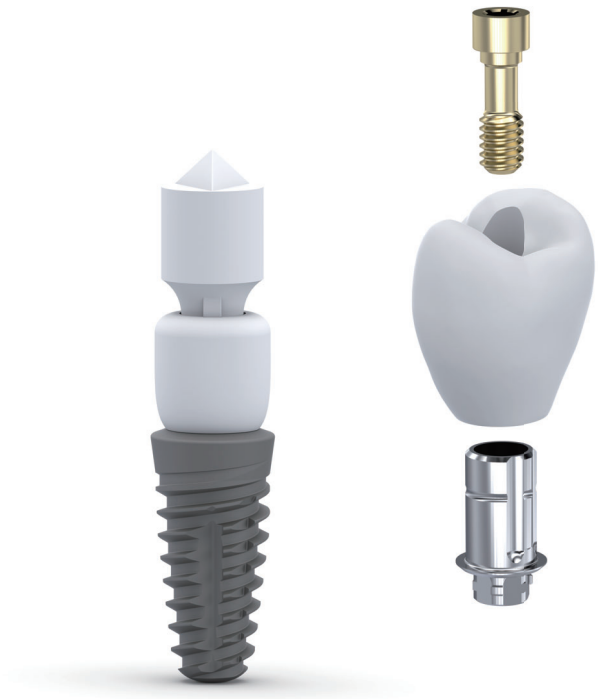
Laboratory Handbook



Neoss Implant System Laboratory Handbook 10501_18 EN 2025-03

3. Laboratory Handbook

3.1 Neoss Implant System

The following information is a guide as requirements may vary on an individual basis.

3.1.1 General Features

The Neoss® Implant System provides a simple, easy to use means of anchorage for a single crown, bridge or denture thereby satisfying a wide range of aesthetic and functional requirements. Simple implant installation and flexibility in prosthetic solutions provides optimal aesthetic restorations for a wide range of clinical situations. This Handbook serve as a clinical reference for surgical and restorative assistant procedures.

The Neoss Implant System

The Neoss Implants are based on extensive research and development, the outcome of which is a state-of-the-art system, rationalized by design. The implants have patented design and geometry which imparts specific features and benefits to the system.

Neoss implants may be used as a one or two-stage implant and are manufactured from Commercially Pure Titanium Grade IV with a surface that has been subjected to a multistage blasting, etching, cleaning and chemical treatment.. The system fulfills all clinical indications with a compact and rational range of implant components and instruments.

The Neoss implant to abutment connection

Unique to the Neoss Implant System is the ONE prosthetic platform, across three implant ranges. The same prosthetic components fit every standard implant. All standard Neoss implants, Ø3.5 and larger, have the same standard platform (SP) with the implant to abutment connection design called Neoloc. For Ø3.25 mm implants the implant connection has a smaller narrow platform (NP).

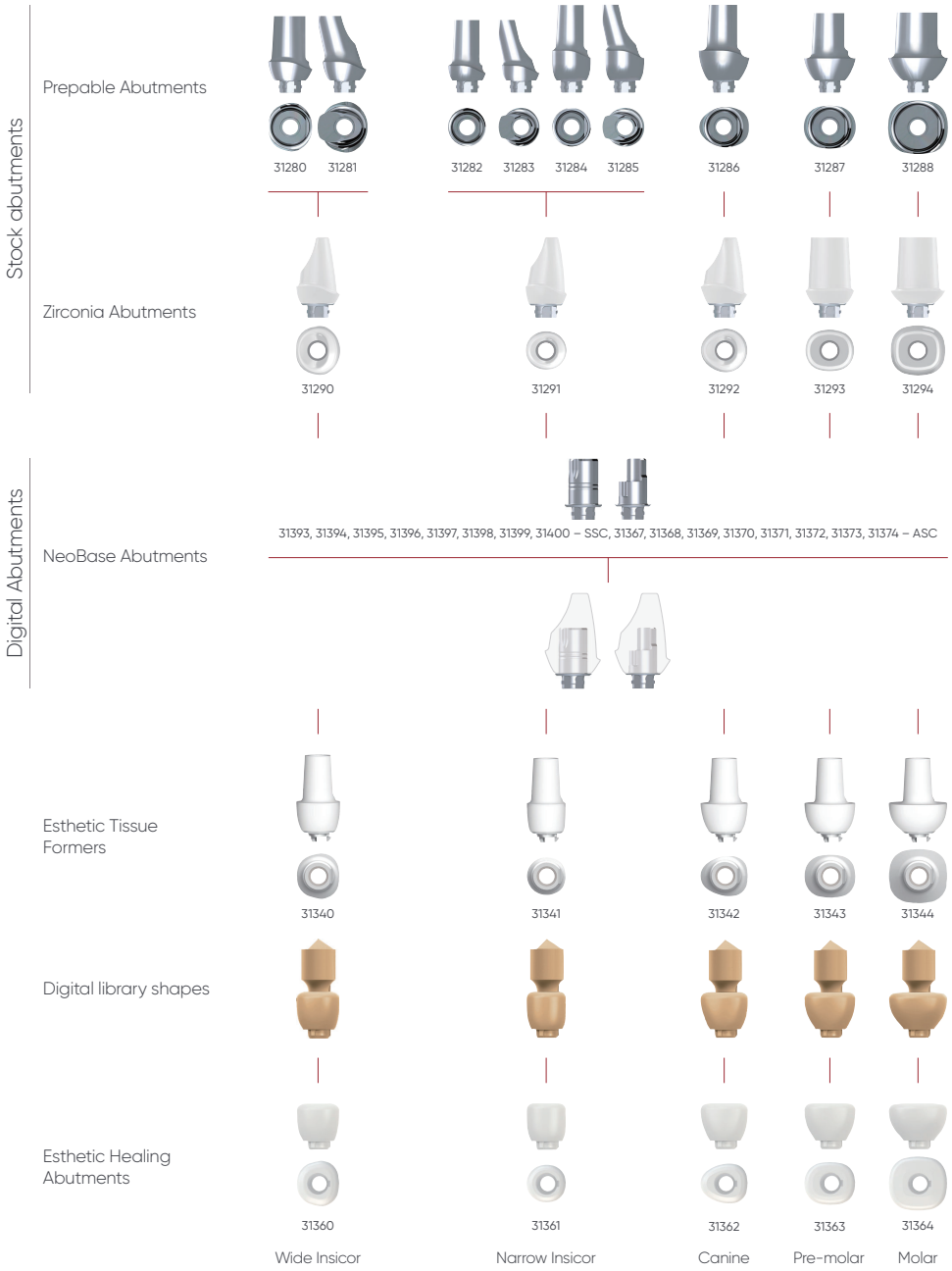
3.1.2 Esthetiline Solution

The Esthetiline solution enables simple, rapid and effective anatomical tissue contouring to be developed and optimized with matching standard and individualized restorative components. The Neoss Esthetiline solution provides seamless restorative integration all the way from implant placement to final crown restoration. The natural emergence profile developed during healing is matched perfectly in permanent restorative components; Prepable Titanium abutments, Zirconia abutments, custom abutments and copings, and CAD/CAM solutions as shown on next page.

The gingival margin abutment profile is fixed in relation to the non-rotational feature on all Esthetiline abutments and thus related to the position of the implant – indexing. The Esthetiline solution is best applied when the implant is oriented at surgery by ensuring that there is a groove in the buccal direction. This will require the least adjustment. Indexing throughout the treatment is possible utilizing the indexing features as shown in the Esthetiline Overview on next page.

Esthetiline overview – stock abutments and conventional impression taking

Esthetiline Shapes



Note: Plastic copings can be used with a NeoLink® as try-in abutments to facilitate abutment selection. Plastic copings are for single use.

Esthetic Healing Abutments and Tissue Formers – Healing & Provisional Abutments

Placement of Esthetic Healing Abutments and Tissue Formers at implant placement or abutment connection guides the soft tissue and enables simple creation of the optimal emergence profile. Esthetic Healing Abutments and Tissue Formers are non-rotational and made in a range of anatomical shapes which are designed to match the profiles of individual incisor, canine, pre-molar and molar teeth.

Note: The trans-gingival section on Esthetic Healing Abutments and Tissue Formers is slightly smaller buccally than matching restorative components in order to provide additional soft tissue volume.

Note: The molar type can be rotated 90° if preferred but the implant has to be oriented accordingly at the time of surgery.

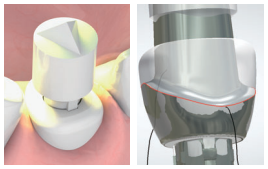
Esthetic Healing Abutments

The Esthetic Healing Abutment functions as a regular healing abutment with the purpose to create a soft tissue profile during healing. Together with the ScanPeg inserted in the Esthetic Healing Abutment, a digital impression can be recorded with an intraoral scanner. For more information about the use of Esthetic Healing Abutments please refer to section 4.2.

Esthetic Tissue Formers

The Esthetic Tissue Formers are used for cement or screw retained provisional restorations. The titanium/polymer structure makes it highly biocompatible whilst retaining ease of preparation, strength and ability to bond to resins. For more information about the use of Esthetic Tissue Formers please refer to section "3.7 Provisional Abutments".

Digital Impression Techniques

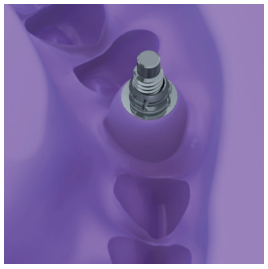


The ScanPeg that comes with the Esthetic Healing Abutment is a scan body momentarily fitted in the screw access hole of the Esthetic Healing Abutment to enable digital acquisition of the implant position in relation to the adjacent teeth and soft tissue.

The Esthetic Healing Abutment in combination with the ScanPeg is included in Neoss 3D libraries for design of matching CAD/CAM abutments in design software from 3shape, Exocad and Dental Wings.

Screw retained Scanbodies are available for the all Neoss implants and Access abutments, please refer to separate instruction.

Conventional Impression Techniques



There are a series of treatment options; normally an implant or abutment level an impression may be taken to enable laboratory fabrication of a custom abutment or gold or metal framework in a traditional manner. For Prepable Titanium or Zirconia abutments an alternative option is to place a suitable Titanium Prepable or Zirconia Abutment directly at the chair-side and take a conventional crown impression.

Note: It may prove necessary to prepare the margins of the Titanium Prepable or Zirconia Abutments, for more information please refer to sections "3.8 Titanium Prepable Abutments" and "3.9 Zirconia Abutment".

The standard Neoss impression coping is suitable for implant level impressions. There will typically be a gap between the impression

coping and the sculpted anatomical gingiva which has been created by the Healing abutment or Tissue Former. In the majority of cases the degree of tissue collapse will be minimal during the impression procedure and a normal impression technique syringing material between the coping and gingival will give an accurate result. If there is concern about tissue collapse a second Healing abutment or Tissue Former of the same type may be used together with an impression coping screw for the impression. For more information about impression taking procedure please refer to section "3.2 Impression Techniques".

Final restoration – digital abutments

Digital library shapes

The Esthetic Healing Abutment in combination with the ScanPeg is included in Neoss 3D libraries for design of matching CAD/CAM abutments in design software from 3shape and Exocad. The CAD/CAM abutments can be provided with straight or angulated screw channels in and in various materials. For more information please refer to https://www.neoss.com/cad-libraries.

NeoBase

The NeoBase® abutment provides metal support for ceramic restorations whereby the abutment is cemented into the restoration preferably before clinical placement. They are available in Mono and Multi versions for all Neoss implants as well as for both straight and angled screw channels. The NeoBases are a key component of the In-Lab workflow for customized abutments and bridges for ceramic milling of predominately zirconia material.

Final restoration – stock abutments

Prepable Titanium Abutment

The shape of Prepable Titanium abutments match the profile of the Tissue Formers making it possible to accurately define soft tissue contours without the need for complex impression procedures. The abutments may be modified by marginal adaptation and angulation. For more information about Prepable Titanium Abutments please refer to section "3.8 Titanium Prepable Abutments".

Zirconia Abutment

Zirconia abutments are supplied in two parts; the Zirconia coping, with a profile matching the provisional Tissue Formers thus giving an optimal aesthetic solution, and a pre-blasted Titanium NeoLink® Mono. The Zirconia coping is designed to be cemented onto the NeoLink®. For more information about use of the Zirconia abutment please refer to section "3.9 Zirconia Abutment".

3.1.3 Neo and iGO screw overview

Healing abutments, impression copings, provisional abutments and permanent abutments are all attached by using specific Neo screws and Neo screwdrivers as described in the subsequent sections. The only exception to use the Neo screwdriver is for angulated screw channels (ASC) where iGO screws are required together with the iGO screwdriver.

Screw and screwdriver compatibility

Neo screws and Neo screwdriver

Neo | Neo Abutment Screw SP | Neo Abutment Screw NP | Neo Provisional Screw SP | Neo Provisional Screw NP | Neo Laboratory Screw SP | Neo Laboratory Screw NP | Neo Screwdriver, Machine | Neo Screwdriver, Manual

iGO screws and iGO screwdriver

iGO | iGO Abutment Screw SP | iGO Abutment Screw NP | iGO Laboratory Screw SP | iGO Laboratory Screw NP | iGO Screwdriver, Machine

Note: iGO screws and Neo screws are visually differentiated by conically shaped and partially coated screw head.

Note: Abutment and laboratory screws are visually differentiated by coating and by number of threads.

Note: Identification of Neo Abutment screw vs Provisional Screw and Laboratory screw.

Neo Abutment Screw | Neo Provisional Screw | Neo Laboratory Screw (with larger tap)

3.2 Impression Techniques

Neoss offers a range of solutions for accurate and fast impression taking on both implant and abutment level using intraoral scanning or conventional impression techniques.

3.2.1 Digital impressions

Neoss Scan Bodies are available for all Neoss implants and Neoss Access abutments. They are compatible with most available scanners and planning and design software including 3shape, Exocad and Dental Wings. For more information please refer to separate instructions for use (DEV-01927_1).

In addition, Neoss offers the ScanPeg which is a scan body momentarily fitted in the screw access hole of the Neoss Esthetic Healing Abutment. The combination of these two components is used to take a digital impression without removing the healing abutment from the implant. For more information please refer to section 4.4.

3.2.2 Conventional impressions

Implant level impressions may be used to accurately record implant positions easily using open or closed tray techniques for the Neoss System. Exception is the Access Abutment which has it's own specific copings. Impressions of Titanium Prepable Abutments can be taken using conventional crown and bridge method.

The purpose of an implant level impression is to accurately transfer to a laboratory model the position of the implant in relation to natural teeth or other implants as well as the soft tissue contours.

An Implant Level impression may be made at different stages during treatment and is dependant on operator preferences:

- At time of initial surgery – for one stage techniques, or to enable the delivery of a provisional crown at second stage surgery
- At second stage surgery
- Following soft tissue healing after a second stage surgical procedure

The Neoss System offers one universal Implant Level Impression Coping for both 'Open' and 'Closed' Tray impression techniques as detailed below and one Impression Coping for 'Open Tray' impression only.

The universal impression coping is available in three different lengths – 8 mm, 11 mm and 18 mm.

The universal Impression Coping utilizes separate items depending on impression technique and is packaged with the implant replica.

Impression coping – which engages the implant has both horizontal and vertical grooves for definite retention in the impression material.

Screw – which secures the impression coping to the implant during impression taking (use Neo screwdriver in conjunction with manual handle).

Plastic extension tube – which may be trimmed to length and enables easy access to the head of the screw when using the 'Open Tray' technique.

Note: The impression copings are not interchangeable for reasons of accuracy. Hence use the same impression coping in the same impression cavity.

Red Plastic Cap – which is used for closed tray impressions only.

Impression Coping Open Tray.

Neoss Implant Level Impression Techniques

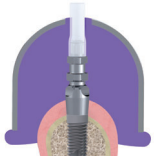
Open Tray

In an open tray technique the impression coping is 'picked up' in the impression material. Only three of the four components of the universal Impression Coping Assembly are used, the Red and White Plastic Caps are NOT used.

Clinical Procedure – Open Tray

1. Use the universal Impression Coping as supplied.
   Note: The Neoss Impression coping is 'self-seating'. This means that the screw will not engage the implant if the coping is not correctly seated. However a radiograph is recommended if there is any uncertainty or risk of soft tissue entrapment.
2. Expose the head of the implant – e.g. remove the cover screw or healing/provisional abutment and ensure that the top of the implant is clear of any soft or hard tissue.
3. Place desired length impression coping (8, 11 or 18 mm) (11 mm for Ø3.25 mm implant) Implant Level impression coping onto the implant and tighten the screw – hand tightening is sufficient, use the Neo screwdriver and manual handle.

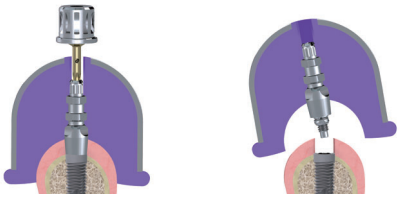
4. Try-in the modified impression tray (a window has been previously cut in the area of the implant) and ensure that the tray is clear of the impression coping and the plastic tube extends beyond the impression tray. The plastic tube may be reduced or removed prior to taking the impression. Place some wax over the window.
5. Using a medium to heavy body impression material, inject around the impression coping and fill the impression tray.



6. Seat the impression tray into the patient and ensure the plastic tube/s is clearly visible.

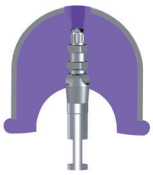
7. After the impression material has set, grasp the plastic sleeve with tweezers and remove.
8. Using the Neo screwdriver ensure that the screw has been completely undone/disengaged from the coping and remove the impression.

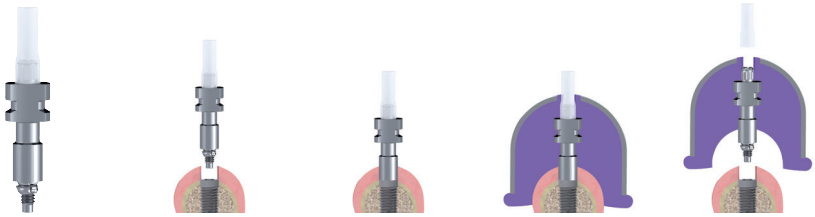
   Note: Upon removal of the impression the implants are covered by replacing the cover screw or healing/provisional abutment.



9. Using the Neo screwdriver attach the implant replica to the impression coping. Whilst supporting the screw with the screwdriver, ensure correct seating and hand tighten – DO NOT OVER TIGHTEN (10 Ncm maximum).

   Note: The Impression Coping Open Tray utilizes same procedure as above.





Laboratory Procedure – Open Tray

A. Ensure that the implant replica is correctly seated on to the impression coping.
B. Pour model in the usual manner and allow to set.
C. Undo the screw and remove impression from the model.
D. Proceed to construct the prosthesis.

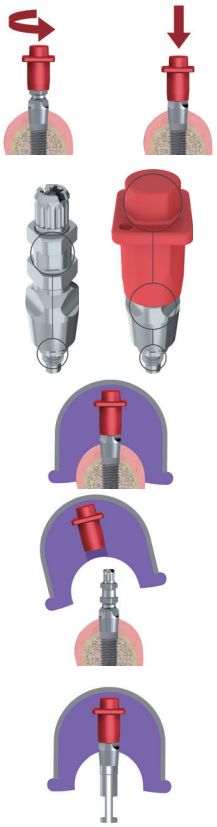
   Tip: Soft tissue material may be applied around the impression coping before the model is poured. Another option is to construct the soft tissue model on the master model by injecting soft tissue material into a preprepared 'putty' key which has been reseated onto the prepared model.

Neoss Implant Level Impression Techniques

Closed Tray

In a closed tray technique the impression coping remains in the patient's mouth when the impression is removed. Once the impression coping has been removed and the replica attached it is then re-seated into the impression. The Red Plastic Cap is utilized over the impression coping once it has been correctly seated into the patient's mouth. The plastic extension tube is NOT used.

Note: This technique may be contraindicated in cases where implant angulation is severe.



Clinical Procedure – Closed Tray

1. Use the impression coping as supplied – however remove the plastic extension tube.

   Note: The Neoss impression coping is 'self-seating'. This means that the screw will not engage the implant if the coping is not correctly seated. However a radiograph is recommended if there is any uncertainty or risk of soft tissue entrapment.

2. Expose the implant – e.g. remove the cover screw or healing/ provisional abutment and ensure that the top of the implant is clear of any soft or hard tissue.

3. Place the desired length impression coping (8, 11 or 18 mm) (11 mm for Ø3.25 mm implant) Implant Level impression coping onto the implant and tighten the screw with the Neo screwdriver and manual handle.
   Position the Red Plastic Cap on the impression coping and firmly push until seated.

   Note: The upper part of the Impression Coping has a direction indicator located between the two flat surfaces that aligns with one of the engaging lugs for optimal orientation. The direction indicator is ideally positioned facially for proper seating of the red Impression Coping Cap.

   Note: Align the flat side of the red Impression Coping Cap with the direction indicator on the Impression Coping to allow for proper orientation of the Impression Coping Cap during seating.

4. Using a medium to heavy body impression material, inject around the impression coping and fill the impression tray.
5. Seat the impression tray into the patient.
6. When the impression material has set, remove the impression (the Red Plastic Impression Cap is 'picked up' in the impression).
7. Using the Neo screwdriver unscrew and remove the Implant Level impression coping from the patient.
8. The implant replica (supplied with the impression coping) is now screwed into the impression coping.
9. Reposition the impression coping with replica attached back into the corresponding location in the Red Plastic Cap in the impression (use the two flat sides of the impression coping for alignment into the Red Plastic Cap).
   The impression coping needs to be properly oriented in the Red Plastic Cap, meaning that the coping will slide without resistance almost completely down into the cap before a final push seats the coping.

Laboratory Procedure – Closed Tray

A. Ensure that the implant replica is correctly seated on to the impression coping which has been repositioned accurately into the impression.

B. Pour model in the usual manner and allow to set.

C. Remove impression from the model, undo screw and remove impression coping.

D. Proceed to construct the prosthesis.

Tip: Soft tissue material may be applied around the impression coping before the model is poured. Another option is to construct the soft tissue model on the master model by injecting soft tissue material into a preprepared 'putty' key which has been reseated onto the prepared model.

3.3 NeoBase® and TiBase Abutments – Digital

NeoBase® introduction

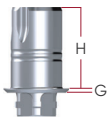
The NeoBase® abutment provides metal support for ceramic restorations whereby the abutment is cemented into the restoration preferably before clinical placement. They are available in Mono and Multi versions for all Neoss implants as well as for both straight and angled screw channels. The NeoBases are a key component of the In-Lab workflow for customized abutments and bridges for ceramic milling of predominately zirconia material.

3.3.1 NeoBase® Abutments

NeoBase® Abutment SSC

NeoBase® abutment SSC for Straight Screw Channels is delivered with the Neo abutment and Neo laboratory screws and are used with Neo screwdriver.

Components and materials

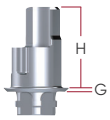
Description	Material	Implant Platform	Screw	Tightening torque	
NeoBase® Mono SSC G0.3 mm – H3.6 mm NeoBase® Mono SSC G1.5 mm – H3.6 mm NeoBase® Mono SSC G0.3 mm – H5.6 mm NeoBase® Mono SSC G1.5 mm – H5.6 mm NeoBase® Multi SSC G0.3 mm – H3.6 mm	Titanium grade 5	SP (Ø3.5–6.5 mm)	 Neo	32 Ncm	
NeoBase® Mono SSC G0.3 mm – H3.6 mm, NP NeoBase® Mono SSC G0.3 mm – H5.6 mm, NP NeoBase® Multi SSC G0.3 mm – H3.6 mm, NP		NP (Ø3.25 mm)	 Neo	32 Ncm	

All components might not be available on all markets.

NeoBase® Abutment ASC

NeoBase® abutment ASC for Angulated Screw Channels ASC is delivered with the iGO abutment and iGO laboratory screws and are used with iGO screwdriver. NeoBase® ASC abutments offer the option to angulate the screw channel up to 25°.

Components and materials

Description	Material	Implant Platform	Screw	Tightening torque	
NeoBase® Mono ASC G0.3 mm – H3.6 mm NeoBase® Mono ASC G1.5 mm – H3.6 mm NeoBase® Mono ASC G0.3 mm – H5.6 mm NeoBase® Mono ASC G1.5 mm – H5.6 mm NeoBase® Multi ASC G0.3 mm – H3.6 mm	Titanium grade 5	SP (Ø3.5–6.5 mm)	 iGO	32 Ncm	
NeoBase® Mono ASC G0.3 mm – H3.6 mm, NP NeoBase® Mono ASC G0.3 mm – H5.6 mm, NP NeoBase® Multi ASC G0.3 mm – H3.6 mm, NP		NP (Ø3.25 mm)	 iGO	20 Ncm	

All components might not be available on all markets.

Clinical Procedure Visit 1

1. The healing abutment is removed in order to expose the implant.
2. A digital or conventional impression is recorded and sent to the laboratory where a physical or digital master model with implant replica is created.

Laboratory Procedure – Design

The design and construction of the abutment and prosthesis by the technician should incorporate appropriate retentive features for the prosthesis and should optimize the angulation between the implant fixtures and prosthesis such that an angulation correction of more than 30° to the implant axis should be avoided, since failure to do so can lead to excessive bending force and fatigue failure of the implant or abutment components.

Neoss provides design libraries for 3Shape and Exocad software which include NeoBase® abutments to enable creation of digital prosthetic design for Neoss with straight (SSC) or angulated (ASC) screw channels. A range of Neoss products supporting the digital process are incorporated into libraries such as Scan Bodies and Estethic Healing Abutment with ScanPeg for digital impressions and Model Analogs (PMA) for use with printed or milled models from external sources. Neoss Libraries together with the installation guidelines are available for download on https://www.neoss.com/cad-libraries.

Design the prosthetic restoration by using relevant design software and NeoBase® components in the Hybrid Abutment section. Final prosthetic restoration is designed and processed according to the material manufacturer's instructions for use.

The following versions included in the Neoss CAD Library are compatible with NeoBase® SSC and ASC abutments for Mono and Multi connection:

- 3shape: Neoss CAD Library 2.0.0 and higher
- Exocad: Neoss CAD Library 2.0.1 and higher

Exceeding specified safety limits of device can result in the mechanical failure of the construction, abutment or implant. The design limitation must not be exceeded. Observe the safety limits during the design work;

Min. wall thickness of the ceramic material	0.5 mm or higher (Please consult the specific material data)
Screw channel angulation	0 – 25° Screw channel angulation between 20° and 25° requires a larger screw channel than the pre-set dimension in the libraries and/or that the screw channel exits at 8 mm or lower in vertical height.
Maximum angulation of "chimney" portion	30°
Maximum coping height	18 mm
Minimum abutment height from the implant interface	4 mm
Maximum gingival height	4 mm

Exceeding specified safety limits of device can result in the mechanical failure of the construction, abutment or implant. The design limitation must not be exceeded. Observe the safety limits during the design work;

Laboratory procedure – processing the NeoBase® and the restoration

The NeoBase® shall not be reduced e.g. by grinding when digital design is applied.

Pretreatment such as blasting of the post prior the bonding can be done but only according to the specific bonding material used. The restoration is processed according to the material manufacturer's instructions. For protection of the NeoLoc® connection of the NeoBase® and easy handling, it is recommended that the NeoBase® is screwed into an implant replica or the protection replica.

Neoss recommend PANAVIA V5 as an adhesive (cement) to connect the NeoBase® and the ceramic structure extra-orally.

1. Prepare the bonding material according to the manufacturer's instructions and apply it to the NeoBase®.
2. Place the ceramic structure over the NeoBase®, align non-rotational planes of the NeoBase® and the internal preparation of the ceramic structure before pushing the parts together to achieve a firm seating.
3. Immediately remove any excess cement externally and internally.
4. Remove residue with a rubber polisher after hardening.

   Note: In cases of angulated screw channel, the NeoBase® Multi ASC and milled structures also have non-rotational features in order to align the NeoBase® with the angulated screw channel.

   Note: The fabricator (dental technician) of the NeoBase® and the ceramic structure must inform the dentist of the need to sterilize the abutment before inserting it in the patient's mouth.

Clinical Procedure Visit 2 – Fastening a Custom Made Construction

1. The custom abutment/framework is screwed into the implant using the appropriate abutment screw (Neo for NeoBase SSC and iGO for NeoBase ASC).
2. Once the fit has been verified it is tightened to the recommended torque.
3. If a crown was constructed as a separate unit it is then cemented onto the abutment in the desired manner.

   Note: When cementing a crown onto an abutment the screw access hole should be blocked out with an appropriate material (e.g. gutta-percha) prior to cementation of the crown. When screw retaining a crown direct to the implant the screw access hole should be filled with a small amount of removable material then overfilled with a permanent material (e.g. composite resin).
4. The occlusion and retention are checked and verified.

3.3.2 Neoss TiBase Abutments and ScanPost

TiBase introduction

The TiBase abutments provides metal support for ceramic restorations whereby the abutment is cemented into the restoration preferably before clinical placement. The Neoss TiBase abutments and ScanPost are designed to be compatible with the TiBase solution and the inLab designs SW 4.x software within Sirona Dental CAD/CAM-System provided by Sirona GmbH.

Neoss TiBase Abutment

TiBases are compatible with the inCoris ZI meso blocks from Sirona Dental System. All digitally designed copings and/or crowns for use with the TiBases are to be designed and milled using the Sirona Dental CAD/CAM-System.

The TiBase SP are available in two sizes, N and W, to account for different emergence profiles, while the TiBase NP is available in one dimension. TiBases are delivered with a Neo abutment screw and a laboratory screw. All articles are delivered non-sterile and intended for single use only. TiBases are used in combination with taking digital impressions to record implant position in relation to topographical characteristics of neighboring teeth and soft tissue.

Individually manufactured final or provisional restorations can be cemented onto the TiBase, before being fastened to the Neoss implants with the abutment screw in the mouth. Scanbodies provided by Sirona Dental Systems GmbH are compatible with the TiBase for design in CEREC SW/inLab SW software.

Neoss TiBase ScanPost

The ScanPost is used only for digital acquisition of the implant position in relation to the remaining teeth and soft tissue using a scanbody mounted on the ScanPost. ScanPosts can be used intraorally and extra-orally.

There are two ScanPosts, SP and NP. The ScanPost and fixing screw are intended to be sterilized following the guidelines in 14077.

Note: The ScanPost must not be used for the final implant treatment.

Digital scanning of the implant position with ScanPost is possible only in connection with one of three software products, i.e. CEREC SW 4.2, CEREC Connect SW 4.2 or inLab SW 4.2 (or higher).

Components and materials

Art. No.	Description	Material	Scan body	Implant Diameter	Compatible with grinding blocks
31329	Neoss TiBase N (NB B 3.4 L)	Titanium grade 5	L	Ø3.5–6.0 mm	Sirona: inCoris ZI meso, size L Ivoclar Vivadent: IPS e.max CAD, size L
31330	Neoss TiBase W (NB B 4.1 L)	Titanium grade 5	L	Ø3.5–6.0 mm	
31331	Neoss ScanPost L (TiBase)	Stainless steel	L	Ø3.5–6.0 mm	–
31345	Neoss TiBase Ø3.25 (FX 3.4 S)	Titanium grade 5	S	Ø3.25 mm	Sirona: inCoris ZI meso, size S Ivoclar Vivadent: IPS e.max CAD, size S
31346	Neoss ScanPost S (Ø3.25 TiBase)	Stainless steel	S	Ø3.25 mm	–

All components might not be available on all markets.

31329 31330 31331 31345 31346

Clinical Procedure Visit 1

1. The healing abutment is removed in order to expose the implant.
2. A conventional impression is recorded and sent to the laboratory where a master model with implant replica is created, or an intraoral digital impression using the TiBase ScanPost as below can be taken.

Laboratory Procedure – Scanning and design

Scanning

1. Attach the TiBase or ScanPost on the replica in the master model and tighten it using the supplied laboratory screw and Neoss screw driver. Assure proper seating to the replica.
2. Choose scanbody:

TiBase	ScanPost	CEREC Omnicam	CEREC Bluecam
31329, 31330	31331	L 64 31 329 (gray)	L 64 31 303 (white)
31345	31346	S 64 31 311 (gray)	S 64 31 295 (white)

3. Align the guide groove inside the selected scanbody and mount it onto the TiBase or ScanPost and confirm that the seating is flush with no gaps, fig 1. The scanbody is scannable without powder or scan spray.
4. Make sure that the correct scanbody type (see table above) and TiBase was selected in the software (NB B 3.4 L for Neoss TiBase N, NB B 4.1 L for Neoss TiBase W and TiBase FX 3.4S for Neoss TiBase NP). The same for the ScanPost.
5. Take the scan with inEos X5, CEREC 3, Bluecam, Omnicam or Primescan. Make sure that the upper side of the scanbody was captured well and completely. The sides of the scanbody do not have to be scanned.
6. Dispose the scanbody after removing it from the model.
7. Use the inLab SW to design the individual shape of the restoration and mill the shape from an inCoris ZI meso block (see inLab User Manual). Be sure to observe the information on design, post processing and sintering of zirconia provided in the Operating Instructions for inCoris ZI meso blocks or other compatible blocks.

Design

Exceeding specified safety limits of device results in the construction of a misbranded device which may lead to premature abutment fracture. The design limitation must not be exceeded.

Observe the safety limits during the design work;

Minimum wall thickness of the InCoris Zi meso material	0.5mm
Maximum angle	20°
Minimum abutment height from the implant interface	4mm
Maximum gingival height	4mm

Procedure hints – Processing the TiBase

Nor diameter nor length of the TiBase shall be reduced e.g. by grinding, and the contact surfaces of the TiBase to the implant should not be sand-blasted or otherwise processed. Only the surfaces of the TiBase intended for cementation with a reconstruction must be sandblasted (50 µm aluminum oxide, max. 2.0 bar) and subsequently cleaned (with alcohol or steam). For protection of the connection of the TiBase and easy handling, it is recommended that the TiBase is screwed into an implant replica or the adjustment handle. Use “PANAVIA™ F 2.0” (www.kuraray-dental.de) as an adhesive (cement) extraorally to connect the TiBase and the sintered inCoris ZI mesostructure.

1. Protect the head of the abutment screw with wax or similar for retrievability.
2. Mix the cement according to the manufacturer's instructions and apply it to the TiBase.
3. Place the sintered inCoris ZI restoration over the TiBase, confirm that it catches into the rotation stop before pushing it as far as it will go to achieve a firm seating on the TiBase to create the custom made abutment.
4. Immediately remove any excess cement.
5. Preferably apply the Airblocker ("Oxyguard") to the seam where the ceramic and titanium surfaces meet and to the screw channel for final hardening.
6. Remove residue with a rubber polisher after hardening.

Clinical Procedure Visit 2 – Fastening a Custom Made Construction

1. The custom abutment is screwed into the implant using the appropriate Neo abutment screw.
2. Once the fit has been verified it is tightened to the recommended torque.
3. If a crown was constructed as a separate unit it is then cemented onto the abutment in the desired manner.

Note: When cementing a crown onto an abutment the screw access hole should be blocked out with an appropriate material (e.g. gutta-percha) prior to cementation of the crown. When screw retaining a crown direct to the implant the screw access hole should be filled with a small amount of removable material then overfilled with a permanent material (e.g. composite resin).

4. The occlusion and retention are checked and verified.

3.4 NeoLink® – Gold/Titanium

Introduction

The Neoss Implant System abutments have been designed to facilitate the fabrication of custom designed screw retained abutments or frameworks having a precision machined fit which are utilized in the production of cement or screw retained implant prosthesis.

Abutments and frameworks may be produced in zirconia or other options such as gold, titanium or cobalt chrome while maintaining the accuracy and tolerances obtained from machined components. One solution to achieve this is to use the NeoLink®, which is a precision machined component made of gold, c.p. titanium provides the interface between implant and abutment framework.

Once the accuracy of the Neoss replica has been checked on the master model, the choice is made to create a crown (NeoLink® Mono) or bridge (NeoLink® Multi) in gold or titanium.

There are a number of options:

1. Invest and cast directly onto the gold NeoLink® with a suitable alloy.
2. CAD/CAM abutments/frameworks cemented or bonded to the NeoLink/s® titanium.

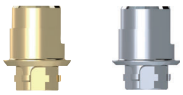
   Note: Bonding of CAD/CAM designed copings or frameworks may be done 'prior to' or 'after' application of the porcelain/restorative material. This depends on the materials and techniques utilized.
3. Remove the NeoLink® from the waxed coping/framework and cast the anatomical coping/framework (in a desired alloy) without the NeoLink®. After proper finishing of the cast coping/framework bond to the NeoLink/s®.

   Note: The margin on the titanium abutments is too thin to be used in conjunction with welding a cast coping/framework to the NeoLink®.

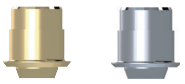
Three types of restorations can be produced; a restoration cemented on to custom abutments, a framework retained directly on the head of the implant by abutment screws, or an angulated screw retained solution using Access abutment.

Because the cast abutment or framework can be bonded to the precision machined NeoLink® a true passive fit can be achieved. Inaccuracies caused in casting or porcelain firing can therefore be eliminated. Generally connection by cementation or bonding is carried out in the laboratory after the application of the restorative material. All metals, alloys and ceramics can be bonded to NeoLinks®, including cobalt chromium for example.

Note: It is possible to cast gold abutments or frameworks in the same manner as titanium in that it may be cast separate to the NeoLink®. Therefore the possibility exists to have a prosthesis completed in a gold alloy with conventional PFM techniques, then bonded or cemented to a titanium NeoLink® – this results in a titanium precision machined interface between the implant and the abutment.



Gold and Ti NeoLink® Mono



Gold and Ti NeoLink® Multi

3.4.1 Single Unit Construction

Individual crowns may be constructed in one of two ways. The selected option will depend on clinical preferences, angulation of the implant and aesthetic demands:

- As an integral screw retained crown/abutment attached directly to the implant (use NeoLink® Mono).
- As a two part restoration with a custom screw retained abutment and a cement or lingually screw retained crown (use NeoLink® Mono).

Note: A NeoLink® is supplied with two straight copings, with and without margin.

Note: Minimum abutment height from the implant interface is 4 mm.

NeoLink® Mono and NeoLink® Plastic Copings

Individual crowns may be constructed utilizing the NeoLink® concept.

Note: Plastic copings can be used with a NeoLink® as try-in abutments to facilitate abutment selection.

Plastic copings are for single use.

There is an index between the NeoLink® and the coping in order to achieve a specific orientation in relation to the implant's rotational position.

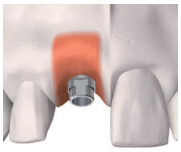
Clinical Procedure Visit 1

1. An implant level impression is recorded and sent to the laboratory.

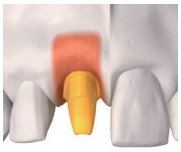
Laboratory Procedure

A. Ensure that the implant replica is correctly seated on to the impression coping and pour the model in the usual manner. Once set, remove the impression tray from the working model.

Tip: Soft tissue material may be applied around the impression coping before the model is poured. Another option is to construct the soft tissue model on the master model by injecting soft tissue material into a prepared 'putty' key which has been reseated onto the prepared model.

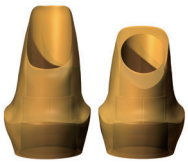


B. Attach the NeoLink® to the implant replica on the working model with a laboratory screw so the indexing feature is oriented buccally.

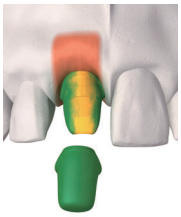


C. Assess the location, proximity of adjacent teeth and occlusion. The preformed coping is mounted on the NeoLink®, rotated in to the preferred position, and then pushed firmly onto the NeoLink® until it is properly seated (no gap).

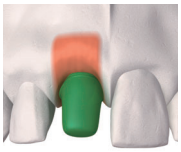
Note: There is an indexing between the coping and the Mono NeoLinks® (the plane on the NeoLink® matches a plane in the coping) in order to achieve a specific orientation in relation to the implant's rotational position. However, the copings can still be rotated freely for maximum flexibility by applying additional force.



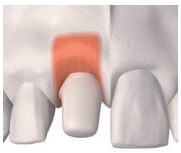
D. The plastic coping can be modified to provide the optimal emergence profile, contour and occlusal form. This is carried out by selective grinding with a bur (tungsten carbide or diamond), or by addition using an appropriate dental wax or self polymerizing pattern resin.



- Wax design for a separate screw retained abutment with a cement or lingual screw retained crown.

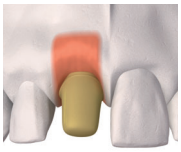


- Wax design for screw retained crown direct to implant.

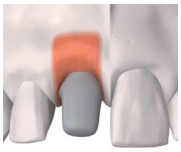


E. The waxed abutment is then scanned and milled, or invested and cast in accordance:

- CAD/CAM – scanning and milling – described in section 3.4.3.



- Direct investing – casting – described in section 3.4.4.

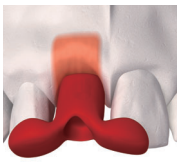


- Indirect investing – bonding – described in section 3.4.5.

F. After milling or casting the abutment is trimmed and polished in the usual manner and final construction of the crown is completed.

G. The finished crown is returned to the dentist for insertion.

Tip: The clinical insertion of abutments can be simplified by the fabrication of a simple transfer jig from self curing acrylic or pattern resin. This is designed to fit over the abutment and span the adjacent teeth to provide correct orientation.



The NeoLink® is of very high precision – therefore margins should be finished and polished with extreme care. An implant replica should be screwed on the abutment to protect the margins.

Clinical Procedure Visit 2

1. The custom abutment is screwed into the implant using the appropriate abutment screw.
2. Once the fit has been verified it is tightened to the manufacturer's recommended torque. For the Neo Abutment screw the recommended torque is 32 Ncm.
3. If the crown was constructed as a separate unit it is then cemented onto the abutment in the desired manner.

   Note: When cementing or lingually screw retaining a crown onto an abutment the screw access hole should be blocked out with an appropriate material (e.g. gutta-percha) prior to cementation of the crown. When screw retaining a crown direct to the implant the screw access hole should be filled with a small amount of removable material then overfilled with a permanent material (e.g. composite resin).

4. The occlusion and retention are checked and verified.

3.4.2 Multiple Unit Construction

Multiple Unit implant supported bridges may be constructed in one of three ways. The selected option will depend on clinical preferences, angulation of the implant/s and aesthetic demands:

- As an integral screw retained one piece bridge attached directly to the implants (use NeoLink® Multi).
- As a cement retained or lingually screw retained bridge over 'individual' custom abutments which have been screwed direct to the implants (use NeoLink® Mono).
- As a screw retained bridge attached to implants via angulated or straight Access abutments, described in section 3.12.

Note: A NeoLink® is supplied with two straight copings, with and without margin.

Note: Minimum abutment height from the implant interface is 4 mm.

Clinical Procedure Visit 1

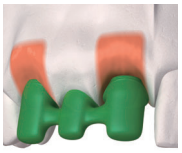
1. An implant level impression is recorded and sent to the laboratory.

Laboratory Procedure

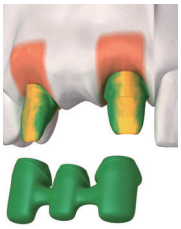
A multiple unit prosthesis may be constructed in 2 ways:

Either:

1. Screw Retained direct to the implant:
   The bridge or framework is constructed as one piece in either gold or titanium and screwed direct to the implant.
   NeoLink® Multi is used.



Or:



2. Cemented or Lingual Screw Retained to Abutment or Framework: The construction can be for a cemented or lingually screw retained prosthesis onto screw retained abutment/s or framework.
   NeoLink® Mono is used.

   IMPORTANT NOTE: The NeoLink® Multi is used when either the bridge or bridge framework will be connected direct to the implants. This abutment will allow for a divergence or convergence of up to 40° between implants for Neoss System.

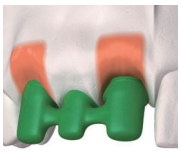
A. Ensure the implant replicas are correctly seated on to the impression copings and pour the model in the usual manner. Once set remove the impression tray from the working model.

   Tip: Soft tissue material may be applied around the impression coping before the model is poured. Another option is to construct the soft tissue model on the master model by injecting soft tissue material into a prepared 'putty' key which has been reseated onto the prepared model.

B. Attach the NeoLinks® to the implant replicas on the working model with laboratory screws.

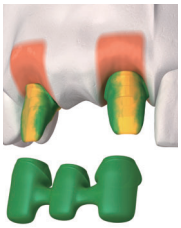
C. Assess the location, proximity of adjacent teeth and occlusion. The preformed coping is mounted on the NeoLink®, rotated in to the preferred position, and then pushed firmly onto the NeoLink® until it is properly seated (no gap).

   Note: There is an indexing between the coping and the Mono NeoLinks® (the plane on the NeoLink® matches a plane in the coping) in order to achieve a specific orientation in relation to the implant's rotational position. However, the copings can still be rotated freely for maximum flexibility by applying additional force.

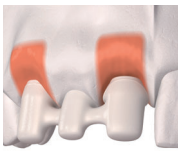


D. The plastic copings can be modified to provide the optimal emergence profile, contour and occlusal form. This is accomplished by selective grinding with a bur (tungsten carbide or diamond) or by addition using an appropriate dental wax or self polymerizing pattern resin.

   • Wax design for screw retained bridge direct to implant.



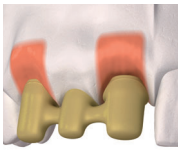
   • Wax design for a separate screw retained abutment with a cement or lingual screw retained bridge.



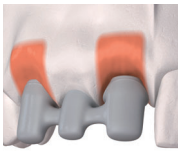
E. The waxed abutment is then scanned and milled or waxed and cast following either:

   • CAD/CAM – scanning – described in section 3.4.3.

- Direct investing – casting – described in section 3.4.4.



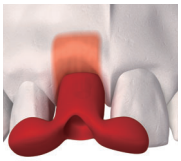
- Indirect investing – bonding – described in section 3.4.5.



F. After milling or casting the framework is trimmed and polished in the usual manner and final construction of the bridge is completed.

   Note: If the design of the prosthesis is for a multiple unit framework then it may be returned to the dentist prior to completion for a 'metal try-in' – if desired.

   Tip: The clinical insertion of abutments can be simplified by the fabrication of a simple transfer jig made from self curing acrylic or pattern resin. The jig should be designed to fit over the abutments and/or span the adjacent teeth to provide correct positioning. A jig is not required when the abutments are cast into a multiple unit framework.



   The NeoLink® is of very high precision – therefore margins should be finished and polished with extreme care. An implant analog should be screwed on the abutment to protect the margins.

Clinical Procedure Visit 2

1. The abutments or framework are screwed into the patient's mouth using the abutment screws.
2. Once the fit has been verified it is tightened to the manufacturer's recommended torque. For the Neo abutment screw the recommended torque is 32 Ncm.
3. If the bridge is constructed as a separate unit it is then cemented or lingually screwed onto the abutments/framework in the desired manner.

   Note: When cementing or lingually screw retaining a bridge onto abutments the screw access holes should be blocked out with an appropriate material (e.g. gutta-percha) prior to cementation of the bridge. When screw retaining a bridge direct to the implants the screw access holes should be filled with a small amount of removable material then overfilled with a permanent material (e.g. composite resin).
4. The occlusion and retention are checked and verified.

3.4.3 Double Scan – Milled Constructions

As part of Neoss Individual Prosthetics, Neoss offers milled abutments, frameworks including bars in different materials on selected markets, for further information contact your local Neoss representative.

Laboratory Procedure – Double Scan

For CAD/CAM systems providing double scan features we recommend the following procedure to ensure that the screw access hole is correctly read and scanned by the scanner, and to ensure that it is pre-prepared into the abutment/frameworks:

1. After final waxing/preparation of the abutment/framework on the model, insert an extension from the NeoLink® to the outer surface of the screw access hole in the pre-formed plastic coping. Round plastic tube/rod of 2.5 mm diameter may be used (alternatively use the impression coping screw).

2. This extension tube is trimmed 'level to' (or minimally above) the screw access hole in the preformed plastic coping.
3. Spray with scanning powder/paint if recommended by the CAD/CAM provider.
4. Remove waxed abutment from the NeoLink® – being careful to leave the extension tube in correct position.
5. Spray exposed extension tube and NeoLink® with scanning powder/paint if recommended.
6. Scan the NeoLink® with the extension tube as the FIRST scan in the scanner.
7. Place the waxed abutment onto the NeoLink® and do the SECOND scan – following the specific CAD/CAM manufacturer's manual for double scanning techniques. This process will create a thin shell of material (ceramic, metal) over the screw access hole, which is easily removed prior to sintering, or after sintering by careful grinding for a ceramic restoration.
8. When a milled and sintered coping has been created it is then cemented on the NeoLink® by:
   A. Sandblasting the NeoLink® with aluminium oxide of 50–100 microns – do not sandblast fitting surface of NeoLink®, use replica to protect the fitting surface.
   B. Apply a resin bonded cement to the NeoLink® according to manufacturer's instructions.
   C. Bonding the milled coping onto the NeoLink® with a preferred cement – according to the cement manufacturer's recommendations. An opaque cement is optimal. Please refer to the cement recommended by the CAD/CAM provider.

Clinical Procedure – Fastening a Custom Made Construction

1. The custom abutment/framework is screwed into the implant using the appropriate abutment screw.
2. Once the fit has been verified it is tightened to the manufacturer's recommended torque. For the Neo abutment screw the recommended torque is 32 Ncm.
3. If a crown was constructed as a separate unit it is then cemented onto the abutment in the desired manner.

   Note: When cementing or lingually screw retaining a crown onto an abutment the screw access hole should be blocked out with an appropriate material (e.g. gutta-percha) prior to cementation of the crown. When screw retaining a crown direct to the implant the screw access hole should be filled with a small amount of removable material then overfilled with a permanent material (e.g. composite resin).
4. The occlusion and retention are checked and verified.

3.4.4 Direct Investing – Casting

The prepared coping attached to the NeoLink® is removed intact from the model by first removing the laboratory screw.

The NeoLink® 'remains' in situ.

Note: Gold NeoLinks® are fabricated from a non-oxidizing gold alloy suitable for direct casting.

The abutment/framework is then invested using an appropriate investment material and cast.

Tip: As the gold NeoLink® is made of non-oxidizing alloy, ensure the design allows for 0.2 mm of 'new' alloy at the interface to avoid porcelain cracks.

Hint: During investing do not use solvent based wetting agents that can damage the surface of the plastic copings. It is also recommended that wetting agents are not applied to the gold NeoLink®.

The specific manufacturer's guidelines in relation to investing, burnout times, temperatures, melting, and casting should be adhered too. Following casting and cooling the investment is gently removed with an ultrasonic cleaner, water jet or acid pickling NOT sandblasting.

3.4.5 Indirect Investing – Framework Bonding

It is necessary to bond directly to the titanium NeoLink®, as it is not possible to cast a number of alloys and metals, including c.p. titanium.

The completed custom abutment or framework is removed from the model with the NeoLinks® in situ. The NeoLinks® are carefully removed from the prepared framework.

It is then invested in the appropriate investment and cast in conventional dental laboratory techniques for casting titanium or other conventional non-precious alloys.

Tip: During investing do not use solvent based wetting agents that can damage the surface of the plastic copings.

The specific manufacturer's guidelines in relation to investing, burnout times, temperatures, melting and casting should be adhered to. When the abutment or framework has been cast the NeoLinks® are relocated in the framework and reseated on the master model. Please refer to note below for details. There are a number of cements and bonding materials suitable for this technique. The manufacturer's recommendations should be adhered to.

Note: In order for the NeoLink® to be easily reseated into the cast abutment/framework some adjustments may be required:

Note: BONDING – to maintain maximum surface area it is recommended that careful/selective grinding be done inside the cast abutment/framework. BEFORE cementing or bonding, the NeoLink® must be blasted with 50–150 micron particles in order for the cast abutment/framework to achieve appropriate retention to the NeoLink®. IT IS IMPORTANT TO protect the margins and the seating surface of the NeoLink® by attaching an implant replica to the abutment BEFORE BLASTING.

Note: Laser welding of the Ti NeoLinks® is not recommended since the low collar height, 0.3 mm, might impair the welding result.

Tip: To reduce the possibility of the framework discoloring, do not 'steam clean' the framework for at least 20 mins after polishing.

The NeoLink® is of very high precision – therefore margins should be finished and polished with extreme care. An implant replica should be screwed on the abutment to protect the margins.

3.5 Multi-Unit Abutment

Multi-Unit Abutments,
Straight and Angulated

Indications

- Multiple unit screw-retained restorations with straight or angulated screw access
- Fully or partially edentulous cases
- Retrievable restorations

Material

- Abutment – Titanium
- Screw – Titanium

Assortment

- Straight: 1, 2, 3 and 4 mm
- Angulated: 10° 2, 3 and 4 mm, 17° 2.5, 3.5 and 4.5 mm and 30° 3, 4 and 5 mm

General

The Multi-Unit Abutment design has wide-ranging applications for the Neoss system by enabling screw-retained straight and angulated restorations to be produced. Angulation may be as little as 10° with 4.5 mm of interocclusal clearance.

The Multi-Unit Abutment provides an axial straight or angulated extension to the implant. This facilitates working to, and restoration on, abutment level rather than directly on the implant. The angulated 10°, 17° and 30° Multi-Unit abutments optimize the screw access channel for implants with unfavourable angulations.

Restorations based on NeoBases or burnout abutments can be made in ceramic, cobalt chrome or gold.

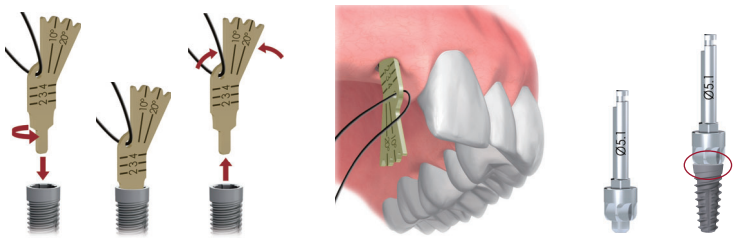
An abutment level impression is the procedure of choice to transfer the abutment location to the model.

Multi-Unit Abutments are delivered sterile.

Multi-Unit Abutment Placement

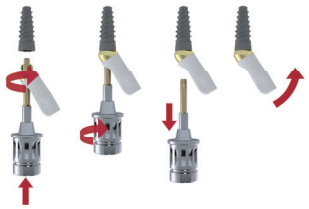
Clinical Procedure

1. Select appropriate Multi-Unit Abutment using Neoss Angulation Gauge SP.



2. It is recommended that a Bone Profiler be used to remove any bone above the restorative platform of the Neoss ProActive implant to ensure correct seating of the Multi-Unit abutment.
3. *Multi-Unit Abutment, Angulated:* The selected angulated abutment engaged with the Neo screwdriver is positioned in the implant and oriented in the correct position (six possible positions) using the pre-mounted abutment holder.
   For correct orientation it is recommended the Neoss ProActive implant is placed so that one of the internal grooves is aligned Mesio/Distally. A unique feature of the angled Multi-Unit abutment is that the abutment will 'hold' into the implant and not dislodge whilst the screw is being inserted.
   Multi-Unit Abutment, Straight: The appropriate straight abutment is placed on the implant and screwed into position.
4. Final tightening of the abutment screw to 32 Ncm is carried out using the ratchet and Neo screwdriver.
5. The disposable holder is removed from the abutment.

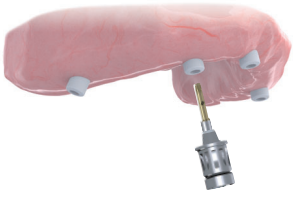
   Note: The Multi-Unit abutments is preferably mounted at implant surgery or at second stage surgery for optimal tissue healing. Placement in already healed tissue might require additional soft tissue surgery for adequate seating of the angulated abutments. A radiograph may be taken to confirm accurate seating of the abutment.



Positioning and tightening of abutment

Impression Procedure and Provisionalizing

1. Position the Multi-Unit Impression Coping onto the abutment and tighten the coping screw. The impression procedures, open or closed tray, are described in section "3.2 Impression Techniques". The impression is sent to the dental laboratory.
2. Place a Multi-Unit Healing Caps or a Temporary restoration, see sections "1.4 Clinical Treatment" and "3.7.2 Provisional Titanium Abutments". Please note instructions related to the implant level also correspond to Multi-Unit abutment level.



Placement of Healing Abutment

Laboratory Procedure

1. Multi-Unit Abutment Replicas are secured in the copings located in the impression.
2. Pour a model including a soft tissue profile if possible.
3. Produce the restoration using Multi-Unit NeoBase®as described in section "3.4.2 Multiple Unit Construction", by using a milled framework in titanium or ceramic as described in section "3.4.3 Double Scan – Milled Constructions". Alternatively, utilize dedicated Mult-Unit Scan Body for a digital impression and proceed with a digital workflow.

Placement of final restoration

Final Restoration Placement

1. Remove the Multi-Unit Healing Abutment or the temporary restoration from the abutment.
2. Connect the restoration to the abutment with prosthetic screws. Start with the central screw (if applicable) and tighten the remaining screws alternating between left and right sides.
3. Tighten the prosthetic screws to 20 Ncm using the ratchet and the Neo screwdriver.
4. Block out the screw access channel with gutta-percha. Use a suitable material such as light curing composite to fill in the screw access channel.

3.6 Access Abutment

Access Abutments, Straight and Angulated

Indications

- Multiple unit screw-retained restorations with straight or angulated screw access
- Fully or partially edentulous cases
- Retrievable restorations

Note: The use of angulated Access Abutments for a bridge restoration on two small diameter implants is not recommended for the posterior region. Access Abutments are not available for Ø3.25 mm implants.

Material

- Abutment – Titanium
- Screw – Titanium

Assortment

- Straight: 1.5, 3 and 4 mm (other heights available upon request)
- Angulated: 10° 2.6 and 4.6 mm, 20° 2.6 and 4.6 mm and 30° 2.9 and 4.9 mm

General

The Access Abutment design has wide-ranging applications for the Neoss system by enabling screw-retained straight and angulated restorations to be produced. Angulation may be as little as 10° with 4.5 mm of interocclusal clearance.

The Access Abutment provides an axial straight or angulated extension to the implant. This facilitates working to, and restoration on, abutment level rather than directly on the implant. The angulated 10°, 20° and 30° Access abutments optimize the screw access channel for implants with unfavourable angulations.

Restorations based on NeoLinks® can be incorporated into gold, ceramic or solid frameworks in titanium, ceramic or cobalt chrome.

Overdenture options are available by utilizing Access Ball and Equator abutments.

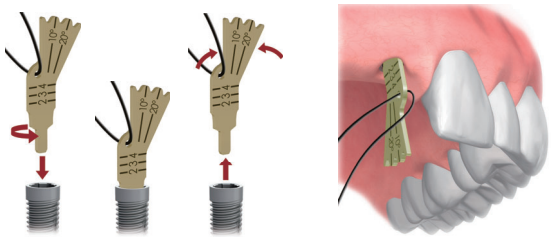
An abutment level impression is the procedure of choice to transfer the abutment location to the model.

Access Abutments are delivered sterile.

Access Abutment Placement

Clinical Procedure

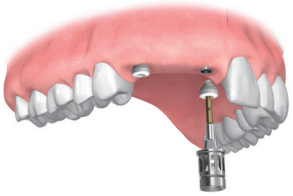
1. Select appropriate Access Abutment using Neoss Angulation Gauge SP.



2. *Access Abutment, Angulated:* The appropriate angulated abutment is placed on the implant and oriented in the correct position (six possible positions) using the pre-mounted abutment holder. Keep the pressure on the holder to avoid rotation of the abutment when tightening the screw. The Access Neo abutment screw is then tightened using the Neo screwdriver.
   Access Abutment, Straight: The appropriate straight abutment is placed on the implant and screwed into position using the Neo screwdriver.
3. Final tightening of the abutment screw to 32 Ncm is carried out using the ratchet and Neo screwdriver.
4. The disposable holder is removed from the abutment.

   Note: The angulated abutment is preferably mounted at implant surgery or at second stage surgery for optimal tissue healing. Placement in already healed tissue might require additional soft tissue surgery for adequate seating of the angulated abutment. A radiograph can be taken to confirm accurate seating of the abutment.

Positioning and tightening of abutment



Placement of Healing Abutment

Impression Procedure and Provisionalizing

1. Position the Access Impression Coping (lasermarked) onto the abutment and tighten the coping screw. The impression procedures, open or closed tray, are described in section "3.2 Impression Techniques". The impression is sent to the dental laboratory.
2. Place an Access Healing Abutment or a Temporary restoration, see sections "1.4 Clinical Treatment" and "3.7.2 Provisional Titanium Abutments". Please note instructions related to the implant level also correspond to Access abutment level.

Laboratory Procedure

1. Access Abutment Replicas are secured in the copings located in the impression.
2. Pour a model including a soft tissue profile if possible.
3. Produce the restoration either by casting using gold NeoLinks®, as described in section "3.4 NeoLink® – Gold/Titanium" and "3.4.2 Multiple Unit Construction", by using a milled framework in titanium or ceramic as described in section "3.4.3 Double Scan – Milled Constructions", or by Ball abutment or Equator abutment as described in section "3.12 Overdenture Solutions".

   Alternatively, utilize dedicated Access Scan Body for a digital impression and proceed with a digital workflow.

Placement of final restoration

Final Restoration Placement

1. Remove the Access Healing Abutment or the temporary restoration from the abutment.
2. Connect the restoration to the abutment with prosthetic screws. Start with the central screw (if applicable) and tighten the remaining screws alternating between left and right sides.
3. Tighten the prosthetic screws to 20 Ncm using the ratchet and the Neo screwdriver.
4. Block out the screw access channel with gutta-percha. Use a suitable material such as light curing composite to fill in the screw access channel.

3.7 Provisional Abutments

3.7.1 Esthetic Tissue Formers

The Esthetic Tissue Former may be used for cement or screw retained single tooth provisional restorations. The abutments may be placed directly into the patient's mouth and prepared intraorally or adjusted by the technician on a laboratory model. If the Esthetiline Solution is utilized, then the optimal result is achieved by choosing the same type of permanent restoration and same position as during healing.

The appropriate Esthetic Tissue Former is selected in relation to tooth position for the proposed implant. For improved tissue support, the abutment should be placed so that the margin is supra- or equigingival.

The "chimney" portion of the abutment and the margin height may be adjusted by use of a rotary instrument. In addition, the tissue facing axial contours of the abutment may be modified to achieve the desired shape. If axial modification is done, polishing with silicone points or similar methods is recommended.

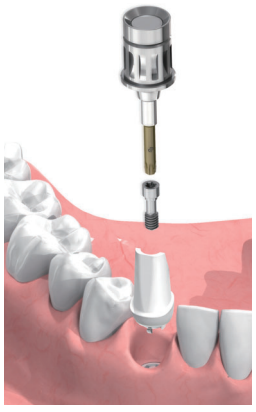
Note: The provisional restoration should be placed out of occlusion.

Note: The Esthetic Tissue Former may be adjusted to a minimum diameter of 5.0 mm and to a minimum height of 4.0 mm from the implant platform. The "chimney" portion may be shortened but not narrowed.

Note: For provisional bridge restorations Provisional Titanium Abutment Multi is recommended.

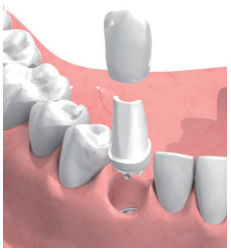
Screw retained

1. Cut mechanical retention grooves or slots into the Esthetic Tissue Former.
2. Construct a provisional crown in conventional manner. Ensure the screw access channel remains clear. Unscrew and remove the provisional abutment and contour margins/polish etc. as required.
3. Insert the completed provisional crown and tighten to 20 Ncm.

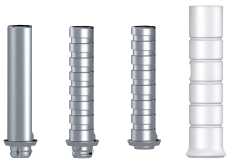


Cement retained

1. Insert the Esthetic Tissue Former and tighten to 20 Ncm.
   Note: no additional retention is required
2. Construct a provisional crown in conventional manner. Ensure the resin does not bond to the Esthetic Tissue Former by for example using a separating medium.
3. It is important to remove and replace the provisional crown at least once prior to final setting of the restorative material to avoid difficulty in removing the crown once the restorative material has set.
4. Contour margins/polish etc. as required.
5. Cement provisional crown onto Esthetic Tissue Former with preferred temporary cement. Care should be taken to ensure that all excess cement is completely removed.
   The provisionals are left in place for desired period, maximum 30 days.



3.7.2 Provisional Titanium Abutments



The Provisional Titanium Abutments are designed with a 0.7 mm collar and are available both for single unit (Mono) and multiple unit (Multi) situations. The Mono is available both with and without retention rings (screw retained and cement retained). All Provisional Titanium Abutments come with a plastic coping. The abutments may be prepared intraorally, extra-orally or adjusted by the technician on a laboratory model. Care should be taken when preparing titanium intraorally.

The component may also be used for as a waxing sleeve when constructing a crown/framework that will be scanned to produce CAD/CAM prosthesis or copy milled prosthesis.

Notes: When using the Titanium Provisional Abutment as a waxing sleeve it is recommended to use a self curing resin direct to the abutment.

Use the dedicated article Provisional Ti Abutment Mono Cement-retained for cemented cases.

Both ends of the plastic coping fit the abutment. One end is straight and the other has a small margin to adapt to the clinical situation. There is an indexing between the plastic coping and the Provisional Abutment (the plane on the Provisional Abutment matches a plane in the plastic coping) in order to achieve a specific orientation in relation to the implant's rotational position.

For protection and extension of the screw access hole use Laboratory Screw – Long.

The provisional restoration should be placed out of occlusion.

If the plastic coping is utilized, the provisionals can be left in place for desired period maximum 30 days.

Screw retained

Screw retained provisional crowns/bridges may be produced directly in the patient's mouth (chair-side) or in the in the dental laboratory.

Chair-side construction

A provisional crown or bridge may be produced at the chair-side using standard techniques.

In the majority of cases when constructing a screw retained provisional crown/bridge the restorative material is applied direct to the Provisional Abutment, but the plastic coping can be used and bonded as for cement retained solution.

1. For single unit construction use the Provisional Titanium Abutment Mono.
   For multiple unit screw retained direct to implant construction – use Provisional Titanium Abutment Multi.
2. Screw retain the Provisional Titanium Abutment directly to the implant with the appropriate screw – at this time hand tightening is sufficient and cut and adjust by selective grinding as required.

   Note: Adjustments to the abutment are made with high-speed grinding using either a tungsten or diamond bur with irrigation and high volume aspiration.

   Note: The screw-retained Provisional abutments grooves represents different heights. For digital design and milling or printing, each height is available in the Neoss 3Shape and Exocad libraries.

   Tip: It is sometimes easier to mark the abutment where it needs adjusting whilst in the mouth, then remove and adjust.

3. Construct a provisional crown/bridge in the conventional manner. The restorative material is applied direct to the abutment.
4. Unscrew and remove the provisional crown/bridge and contour margins/polish etc. as required.
5. Insert the completed provisional crown/bridge and tighten to 20 Ncm.

Laboratory construction

Clinical step 1

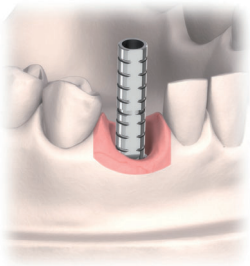
1. An implant level impression is taken and sent to the laboratory.

Laboratory procedure

In the majority of cases when constructing a screw retained provisional crown/bridge the restorative material is applied direct to the Provisional Abutment.

A. For single unit construction use the Provisional Titanium Abutment Mono. For multiple unit screw retained direct to implant construction – use Provisional Titanium Abutment Multi.
B. Screw retain the Provisional Titanium Abutment/s onto the laboratory model with the applicable screw. Cut and adjust by selective grinding as required.

   Note: Adjustments to the abutment are made with high-speed grinding using either a tungsten or diamond bur with irrigation and high volume aspiration.



C. Construct a provisional crown/bridge in the conventional manner. The restorative material is applied direct to the abutment. The surface of the abutment may be roughened or sandblasted to aid in retention of the restorative material.
D. Unscrew and remove the provisional crown/bridge and contour margins/polish etc. as required.
E. Return to dentist for insertion.

Clinical step 2

1. The provisional crown/bridge is delivered to the patient and hand-tightened to the implant. Final checking of occlusion/contours/color is carried out. Once verified the screw is tightened to 20 Ncm.
2. Block out the screw access channel with gutta-percha. Use a suitable material such as light curing composite to fill in the screw access channel.

Cement retained

Chair-side construction

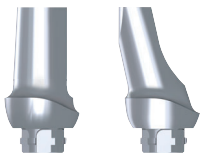
1. For single unit construction use the Provisional Titanium Abutment Mono – Cement retained. For bridge constructions, the engaging section is removed by grinding.

   Note: The Provisional Abutment is designed with an anti-rotational flat side. Additional retention should not be required as it could impair the ability to remove the cemented part.

Chair-side/Laboratory construction

2. Construct a provisional crown/bridge in conventional manner utilizing the plastic coping. It is important to remove and replace the provisional crown/bridge at least once prior to final setting of the restorative material to avoid difficulty in removing the crown/bridge once the restorative material has set.
3. Contour margins/polish etc. as required.
4. Ensure that the abutment screw has been tightened to a maximum of 20 Ncm before cementing the temporary crown or bridge with preferred cement (for example, Kerr TempBond® or Kerr TempBond® NE). Care should be taken to ensure that all excess cement is completely removed.

3.8 Titanium Prepable Abutments



Prepable abutments may be placed directly into the patient's mouth and prepared intraorally or adjusted by the technician on a laboratory model. Care should be taken when preparing titanium intraorally.

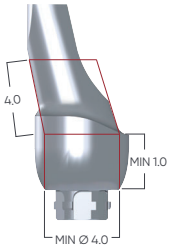
The Neoss System offers Titanium Prepable Abutments in various shapes ranging from incisors to molar, angulations (straight 0° and 15°) and heights (1 mm, 1.5 mm and 3 mm) (1 mm only for Ø3.25 mm implant).

Neoss Implant Abutment Connection – NeoLoc® enables alternative emergence profiles to fulfil specific clinical needs related to emergence profiles such as limited spaces or wide constructions. See section "3.8.1 Titanium Prepable Abutment – Alternative Emergence Profiles", for details.

If the shape/contours of the desired abutment/s are not achievable with either of the Titanium Prepable Abutments then it is recommended to custom-design and cast the abutment in the laboratory utilizing a Gold NeoLink® Mono or Titanium NeoLink® Mono, please refer to sections "3.4.1 Single Unit Construction" and "3.4.2 Multiple Unit Construction" of this Handbook, or use blanks for customized prepable abutment by the laboratory.

Note: The Prepable Abutments may be adjusted to a minimum diameter of 4.0 mm (minimum 3.5 mm on Prepable Abutments NP) and to a minimum height of 1.0 mm from the implant platform. The "chimney" portion may be shortened to a minimum height of 4.0 mm. Ensure the minimum thickness is 0.4 mm.

The blanks may be adjusted to a minimum diameter of 4.0 mm and a maximum height of 8.0 mm when maximum angulation of "chimney" portion is 20°, or maximum height of 4.0 mm when maximum angulation of "chimney" portion is 30°.



Titanium Prepable Abutments – Preparation On Laboratory Model

Clinical Procedure Visit 1

1. An implant level impression is recorded and sent to the laboratory.

Laboratory Procedure

A. Ensure that the implant replica is correctly attached to the impression coping. The working model is poured in the desired material.

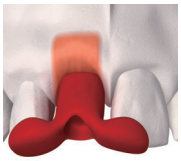
Tip: Soft tissue material may be applied around the impression coping before the model is poured. Another option is to construct the soft tissue model on the master model by injecting soft tissue material into a preprepared 'putty' key which has been reseated onto the prepared model.

B. Appropriate Titanium Prepable Abutment is selected and screw retained to the implant replica in the working model with the laboratory screw provided. If the Esthetiline Solution is applied, then the best result is achieved by choosing the same type of Prepable Abutment matching the used Tissue former.

C. The necessary adjustments are made to the titanium abutment using either a tungsten carbide or diamond bur.

Tip: Ideally the margins of the abutment should be 1 to 1.5 mm sub-gingival.

D. After the desired shape has been achieved either a temporary or permanent crown/bridge is produced in the material of choice using conventional dental laboratory procedures.



E. The prosthesis is returned to the dentist for insertion.

Tip: The clinical insertion of abutments can be simplified by the fabrication of a simple transfer jig from self curing acrylic or pattern resin. This is designed to fit over the abutment and span the adjacent teeth to provide correct orientation.

Clinical Procedure Visit 2

1. The abutment/s is screwed into the patient's mouth using the Neo abutment screw and Neo screwdriver in conjunction with the manual handle.
2. Once the fit has been verified it is tightened to 32 Ncm.
3. The crown or bridge is then seated on the abutments and checked for fit, occlusion, color etc.
4. The prosthesis is permanently cemented using conventional crown and bridge techniques.
5. The occlusion and retention are checked and verified.

Titanium Prepable Abutments – Preparation Intraorally

Clinical Procedure Visit 1

1. The healing or provisional abutment is removed and the top of the implant is exposed.
2. Appropriate Titanium Prepable Abutment is selected and screw retained to the implant/s or replica using the abutment screw provided. The use of Neo screwdriver and manual handle is required.

   Note: For optimal placement of the abutment and minimal preparation it is recommended the implant has been indexed as described in section 1.2.

   Hint: If there are any concerns in relation to correct seating of the abutment to the implant than a radiograph should be taken.
3. Adjustments to the abutment are made with high-speed grinding using either a tungsten or diamond bur with irrigation and high volume aspiration.

   Tip: It is sometimes easier to mark the abutment where it needs adjusting whilst in the mouth, then remove and adjust.

   Note: Ideally the margins of the abutment should be 1 to 1.5 mm sub-gingival.
4. Once the ideal contour has been obtained and correct seating of the abutment to the implant has been verified the abutment screw is tightened to 32 Ncm.
5. The screw access hole is then blocked out (e.g. gutta-percha) and a conventional crown and bridge impression is taken. Gingival retraction cord may be used.
6. A temporary prosthesis is made and inserted.
7. The impression is sent to the laboratory for the construction of the prosthesis.

Laboratory Procedure

A. The impression is poured in the desired material to produce a conventional crown and bridge model.

B. The prosthesis is constructed utilizing conventional crown and bridge laboratory techniques.

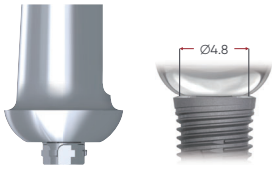
C. The completed prosthesis is returned to the dentist for insertion.

Clinical Procedure Visit 2

1. The temporary prosthesis is removed and the abutment cleaned of any debris.
2. The prosthesis is inserted and checked for fit, occlusion, color etc.
3. The prosthesis is permanently cemented using conventional crown and bridge techniques.

3.8.1 Titanium Prepable Abutment – Alternative Emergence Profiles

Same clinical and laboratory procedures apply as described in section 3.8, except for the details listed below.



Wide Emergence Abutment

The Wide Emergence abutment utilizes the outer chamfer of the implant flange for seating, enabling a lower and wider emergence profile than the Molar abutment. The Wide Emergence abutment has same indication as standard Prepable abutments.

Product content and packaging

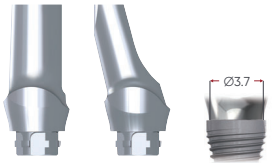
The Wide Emergence abutment is delivered sterile. It includes abutment, laboratory screw, abutment screw, specific cover screw and specific healing abutment PEEK with screw. The cover screw and the healing abutment with screw are packed so they can be opened separately from abutment and laboratory screw.

Compatibility

The Wide Emergence abutment is compatible with ProActive Edge, ProActive Tapered & ProActive Straight (lot # equal or higher than 14646) Implant diameters Ø5.0–5.5 mm and ProActive Ø6.0 implants. The Wide Emergence abutment requires a specific healing abutment and specific cover screw for healing. A wide replica (article 31166, Protection Replica – 1 pc) is required for model making and laboratory preparation.

Note: Use of Wide Emergence abutment should be planned for and parts available for surgical placement for effective treatment.

Narrow Emergence Abutments



Narrow Emergence abutments are intended to be used with the Ø3.5 & Ø4.0 mm implants when only limited mesio-distal space is available.

Product content and packaging

Narrow Emergence abutments are delivered non-sterile and include abutment, laboratory screw and abutment screw.

Note: If replacement of abutment is required, use same type of abutment or remove tissue from the seating surface if placement of standard platform abutment is required.

3.9 Zirconia Abutment

Zirconia abutments may be used for cement-retained single and multiple unit restorations and screw-retained single unit restorations and can be prepared at the chairside or by the technician on a laboratory model. Zirconia abutments are supplied in two parts; a Zirconia coping, having a range of profiles to match the Tissue Formers, and a pre-blasted Titanium NeoLink® Mono. The Zirconia coping is designed to be cemented onto the NeoLink®.

Zirconia Abutment – Chairside (preparation and cementation extra-orally)

Clinical Procedure Visit 1

1. The healing abutment is removed in order to expose the implant.
2. An appropriate Zirconia abutment is selected.
   Note: Try-in using NeoLink® and plastic copings.

Preparation and cementation extra-orally

3. Screw retain the pre-blasted NeoLink® to a replica/handle with the Neo Laboratory Screw provided.

   Note: Index the flat plane of the NeoLink® in a buccal direction.

   Note: Try-in the Zirconia coping, if necessary on the implant by screw retaining the pre-blasted NeoLink® to the implant with the Neo Abutment Screw by hand tightening and mark any adjustments needed on the coping.

4. Modify the coping to achieve the optimal design as described in section "Zirconia coping modification" on page 3:29.
5. After the ideal contour has been obtained, permanently cement the zirconia coping onto the NeoLink® by using conventional techniques.

   Note: Because of the precision fit between the NeoLink® and the Zirconia coping, only a small cement gap is present (20–50 µm). Apply a small amount of cement and ensure that any excess cement is removed. Check that the screw access channel is clear. Apply a resin bonded cement according to manufacturer's instructions to the NeoLink®.

6. Remove the Zirconia abutment (NeoLink® and Zirconia coping) from the replica/handle.
7. Attach the Zirconia abutment on the implant in the proper orientation and once correct seating of the abutment to the implant has been verified the Neo abutment screw is tightened to 32 Ncm.

   Note: If there are any concerns in relation to correct seating of the abutment on the implant than a radiograph should be taken.

   Note: Ensure that the Zirconia abutment is clean and dry.

8. The screw access hole is then blocked out with a suitable material and a conventional crown and bridge impression is taken. Gingival retraction cord may be used.

9. A temporary prosthesis is made and attached to the Zirconia abutment.
10. The impression is sent to the laboratory for the construction of the crown which is sent to the clinician.
11. The crown (or full-ceramic restoration) must be conditioned and cemented according to the manufacturer's instructions.

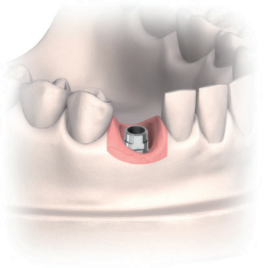
Zirconia Abutment – Preparation by Laboratory

Clinical Procedure Visit 1

1. The healing abutment is removed in order to expose the implant and an implant level impression is taken and sent to the laboratory.

   Note: For Esthetiline, the type of Tissue Former placed at surgery is communicated to lab.

Laboratory Procedure 1



A. The stone model is poured with a soft tissue mask around the replica.

B. Once the appropriate Zirconia abutment is selected, screw retain the pre-blasted NeoLink® to a replica with the Neo Laboratory Screw provided.

Note: Try-in using NeoLink® and plastic copings. Mark any adjustments needed.

Note: Index the flat plane of the NeoLink® in a buccal direction.

C. Modify the coping to achieve the optimal design as described in section "Zirconia coping modification" on page 3:39.

D. After the ideal contour has been obtained, permanently cement the zirconia coping onto the NeoLink® by using conventional techniques.

Note: Because of the precision fit between the NeoLink® and the Zirconia coping, only a small cement gap is present (20–50 µm). Apply a small amount of cement and ensure that any excess cement is removed. Check that the screw access channel is clear. Apply a resin bonded cement according to manufacturer's instructions to the NeoLink®.

E. A permanent crown is produced in the material of choice using conventional dental laboratory procedures. The Zirconia abutment (NeoLink® and Zirconia coping) is removed from the replica/handle and returned, if applicable with the crown, to the dentist for final placement.

Clinical Procedure Visit 2

1. Attach the Zirconia abutment on the implant in the proper orientation. Once correct seating of the abutment to the implant has been verified the Neo abutment screw is tightened to 32 Ncm.

   Note: If there are any concerns in relation to correct seating of the abutment to the implant then a radiograph should be taken.

   Note: Ensure that Zirconia abutment is clean and dry.

2. The screw access hole is then blocked out with a suitable material.

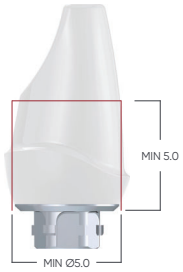
3. The crown (or full-ceramic restoration) must be conditioned and cemented/bonded according to the manufacturer's instructions.

Zirconia coping modification

Adjust the coping outside the mouth by using burs especially manufactured for preparation of ceramics. Use water cooling to avoid micro cracks. Do not overheat the coping.

Work with a low contact pressure.

Note: The replica can be attached to a handle for better stability during preparation.



Avoid sharp preparation edges and corners to ensure a good fit between the abutment and all-ceramic crown. Keep corners rounded with a radius of 0.5 mm or more. Ensure that the minimal thickness of the ceramic material is 0.8 mm, minimum diameter 5.0 mm and minimum height of 5.0 mm from the implant platform.

The maximum thickness of the veneering material on top of the coping must not exceed a maximum of 2.0 mm in all directions. It is advised that the prosthetic margin be 0.5–1.0 mm sub gingival – this will allow for easy removal of excess cement.

Note: Make sure not to damage the titanium implant interface during modification. Any adjustment below the final crown margin should be polished, preferably using a silicon rubber wheel and diamond paste.

Note: It is recommended that adjustment of the Zirconia coping is made prior to cementation!

3.10 CoCr Abutment

Procedures

The abutments provide a restorative solution based on welding a CoCr coping or framework to the abutment in the same way as Ti NeoLink® is handled. No angle correction is done by the CoCr Abutment, only via Access Abutments in combination with Multi CoCr Abutment for Access. Please consult sections 3.6, 3.6.1, 3.6.2, 3.6.5 and 3.12.3 Laser Welding in this manual for details on Casting, .

Note: Metal dust from grinding, blasting and polishing is harmful to health and care

3.11 Burnout Abutment

The abutments provide a restorative solution based on a burnout coping mounted on a burnout abutment with subsequent direct investing and casting in CoCr or Titanium (only Multi) following guide lines for Gold NeoLink®, please consult sections 3.6, 3.6.1, 3.6.2, 3.6.4 in this manual.

3.12 Overdenture Solutions

Implant supported overdentures are a relatively simple and cost-effective treatment option for many patients. In some cases it is not necessary to construct a new prosthesis as the patient's existing denture may be utilized. Implant supported overdentures may also be used as a provisional prosthesis.

There are three ways to retain implant supported overdentures:

- Ball Abutments
- Equator Abutments
- Bar Abutments

The use of ball abutments has traditionally been in the mandible utilizing two implants.

Bar retained overdentures can either be rigid (multiple implants) or resilient (two implants) in design. Resilient designed overdentures are most commonly limited to the mandible and are implant retained and tissue borne. In the maxilla however bar retained overdentures are normally rigid in design and are implant retained and implant borne. Ball abutment and Equator abutment options are available on Access level as well.

3.12.1 Ball Abutments

In the mandible two implants are utilized and in the maxilla up to four implants are utilized for a ball retained overdenture.

Hint: For ball abutments to be a restorative option the implants must be parallel to within 10 degrees of each other.

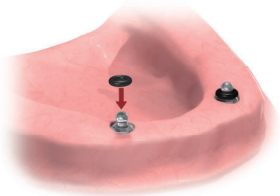
When using the Access Ball abutment the instructions below related to the implant level also correspond to Access abutment level.

Procedure – Ball Abutments Using Patient's Existing Denture

Clinical Procedure Visit 1

1. The top of the implants are exposed by removing the healing abutments.
2. The appropriate height ball abutments are placed with the ball driver and tightened to 20 Ncm.

   Tip: Ideally the collar of the ball abutment should extend approximately 1 to 1.5 mm above the soft tissue.
3. The desired Housing is selected. Place the Space Maintainer over the Ball Abutment and seat the Housing. Transfer the position of the Housing to the denture by marking the top of the Housing and placing the denture over the Housing. Prepare a recess in the denture to accommodate the protruding Housing. Try in the denture over the Housing to verify it is fully seated on the ridge without contact onto the Housing. There should be an undercut well into which self curing resin will flow and be retained.



4. The attachment is bonded to the denture using a self curing acrylic or an appropriate attachment cement in the well in the denture. Maintain the denture in a passive condition while the acrylic/resin sets as per the manufacturer's instructions. Once cured, the denture is lifted off the ball abutments together with the embedded Housing. The region of the denture around the attachment is then refined at the chairside or in the laboratory and care is taken to ensure the Housing is not dislodged.
   See section "Adjustment and Maintenance" for information about how to insert and change Retention Female in the Titanium Housing.

   Hint: The retentive elements must be placed parallel to each other. A divergence or convergence of up to 10 degrees is acceptable.

   Note: For completion of the denture in the laboratory, take abutment level impression using existing denture as impression tray. Remove the denture and insert Ball Abutment Replicas in the impression. Pour the master cast, using high quality die stone.

Procedure – Ball Abutments Constructing A New Denture

Clinical Procedure Visit 1

1. The top of the implants are exposed by removing the healing abutments.
2. An implant level impression is taken with Neoss impression copings. The impression should be a full arch impression in a custom made impression tray with either a polyvinyl or polyether impression material.
3. After the material has set the impression is removed from the patient's mouth, the healing abutments are replaced and the provisional prosthesis is returned to the patient. Care should be taken that the provisional appliance does not interfere with the healing abutments. A soft lining material may be utilized in the provisional prosthesis to aid in retention.

   Note: Alternatively, impression can be taken on abutment level.

Laboratory Procedure

A. Ensure that the implant replicas are correctly attached to the impression copings. The working model is poured in the conventional manner in the material of choice.

B. A screw retained 'bite block' or 'occlusal registration rim' is constructed by incorporating a healing abutment or an impression coping on at least two (2) implants.

Clinical Procedure Visit 2

1. The corresponding healing abutments are removed and the patient's inter arch/jaw relationship is recorded onto the screw retained bite block/occlusal registration rim.

   Hint: If not all of the healing abutments are removed it will be necessary to relieve the wax registration rim over the healing abutments which have not been utilized in the screw retention of this 'bite block/ occlusal registration rim'.

2. After registration the healing abutments are reseated in the patient's mouth.

Laboratory Procedure

C. A full set up of the final prosthesis is constructed in wax.

Clinical Procedure Visit 3

1. The waxed prosthesis is evaluated in the patient's mouth, once correct it is returned to the laboratory for processing.

Laboratory Procedure

D. The appropriate height ball abutments are placed on the working model with the ball driver.

   Tip: Ideally the collar of the ball abutment should extend approximately 1 to 1.5 mm above the soft tissue.

E. The desired Housing element is selected and guidelines for processing and achieving the desired retentive force as described previously.

F. The denture is then finished in the usual manner and then delivered to the dentist for insertion.

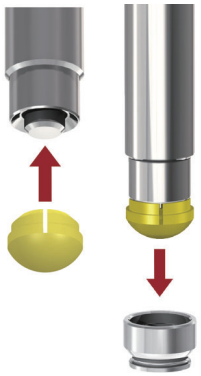
   Note: The retentive elements must be placed parallel to each other. A divergence or convergence of up to 10 degrees is acceptable. It is also important that all undercuts below the retentive elements on the model are blocked out prior to processing.

Clinical Procedure Visit 4

1. The ball abutments are screwed into the implants after removal of the healing abutments and tightened to 20 Ncm using the Neo screwdriver.
2. The denture is returned to the patient and correctly seated.
3. The occlusion and retention are checked and verified.

See section "Adjustment and Maintenance" for information about how to insert and change Retention Female in the Titanium Housing.

Adjustment and Maintenance



Insertion and Removal (Retention Female, Titanium Housing)

Press the Retention Female over the end of the Insertion Tool and press it into the Titanium Housing.

Three retention levels are available: yellow (normal retention) white (reduced retention) and red (increased retention). To remove a Retention Female from the Titanium Housing use a hot pointed instrument.

3.12.2 Equator Abutments

Indications

The Equator Abutment is designed for use with full dentures or partial dentures retained by the Neoss Implants in the maxilla or mandible. The self-locating design allows a patient to easily seat their denture. Restorations with limited vertical space are possible through the 2.1 mm height of the Equator Abutment Housing (the Housing for extended divergence is 2.2 mm). In addition, a 28° divergence (with standard Housing and 50° with Housing for extended divergence) between two implants can be easily accommodated. The divergence between implants can be reduced by using Access abutments.

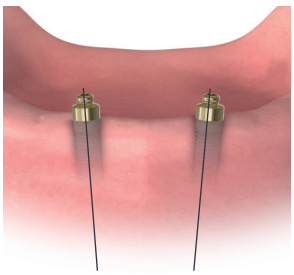
Either a new denture or the patient's existing denture can be utilized for the construction of an Equator Abutment retained denture. Incorporating the male retentive element into the denture can be made in two ways:

- chairside by the dentist directly into patient's denture in the mouth.
- in the laboratory on a model.

When using the Access Equator abutment the instructions below related to the implant level also correspond to Access abutment level, except for the tightening torque.

Note: Relining of Equator Abutment retained denture is required to avoid load bearing situation.

Contraindications



Not appropriate where a totally rigid connection is required.

Neoss Equator abutments are not recommended for use on a single implant and on implants with a greater divergence than 28° (50° with Housing for extended divergence).

Caution

Federal (USA) law restricts this device for sale by or on the order of a licensed dentist.

Sterilization

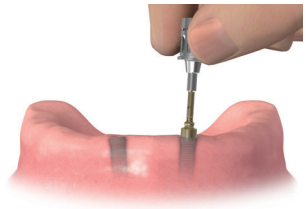
All components and instruments are supplied NON-STERILE. Implant abutments and metal instruments may be sterilized following standard clinical procedures, prior to use.

Procedure – New or Existing Denture

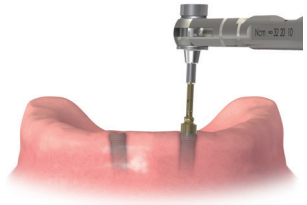
Existing Denture

Clinical Procedure

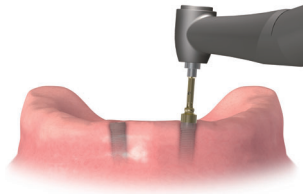
1. The top of the implants are exposed by removing the Healing Abutments.
2. To select the proper Equator Abutment measure the tissue thickness from the apical rim of the implant body to the crest of the gingiva at the highest side of the implant site. Choose the Equator Abutment that exactly equals the tissue measurement, or is the next closest higher size available.
3. It is imperative that all bone and soft tissue is removed from the superior aspect of the implant body to guarantee complete seating of the Equator Abutment. If any doubt, verify complete seating using a radiograph.



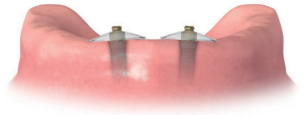
4. Hand-tighten the abutment into the implant, using the Neo Screwdriver.



5. The abutment is then torqued to 32 Ncm using the ratchet (20 Ncm for Access level).



Alternatively a torque control device with the Neo Screwdriver can be used.

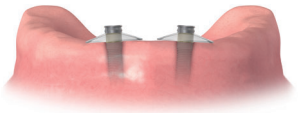


6. Place the Protector Disk over the Equator Abutment (this will prevent acrylic resin from flowing into under-cuts around the housings).

   Note: Make sure the soft tissue is protected from the self curing material.

7. Place the metal Housing (make sure the Black Processing Cap is inserted into the Housing) onto the Equator Abutment leaving the Protector Disk beneath it.

   Note: The Housing for extended divergence (up to 50°) comes with a specific processing cap.



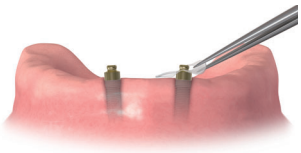
8. Prepare a recess in the denture to accommodate the protruding Housing. Try in the denture over the Housing to verify it is fully seated on the ridge without contact onto the Housing.

   Note: Make sure there is NO contact between the denture and the metal Housing.

9. Use a light cured composite resin or permanent self-curing acrylic to bond the Housing to the denture. Apply a small amount in the recess of the denture and around the metal Housing. Place the denture into position in the mouth and have the patient close into very light contact centric occlusion. Maintain the denture in a passive condition while the acrylic/resin sets as per the manufacturer's instructions.

   Note: It is necessary to block out any remaining undercuts to prevent resin/acrylic from locking the denture onto the abutment.

10. After the resin/acrylic has cured remove the denture and discard the Protector Disks.
    Fill any voids around the Housings and polish.

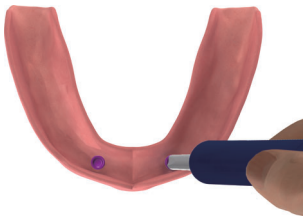


11. Remove the Black Processing Cap by pushing the tip on the removal side of the Equator Cap Tool firmly aside the internal wall. Push the handle down and the cap will snap out promptly.

12. Place the final Cap on the end of the insertion side of the Equator Cap Tool and press it firmly into the Housing.

    Note: The attachment retention on the abutment may be reduced by placing the Pink Soft Retention Cap or the Yellow Extra Soft Retention Cap rather than the White Standard Cap.

    Note: The retention Caps are replaced after normal wear with the Equator Cap Tool as instructed previously.

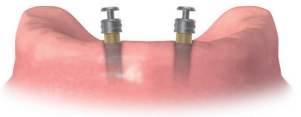


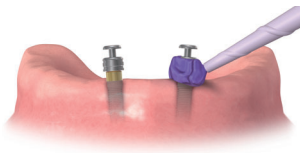
13. Upon insertion, check for pressure spots and adjust occlusion.

New Denture

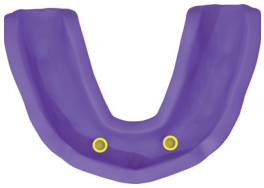
Clinical Procedure

1. After inserting the appropriate height Equator Abutment onto the implants in the patient's mouth, place the Equator Impression Copings on the abutments and verify that it is correctly seated.



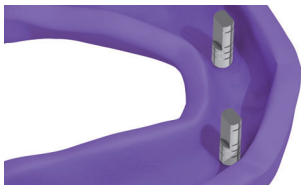


2. A medium or heavy body impression material is recommended. Syringe the impression material around each of the entire Equator Impression Copings. Load the impression tray or patient's existing denture and seat in the mouth. Allow the impression material to set per the manufacturer's instructions.



3. Remove the impression from the mouth and verify that the impression material completely adapted around each coping. The Impression Copings should remain inside the impression.

   Note: The Impression Coping comes with the Yellow Extra Soft Retention Cap instead of the Black Processing Cap for optimized compromise between stability and retention.



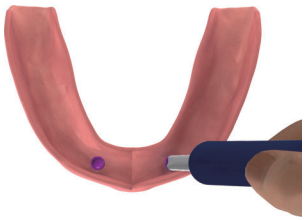
4. Snap an Equator Replica (2 supplied in each Impression Coping pack) onto each Impression Coping in the impression.

Laboratory Procedure

A. Pour the master cast, using high quality die stone.

B. The Black Processing Cap must be securely positioned/fixed onto the replica. Proceed to processing/relining the denture.

C. Remove the Black Processing Cap by pushing the tip on the removal side of the Equator Cap Tool firmly aside the internal wall. Push the handle down and the cap will snap out promptly.



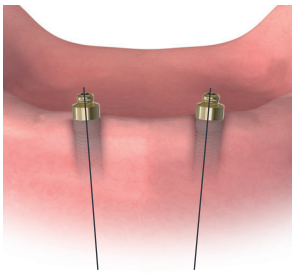
D. Place the final Cap on the end of the insertion side of the Equator Cap Tool and press it firmly into the Housing alternatively send to clinic for final retention.

   Note: The attachment retention on the abutment may be reduced by placing the Pink Soft Retention Cap or the Yellow Extra Soft Retention Cap rather than the White Standard Cap.

   Note: The retention Caps are replaced after normal wear with the Equator Cap Tool as instructed previously.

E. Upon insertion, check for pressure spots and adjust occlusion.

Choice of Neoss Equator Retention Caps



Patients should be able to insert and remove their Equator retained dentures simply and reliably.

To use the Equator components the divergence for the Equator Abutment must not exceed 14° (or 28° in the case of two abutments) alternatively 25° (or 50° in the case of two abutments) if the Housing for extended divergence is utilized.

Multiple Equator Abutments

If several (3 or more) Equator Abutments are used in the same jaw, we recommend using either:

- the Pink Soft Retention Cap with retention of 1.2 kg.

Or:

- the Yellow Extra Soft Retention Cap with retention of 0.6 kg.

Converging or diverging Equator Abutments

In the cases where implant divergences exceed 28° (in the case of two abutments), we recommend to use Access abutments to reduce the divergence or the Housing for extended divergence (50° in the case of two abutments).

Patient care

Good oral hygiene is vital to implant success. The Equator Abutment must be thoroughly cleaned daily. The use of a soft nylon bristle or end-tufted toothbrush, and super floss to polish the abutments should be taught.

A non-abrasive gel toothpaste, and an irrigation system is recommended to keep the socket of the Equator Abutment clean.

Patients should maintain a three to four month recall for cleaning and implant evaluation.

The sulcus area around the implant abutment is the primary area of concern.

Use plastic instruments for scaling the abutments. Do not use metal instruments which may create scratches on the abutment surface. Examine patients for signs of inflammation around the implant abutments, and for implant mobility.

Use the Neo Screwdriver to make sure the Equator Abutment is tightened before the patient leaves the praxis.

3.13 Technical Data

Titanium

All Titanium Abutments and NeoLinks® are made from Commercially Pure Titanium Grade 4 – 5 (alloy).

Physical data	Typical 4	Typical 5
Melting Range °C±15°C (°F)	1668 (3034)	1668 (3034)
Thermal Exp. Coeff. (20–200°C) K^{-1}	9.1×10^{-6}	8.6×10^{-6}
Beta Transus °C±15°C(°F)	960 (1760)	980 (1796)

Gold

All NeoLinks® for cast gold abutment or frameworks are fabricated from a non-oxidizing high-fusing gold alloy and as such porcelain cannot be bonded directly to it. When casting onto the NeoLink/s® ensure that the casting or bonding alloy is compatible. High gold content ISO 9693 (metal ceramic) NIOM Type A and ISO 22674 (dental gold casting alloy), Type 4 are suitable.

The melting range of the casting alloy must not distort or melt the NeoLink® – less than 1250°C is recommended. Casting alloys should exhibit a proof stress of Rp0.2>500N/mm^2 according to ISO 22674.

Composition	Au 60%, Pt 24%, Pd 15%, Ir 1%	
Color	White	
Melting Range	1400 – 1460°C (2552 – 2660°F)	
Hardness	HV5 200±20	
CTE	500°C	12.5 µm/m.K
	600°C	12.6 µm/m.K

Cobolt Chrome alloy

The CoCr alloy used is composed of (% by weight): Co 61, Cr 28, Mo 6 with traces of Fe, C, N, Si, Ni and Mn

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Neoss products may only be used according to the manufacturers' instructions and recommendations.

The user of Neoss products should determine their suitability for particular patients and indications.

Neoss Limited disclaims any liability, expressed or implied, and shall have no responsibility for any direct, indirect, punitive or other damages arising out of or in connection with any errors in professional judgement or practice in the use or placement of the Neoss products.

Product images are not to scale and are subject to change.

Caution:
Federal (USA) law restricts this device to sale by or on the order of a licensed dentist or physician.

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CE
2797

The Neoss implant assortment has FDA clearance for immediate placement and function recognizing sufficient bone stability and appropriate occlusal loading to restore chewing function.

Document 10501_18 EN 2025-03