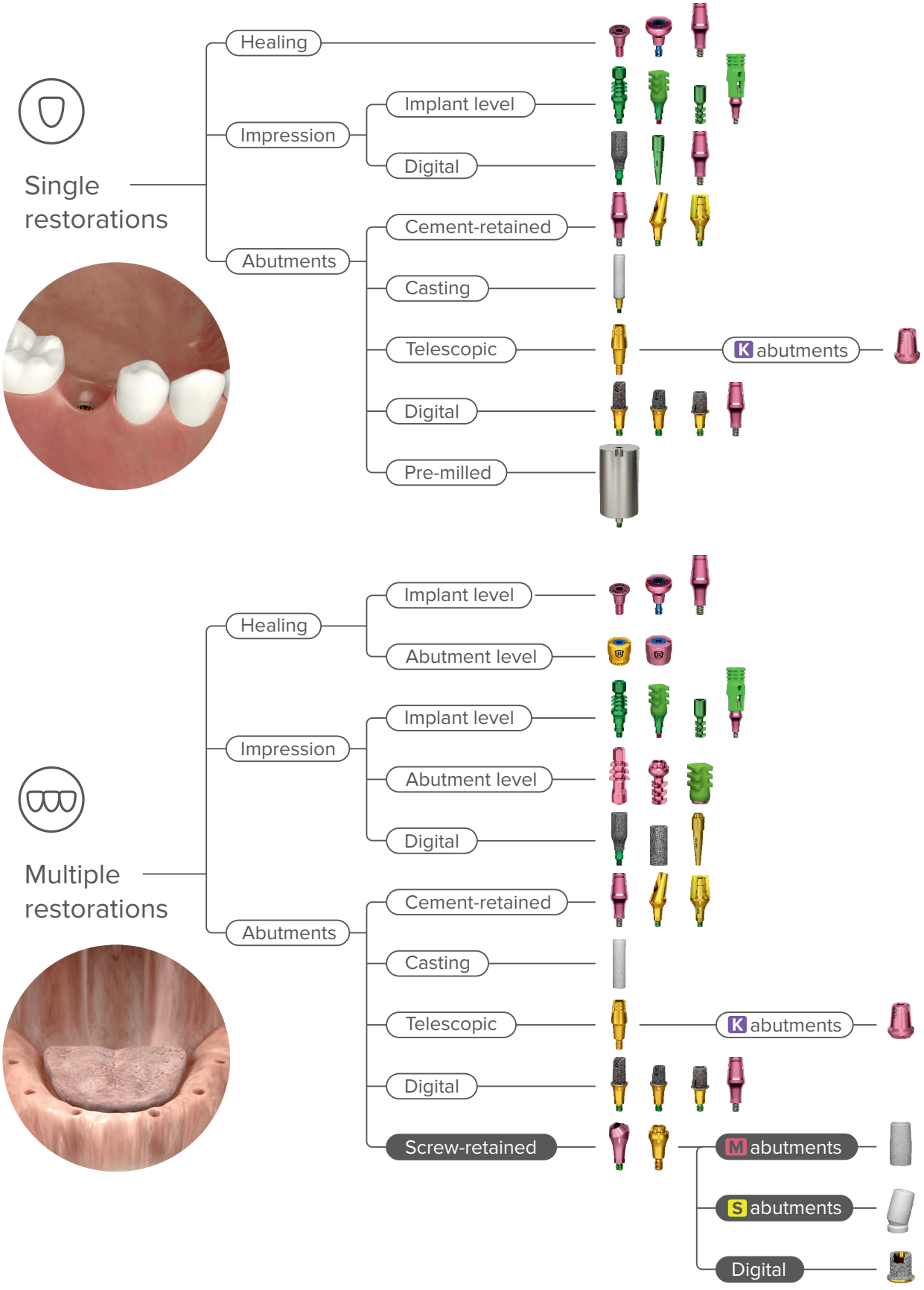
Clinician steps. Procedures that apply for prosthodontists are marked red.

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

Attention!

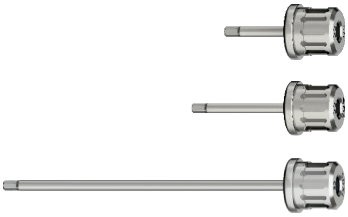
1. Never exceed the recommended tightening torque - 15 Ncm for the screw. Overtightening of abutment may lead to a screw fracture.
2. Use abutment extractor SR for easier removing ROOTT R healing abutment or abutment.
3. Use pink screw, for laboratory steps.
4. Use green screw, for clinician steps.

Prosthetic options



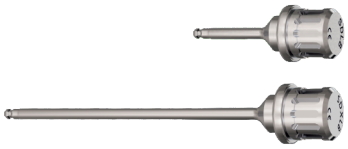
Instruments

Screwdrivers are used for the fixation of all superstructures.



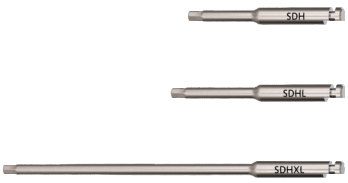
SD
SDL
SDXL

For ratchet
Recommended torque - 15 Ncm



SDLB
SDXLB

For ratchet, ball point
Recommended torque - 15 Ncm
Maximal angulation - 20 °



SDH
SDHL
SDHXL

For handpiece
Recommended speed - 15-20 rpm
Recommended torque - 15 Ncm

SDM
SDML

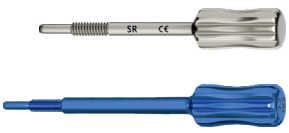
Manual
For laboratory use

SDAO

For AO connection

ETAO

Handle for AO connection
For all AO instruments



SR
SRL

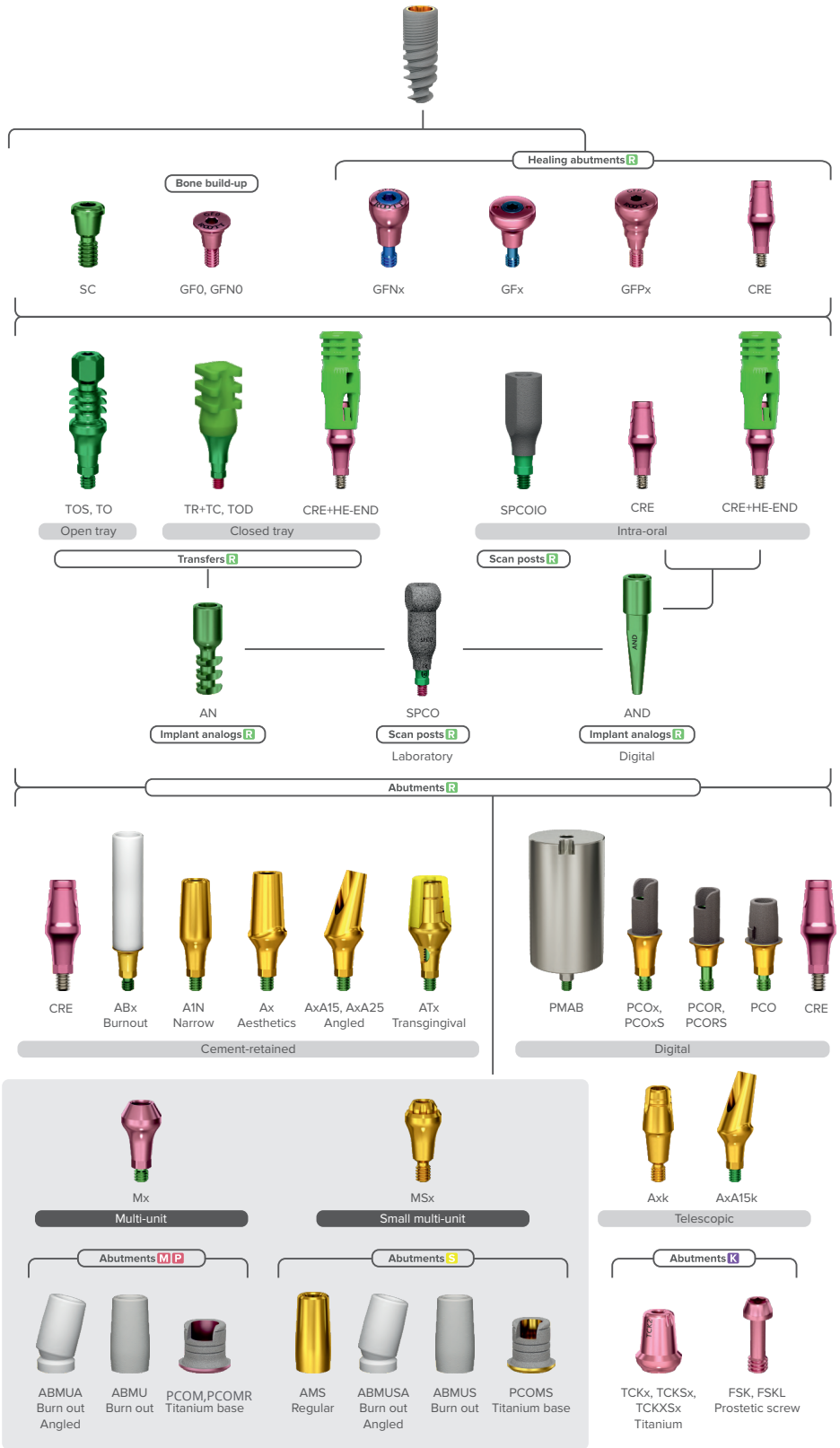
Abutment extractors
For easier superstructure removing

TW50
TW70

Torque wrench
Torque wrench is suitable for all instruments with a head for ratchet.
Maximal torque is 50 Ncm or 70 Ncm..

Implant level restorations

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



Additional section about usage of carrier CRE

Carrier

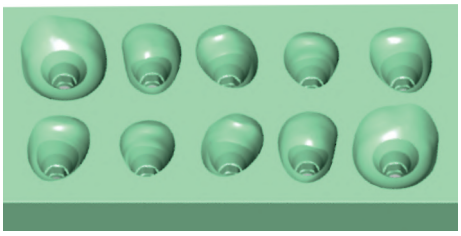
Each ROOTT R implant comes with a free multi-functional part (CRE) which is made of the same material as implants & abutments.

- 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.

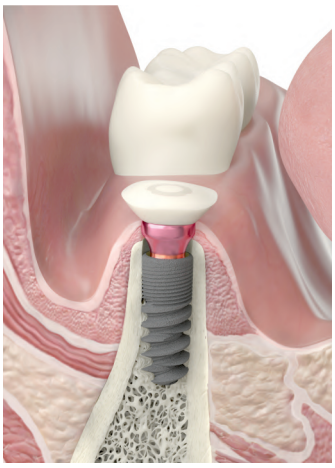
CRE CRE+HE-END

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.

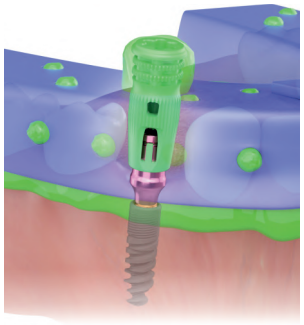


Polish the composite surface.
Trim CRE part above composite.
Use as a one stage healing abutment.
Healing period 3-6 months.

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.

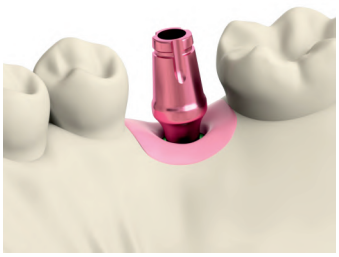
Direct scan via HE-END

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

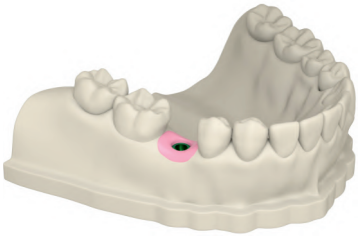
Use CRE carrier as usual laboratory scan post, separately or in combination with holder HE-END. Scan in the laboratory and send files to the computer.



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.

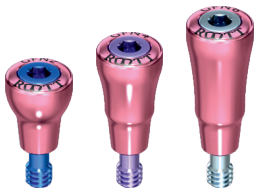
Cover screw
It is packed with implant, can be find screwed in green holder's HE-body. Used to cover the implant during two stage surgery technique.

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.

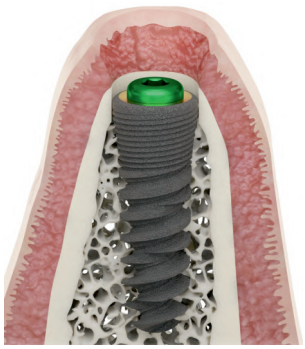
GFP3 GFP4 GFP5

Healing Impression Model Final prosthesis

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.

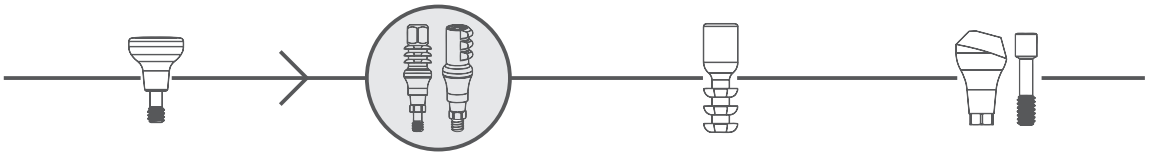

AN

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

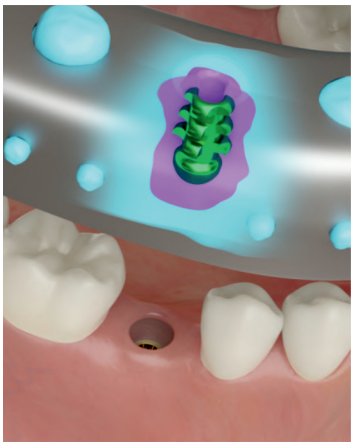

CRE+HE-END



Healing Impression Model Final prosthesis

Impression

Clinician steps

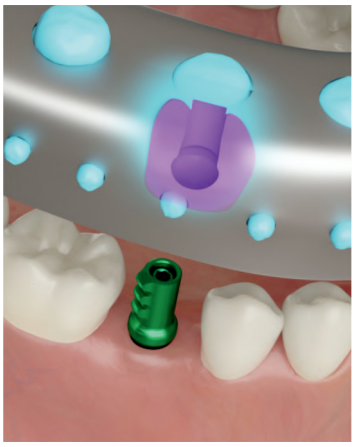


Open tray impression technique

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

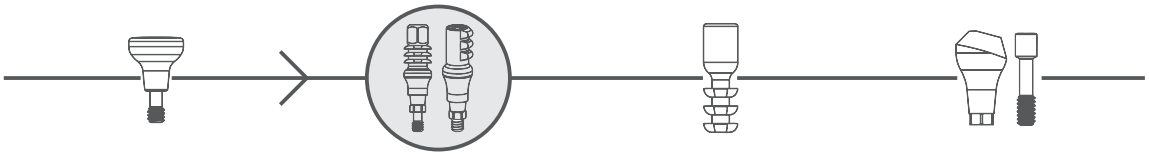
Place appropriate transfer to implant. Tight by hand. Mount TC cap on transfer and push until it clicks. Inject impression material around the transfer. Fill the impression tray with impression material and seat the impression tray into the mouth. After the impression dry, the impression is removed,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



Healing | Impression | Model | Final prosthesis

Scanning

Scan posts

	SPCOIO	SPCO	CRE	CRE+HE-end
Intra-oral	+	-	+	+
Laboratory	-	+	+	+

Clinician steps

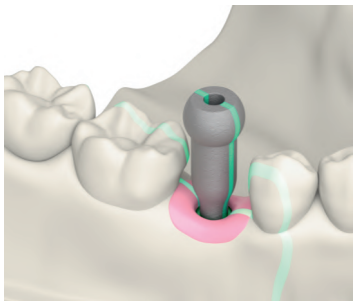
Attach intra-oral scan post to implant in patient's mouth. The digital impression is taken directly on the patient using an intraoral scanner. Scan intra-oral scan post.

Scan occlusion. Scan mouth without scan post.

Send files to laboratory.

Laboratory steps

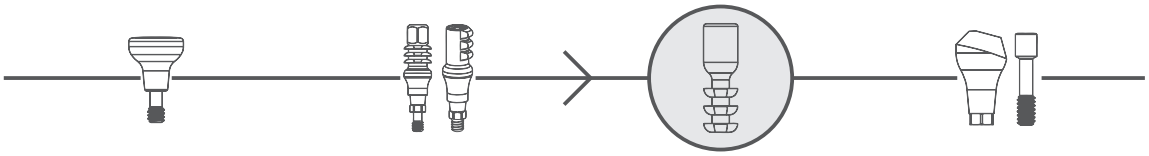
Take stone model. Attach laboratory scan post to analog.



Scan model with scanpost.

Send files to computer.

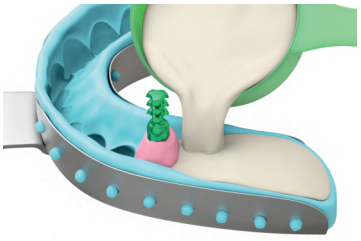
Note! For aesthetic reasons make sure that the side with flat surface is facing toward the inner side, there will be abutments screw channel.



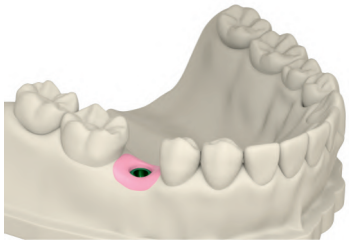
Healing | Impression | Model | Final prosthesis

Model

Laboratory steps



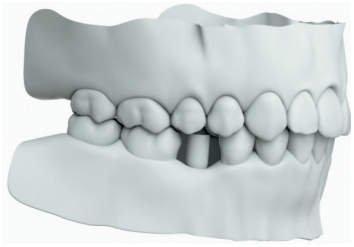
Attach analog to transfer and put to impression. Inject gingiva mask around analog. Fill impression tray with stone material.



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

Digital

Laboratory steps



Laboratory recieves files.

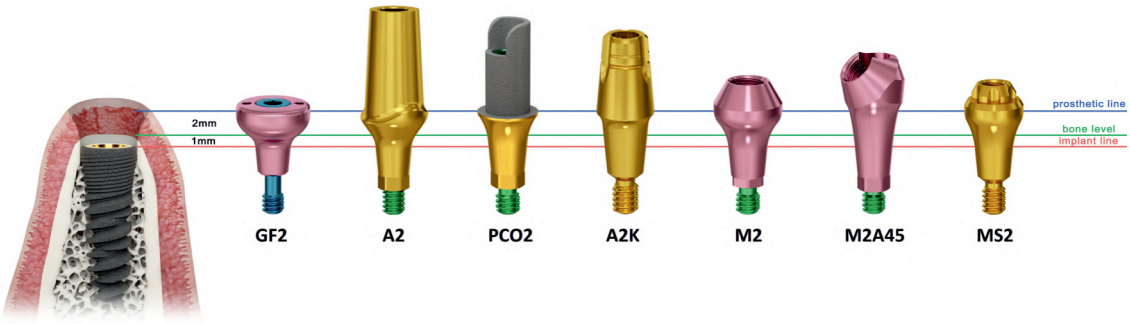
Use appropriate libraries to make model.

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.

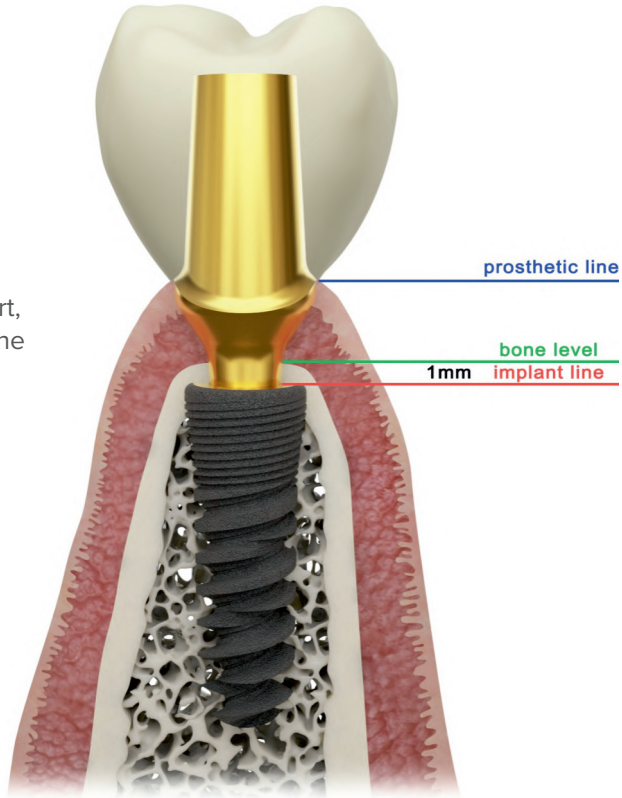
The abutment should be selected in the gingiva height analogous to the healing abutment. A mismatching profile of the structure may result in compression of the gingiva*.



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

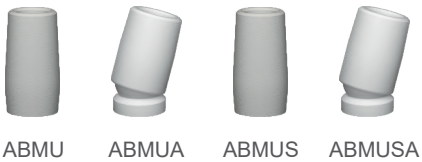
Implant level

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.



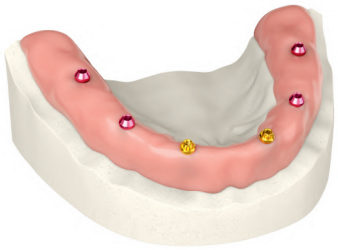
Straight abutment for intra-oral welding
AM, AMS
This technique increase precision and eliminates micro movement, consequently improving the overall success rate of immediately loaded, splinted implants. Mostly used for temporary restorations.

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

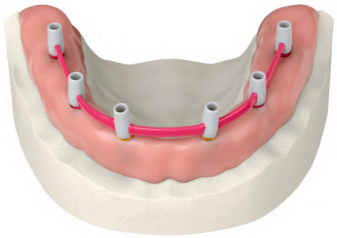
Healing Impression Model Final prosthesis

Burn-out abutments

Laboratory steps



Connect appropriate multi-unit abutments to analog.

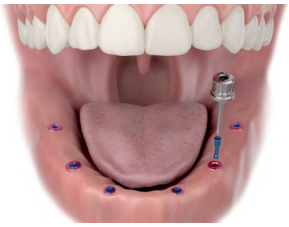


Connect burn-out abutments and fabricate metal frame using standard modeling, casting methods.

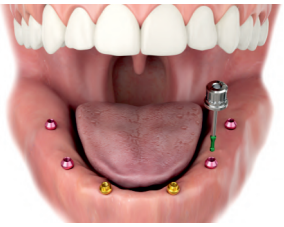
The metal framework is tried in the patient's mouth and corrected if necessary.

Clinician steps

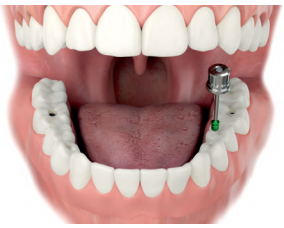
Porcelain firing is preformed over the metal framework.



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.



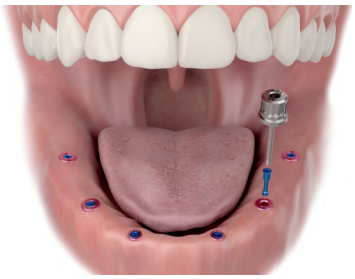
Fix the final restoration to abutments. Screw channel should be filled with composite.

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.

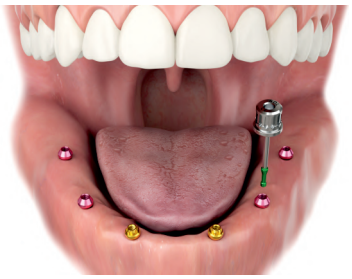
Healing | Impression | Model | Final prosthesis

Intra-oral welding

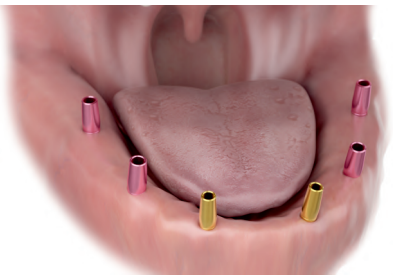
Clinician steps



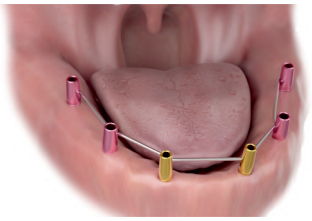
Remove one healing abutment at a time and immediately replace it with an abutment.



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.

Healing Impression Model Final prosthesis

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, PCOMR, 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.

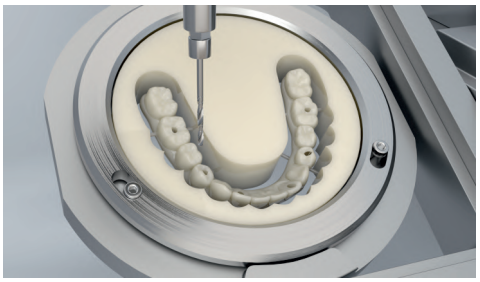
Laboratory steps

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.

Healing Impression Model Final prosthesis

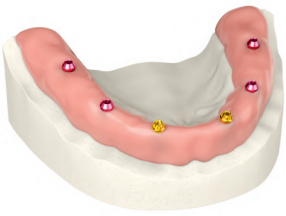


Mill the prosthesis.

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.

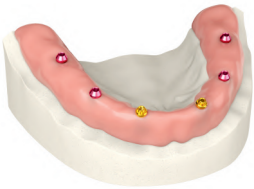
Clean excess cement, polish prosthesis.

Note! Only for multiple restoration.

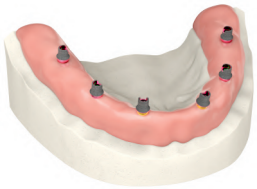
Healing Impression Model Final prosthesis

Laboratory steps

Option b



Connect appropriate multi unit abutments to analog.

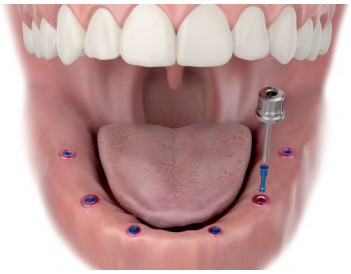


Connect multi unit titanium base to multi unit abutments.

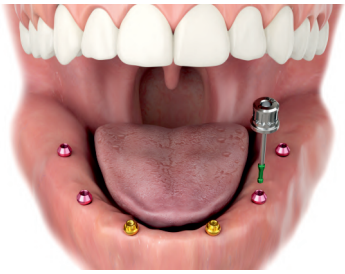
Before cementation, close access holes with filling material. Cement prosthesis to abutments.

Clean excess cement, polish prosthesis.

Clinician steps



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



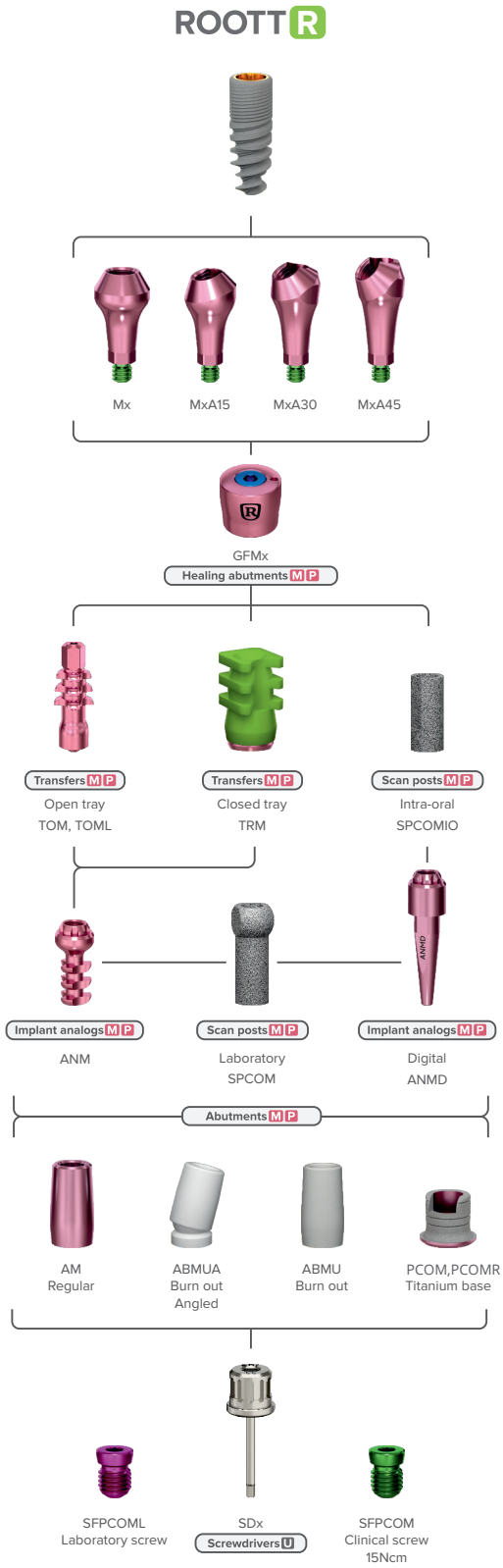
Connect multi unit abutments to implant and hand-tighten using a dedicated screwdriver.

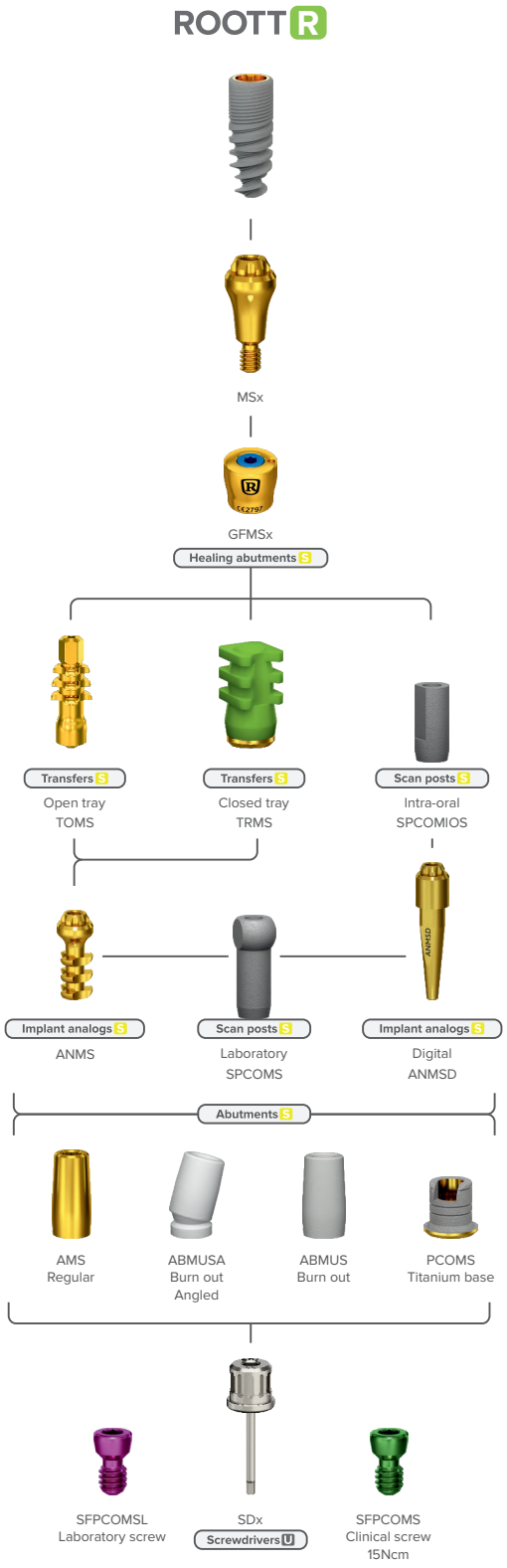
Fix the final restoration to abutments. Screw channel should be filled with composite.

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

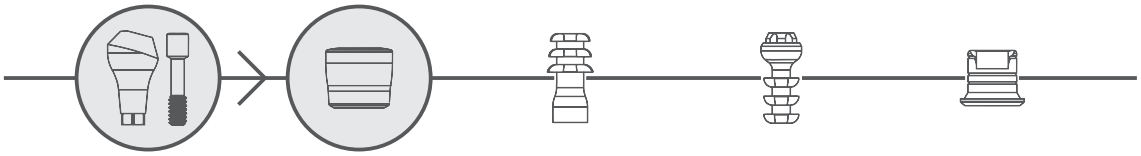
After surgical procedures begins the healing period. Abutment level healing is more precision, less tension on gingiva around prosthesis.

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.

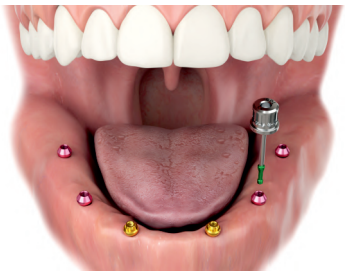
GFM0 GFM2 GFM4 GFM6

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.

GFMS0 GFMS2 GFMS4 GFMS6



Clinician steps



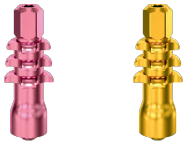
Connect multi unit abutments to implants and hand-tighten using a dedicated screwdriver.

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

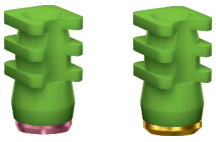
Implant Impression is an important step accurately relating an analog of the implant to the other structures in the dental arch. For highly precise transfer is recommended that the impression has been taken from abutment level. Use M/S implant line analogs. There are a few types of impression technique: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

Open tray transfers
TOM, TOMS
Open tray transfers are used in cases were high accuracy is needed



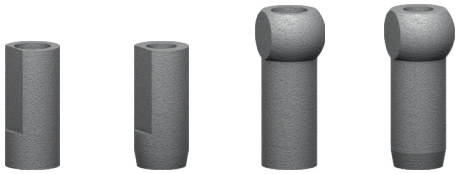
TOM TOMS

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 ANMSD

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.

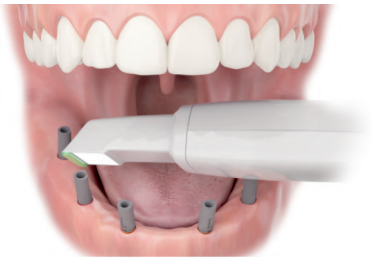
Abutment Healing Impression Model Final prosthesis

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

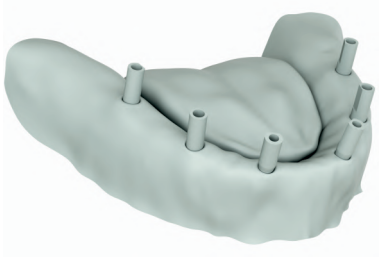
Scanning

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.

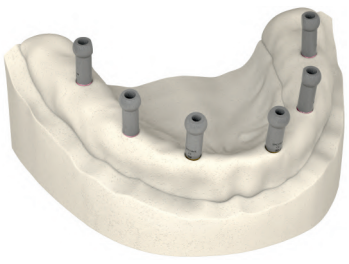


Scan scan posts, occlusion and mouth without scan posts.



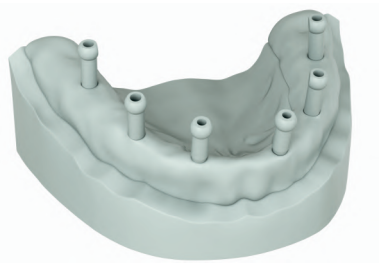
Send files to the laboratory.

Laboratory steps

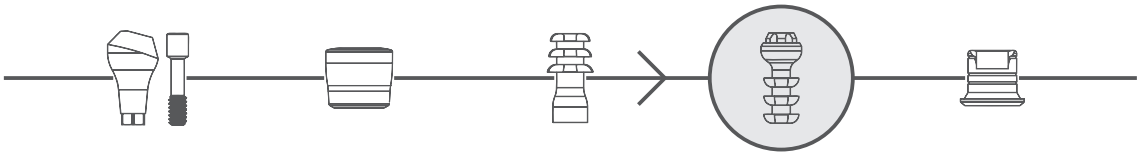


Take a stone model.
Attach laboratory scan posts to analogs.

Scan model with scan posts.



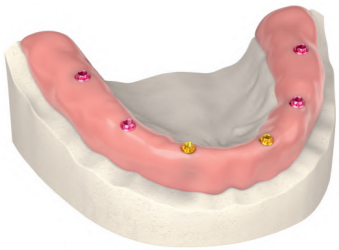
Send files to the computer.



Model

Laboratory steps

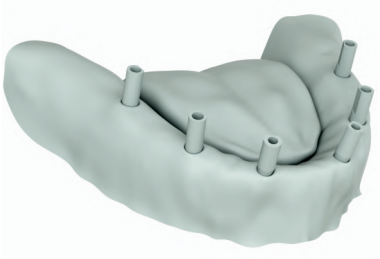
Attach analogs to transfers and put to impression. Inject gingiva mask around analog. Fill impression tray with stone material.



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

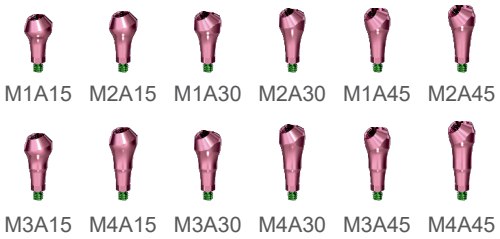
Screw-retained
The screw-retained restoration procedure allows for simple and easy retrieval, and upholding of abutments during routine checkups, with minimal risk of damage to the existing restoration. It is a secure and easy way to maintain a prosthetic restoration.

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.

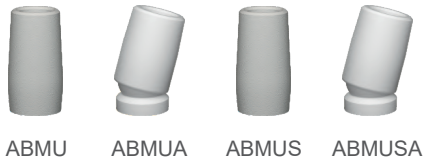
Abutment, multi-unit, 15°, 30°, 45°
M1A15A, M2A15A, M3A15A, M4A15,
M1A30, M2A30, M3A30, M4A30,
M1A45, M2A45, M3A45, M4A45
Angled multi-unit abutments allow inserting ROOTT R type implants at a wider range of angles.



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.

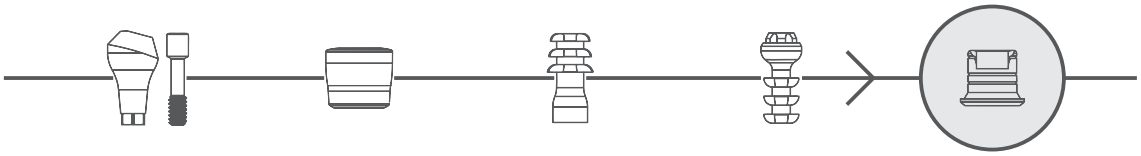
Abutment level abutments

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.

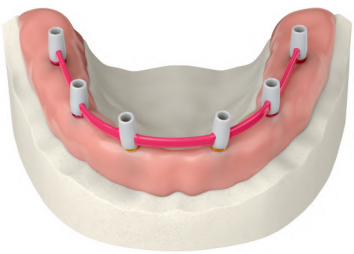
Abutment, titanium base
PCOM, PCOMS, PCOMR
Titanium base is used for creating multiple restorations with a digital workflow.
Angled access for the tunnel from 0° to 20°.



Abutment Healing Impression Model Final prosthesis

Burn-out abutments

Laboratory steps

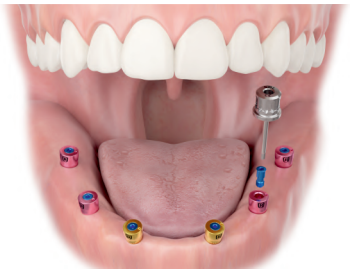


Connect burn-out abutments to implant analog. Fabricate metal frame from burn-out abutments using standard modelling, casting methods.

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

Porcelain firing is performed over the metal framework.

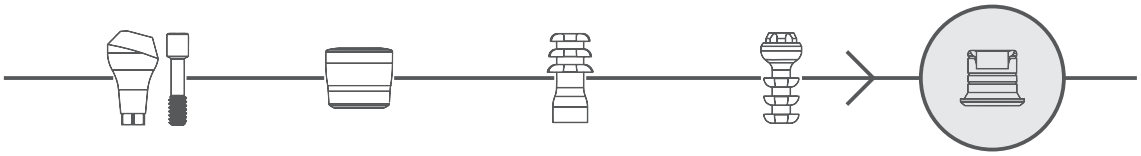
Clinician steps



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.

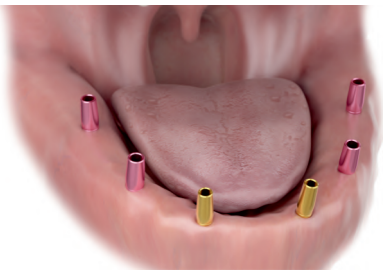


Abutment Healing Impression Model Final prosthesis

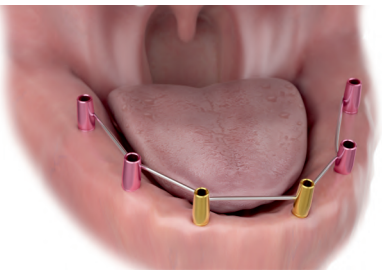
Intra-oral welding

Clinician steps

Remove healing abutments.



Mount on top welding abutments.

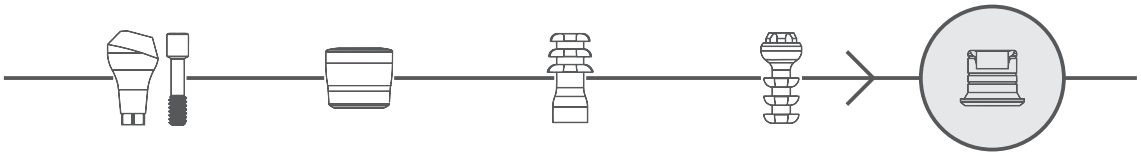


Bending, alignment and intraoral welding of titanium wire. Improve framework as needed.

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.



Abutment Healing Impression Model Final prosthesis

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, PCOMR, 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°.

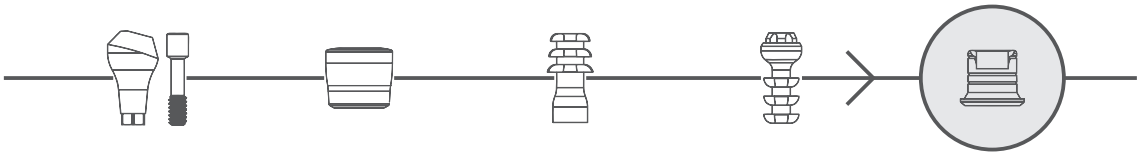
Step 3. Mark an area to detect scan post position.
Step 4. Program will replace scan post to abutment.
Step 5. a) Design metal bar/framework using MU digital abutment. Transfer CAD file to milling machine. Design prosthesis on created metal bar/framework. Transfer CAD file to milling machine;
b) Design prosthesis on abutments. Transfer CAD file to milling machine.

Laboratory steps

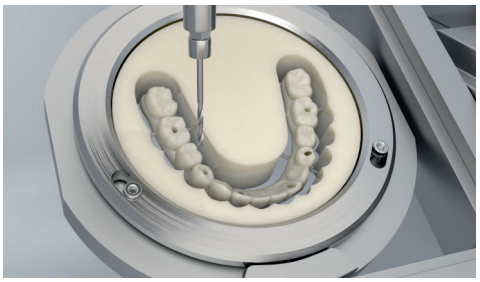
Option a.
Mill designed metal bar or framework.

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

Note! Only for multiple restoration.



Abutment Healing Impression Model Final prosthesis

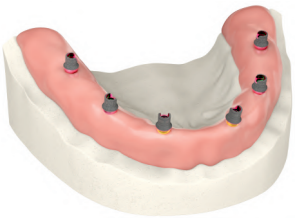


Mill the prosthesis.

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

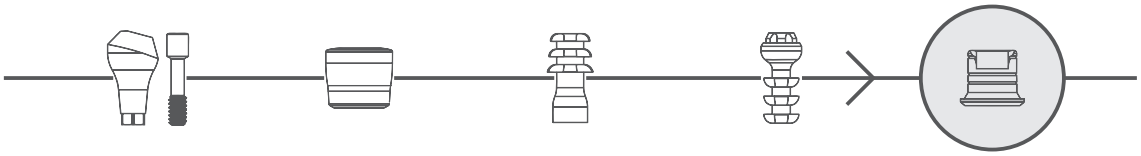


Connect multi unit titanium base to multi unit abutments.

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.

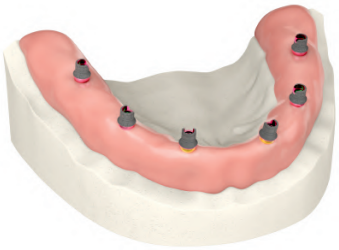
Clean excess cement, polish prosthesis.



Abutment Healing Impression Model Final prosthesis

Laboratory steps

Option b

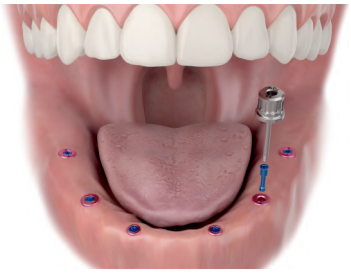


Connect multi unit titanium base to multi unit abutments.

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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V2.05.2025