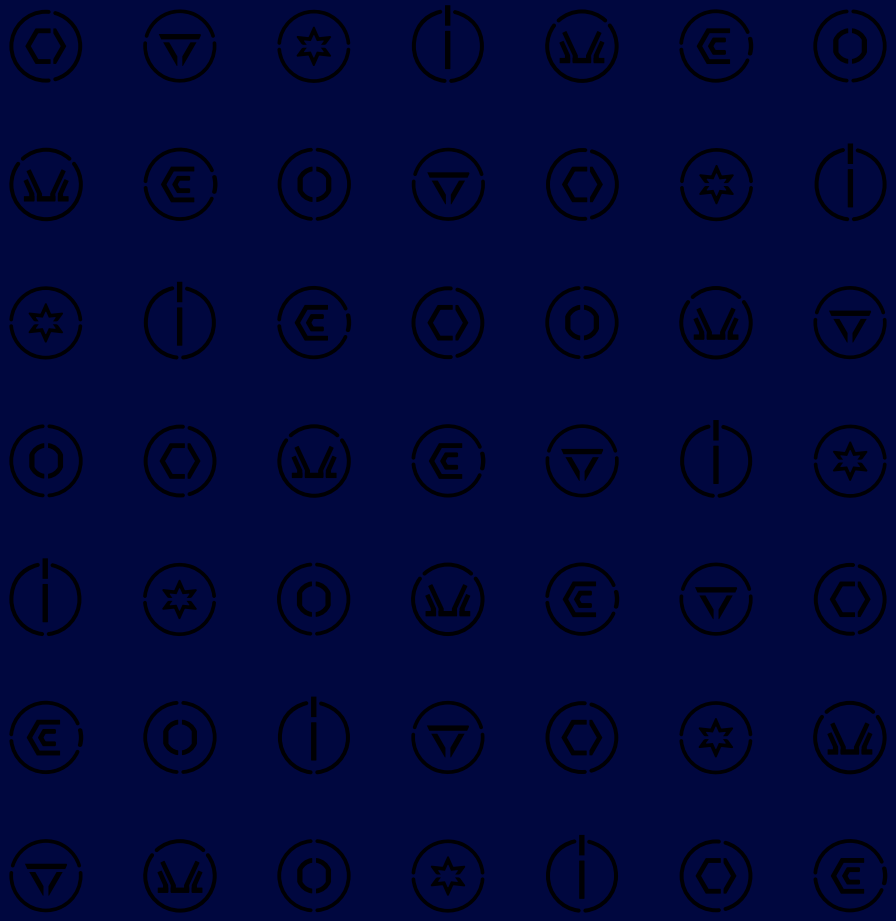


User Manual

USA



adin

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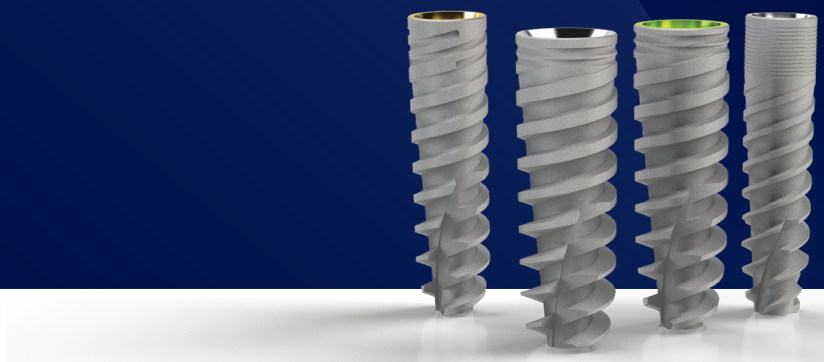
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Adin Dental Implant Systems



General

Adin Dental Implant Systems Ltd. designs and manufactures innovative solutions for dental implantology.
In addition to a wide range of dental implants, Adin manufactures abutments, restorative components, as well as all required instruments and accessories for both the surgical and restorative aspects of dental implantology.

This User Manual aims to provide dentists with information related to the use of Adin's products. It relates to all Adin's dental implant types: Swell™, Touareg™-S, Touareg™-OS, CloseFit™ and UniFit™.

*This manual and the specific Instructions for Use (IFUs) provided with each product and kit should be carefully read prior to use of Adin's implant systems products.

Intended Use

Adin's dental implants and abutments are intended to be used in conjunction with each other during implant surgical placement in the maxillary and/or mandibular arches to support single-unit or multiple-unit prosthetic restorations including cement-retained, screw-retained or overdenture restorations in partially or fully edentulous patients. Implants may be immediately loaded when good primary stability is achieved and with appropriate occlusal loading.

Indications - Dental implants

- Dental implants are indicated for replacing missing single or multiple dental roots in the mandible or maxilla.
- Adin dental implants can be used using the following protocols:
  - Single-stage or two-stage surgical procedures.
  - Standard, immediate or delayed placement protocols.
  - Standard, immediate or delayed loading protocols.
    Note: Immediate loading is recommended only when good primary stability is achieved, and when occlusal loads are well controlled.
- Special Implant Indications.
  - Short Implants (shorter than 7 mm): May only be used with straight abutments.
  - Narrow Platform Implants (UNP & NP): Are indicated for central and lateral incisors only.

Indications – Abutments

- Abutments are prosthetic components that are attached to dental implants in the mandible or in the maxilla and are used to support prosthetic restorations in partially or fully edentulous patients.
- Abutments are indicated to support single-tooth prostheses or multiple-unit, screw-retained or cement-retained restorations.
- Adin's abutments and prosthetic components are intended for use in conjunction with Adin dental implants.
- Specific Abutment Types
  - Cover screws protect the internal configuration of the implant during the osseointegration phase.
  - Healing caps are placed immediately after implant placement or after implant exposure.
    Their purpose is to maintain, shape and stabilize the soft tissue above dental implants before attaching a restoration to the implants.
  - Temporary Abutments: are intended to support and retain single- or multiple-unit temporary restorations.
    They are indicated for use for a maximum duration of 180 days.
  - TMA and Flat Connection Abutments: are intended to support of multiple-unit screw-retained restorations.
  - UCLA Abutments (TitanFit Abutments) are prosthetic components that enable direct connection between dental implants and the restoration (without an intermediate abutment between them).
    They can support single-unit or multiple-unit restorations and are always fabricated as screw-retained restorations.

All digitally designed custom abutments for use with Ti Base abutments or Pre-milled Blank abutments are to be sent to an Adin Dental validated milling center for manufacture.
For the current list of validated milling centers, see at: https://www.adin-implants.com/user-manual/

Contraindications

- General contraindications associated with elective surgery should be observed.
- **Absolute:** Patients who are considered medically unfit for oral surgical procedures, as well as those who suffer from severe trismus, mandibular hypomobility disorders, or patients who have underlying uncontrolled or malignant systemic disease precluding implant surgery or have received radiation therapy to the facial area.
- **Relative:** Uncontrolled diabetes, bisphosphonate therapy, local infections or pathologies in the areas in which implants are planned to pass through, inadequate bone volume and/or quality as well as general diseases and treatments affecting bone and soft tissue healing may result in osseointegration failure, both immediately after surgery and at a later stage.
- **Possible contraindications:** chronic bleeding problems, psychological impairment, metabolic bone or connective tissue diseases, treatment with corticosteroids, certain cardiac and vascular diseases, tobacco usage, treatment with chemotherapeutic agents, chronic renal disease, poor patient oral hygiene, alcoholism, osteoporosis medications.
- Special attention and a thorough evaluation of potential risks and benefits should be given to patients who exhibit underlying medical factors that might affect bone or soft tissue healing processes (e.g., bone or connective tissue disorders, steroid treatments, cigarette smoking). Other factors that need to be considered are habits such as bruxism, smoking or chewing on hard substances, and individual parameters such as massive facial muscles or unfavorable jaw relations.
- The placement of dental implants is not recommended in children and adolescents, until growth has stopped and epiphyseal closure is completed.
- Unfavorable sizes, numbers or desirable position of implant are not reachable to achieve safe support of functional or eventually parafunctional loads.
- Insufficient alveolar bone width and height to surround the implant with at least one millimeter of bone, both buccally and lingually to the most superior aspect of the implant body; inadequate bone height where proper implant placement would encroach on the mandibular canal; malignancies.
- Allergic or hypersensitive response to Ti-6Al-4V ELI alloy (titanium, aluminum, vanadium), Stainless Steel, and DLC (diamond like carbon) coating.
- 45°, 52° and 60° TMA should not be used in the following clinical conditions:
  - on a single implant restoration
  - on implants shorter than 25 mm in length.
  - on implants with diameters smaller than 4.20 mm
  - on implants supporting a non-rigid fixed restoration (e.g., removable denture)
  - In cases where a distal cantilever can produce significant bending forces.
  - In patients whose bite force is uneven or in patients who are heavy bruxers or clenchers.

Preoperative Considerations and Precautions

- Prior to any surgical procedure, patients must be carefully examined and evaluated to determine their medical, psychological and physical status. Attention should be given to factors that may put the patient at risk or factors that may affect bone or soft tissue healing.
- Panoramic radiographs, as well as CT scans and other individual radiographs must be obtained to allow a complete evaluation of the dental and periodontal status, as well as to assess the available bone for future implant placement.
- Comprehensive dental treatment plan, including the locations, number and sizes of planned implants should be formulated based on a comprehensive clinical and radiographic evaluation.
- Constant communication and collaboration between the dental surgeon, the restorative dentist and the dental laboratory technician are critical to ensure optimal outcomes.
- Whenever applicable, a wax-up and a surgical guide should be used, to ensure correct positioning of dental implants.
- Sufficient residual bone volume is necessary in order to achieve high primary and long-term success of dental implants. In cases of inadequate bone volume, bone augmentation procedures should be considered.
- The number of implants and their diameters, lengths and positions in a specific case must take into account the planned prosthetic type and each individual's specific conditions and habits, such as bruxism or unfavorable jaw relations. Incorrect planning and implant placement may result in compromised esthetic results, undesirable restorative outcome, and an increased risk of implant overload or mechanical failure.

Intraoperative Considerations and Precautions

- The surgical placement of dental implants requires a high degree of precision and care.
- Surgical procedures must always be performed using sterile instruments and tools.
- All efforts must be made to minimize damage to both the soft and bone tissues during the surgical phase. Trauma, thermal injury and infection may result in implant failure or damage to the surrounding tissue.
- Any divergence from the established surgical protocols increases the risk of osseointegration failure.
- Loading and healing timing protocols should be determined based on bone quality and the implant's initial stability.

Prosthetics Considerations and Precautions

- Adin implant systems support all established dental implant restorative options.
- Successful restorative and esthetic outcomes require proper planning related to the number and position of the implants. Treatment planning should also take into account mechanical stress and occlusal force distribution, to prevent excessive transverse loads (particularly in immediate loading cases).
- Passive fit of the prosthesis over implants and abutments is mandatory.
- The use of abutments or other components not manufactured by Adin may damage Adin's implants. This, in turn, may lead to undesired prosthetic and/or esthetic results, and even to implant failure and damage to bone and soft tissues.
- Adin short implants are to be used only with straight abutments.

Implant Packaging

- Adin implants are delivered in an outer cardboard box. The implant is in an internal double vial package to ensure long-term sterilization. The outer implant vial cap is color coded for easy identification of the implant platform size and specifies the implant's length.
- A mark on the top and side of each cardboard box indicates when the implant is delivered mountless. If there is no such marking, the implant is supplied with a mount.
- A label on the outer package includes the following information: Catalog reference number, description (which includes implant type, diameter, and length), lot number, manufacture date, and expiration date.
- Four peel-off labels with identical information are included inside each implant package for easy and simple documentation in patients' charts.
- Never use implants if the package is damaged or contaminated in any way.

Mount



Mountless



Package Color Coding

Internal Hex System			CloseFit™ System					UniFit™ System		
3.3 & 3.5mm	●	Yellow	2.75mm	○	White	UNP	Ultra Narrow Platform	3.5mm	●	Yellow
3.75mm	●	Red	3mm	●	Orange	NP	Narrow Platform	3.75mm	●	Red
4.2mm	●	Blue	3.5mm	●	Red	RP	Regular Platform	4.3mm	●	Blue
5mm	●	Green	4.3mm	●	Blue	WP	Wide Platform	5mm	●	Green
6mm	○	White	5mm	●	Green	WP	Wide Platform	6mm	○	White

Product Sterility and Maintenance

- Adin implants are provided sterile (by gamma radiation) and are intended for single use only.
- Never reuse a dental implant and never use implants after their expiration date (indicated on the outer package label) or if the package is damaged or contaminated. Such use may result in implant failure and damage to surrounding tissues.
- Adin abutments, drills, tools and kits (surgical and prosthetic) are supplied non-sterile and must be sterilized prior to use.

Hazards

- To prevent aspiration or swallowing, attach a long dental floss to small instruments and pay special care while using them in patients' mouths.
- Appropriate training is required prior to using the implant system. The use of improper technique and/or inadequate training can lead to implant failure and/or loss of supportive bone.
- Dental implants should never be reused.
- Cover screws, healing abutments, temporary abutments and abutments should also not be reused, due to potential cross contamination. Reuse of these components may also result in product failure, as functionality cannot be guaranteed.
- Incorrect treatment planning, and the use of wrong implant sizes, insufficient amount of implants and/or improper implant positioning may lead to mechanical failures of implants, components or restoration.
- The use of narrow implants (NP and UNP implants) in the posterior region is contraindicated.

Warnings

- The label "Rx Only" refers to the following caution text: "Federal (USA) law restricts the sale of this device to, or on the order of, a licensed physician or dentist".
- Dental implants must not be altered in any way.
- The use of electro-surgical instruments or lasers around metallic implants and their abutments is not recommended due to the risk of electric and/or heat conductivity.
- Implant mobility, bone loss or chronic infection may indicate implant failure.
- Proper clinical and radiographic evaluation of the patient should be performed prior to any implant placement.
- Implants should not be placed if there is not sufficient alveolar bone width and height to surround and sustain the implant.
- For short implants (strictly shorter than 7 mm), immediate restoration or loading on a single implant in such situation has not been studied and is not recommended for a terminal molar in an arch nor cantilevering more than one pontic off a single implant.
    a. Because of the reduced surface area for anchorage in the bone, implants shorter than 7 mm length should be used with caution because they present greater risk of failure compared to standard implants, and are recommended for the following situations:
        i. As an additional implant together with longer implants to support implant-borne reconstructions.
        ii. As an auxiliary implant for implant-borne bar constructions supporting full dentures in a seriously atrophied mandible.
    b. When a short implant is the treatment of choice consider a two-stage surgical approach, splinting of implants, and placement of the widest possible implant. For short implants (strictly shorter than 7 mm), clinicians should closely monitor patients for any of the following conditions: peri-implant bone loss, changes in the implant's response to percussion, or radiographic changes in bone to implant contact along the implant's length. If the implant shows mobility or greater than 50% bone loss, the implant should be evaluated for possible removal. Allow longer periods for osseointegration.
    c. Short implants (strictly shorter than 7 mm), should not be placed in patients who demonstrate untreated occlusal parafunction, such as bruxism or clenching.

MRI Safety Information



MR Conditional

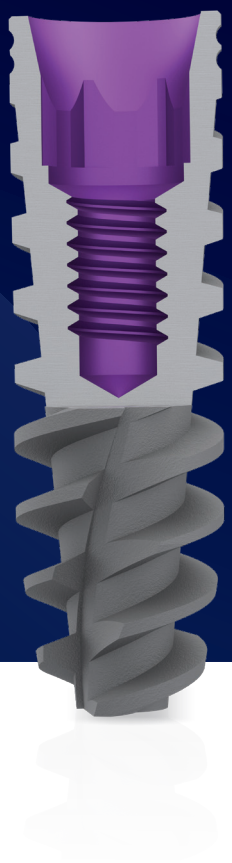
Warning: The RF safety of the device has not been tested. The patient may only be imaged by landmarking at least 30cm from the implant, or ensuring the implant is located outside of the RF coil.
Note: Instruct the patient to carry the patient label / card, especially when undergoing MRI procedure.
Devices which are composed of materials that have a known and acceptable MR induced displacement force and torque profile, may be safely imaged by positioning the patient, such that the device is at least 30 cm from the isocenter of the MRI magnet. This is also referred to as landmarking the patient at least 30 cm below the device.
This landmarking will ensure that the device will be outside the high RF exposure zone to mitigate RF heating risk.
Published literature was used to determine that the Titanium material used for Adin's implants and abutments is safe from an MR-induced displacement force perspective for a given spatial field gradient and also from an MR-induced torque perspective. Scientific rationale based on published literature may be used to determine if the material used is safe from an MR-induced displacement force perspective for a given spatial gradient and also from an MR-induced torque perspective (e.g., Woods, Terry O., Jana G. Delfino, and Sunder Rajan. "Assessment of Magnetically Induced Displacement Force and Torque on Metal Alloys Used in Medical Devices." Journal of Testing and Evaluation (2021) 49(2): (783-795)).
A patient with this device can be scanned safely in an MR system under the following conditions:

Device Name	Adin Dental Implants and Abutments
Static Magnetic Field Strength (B_0)	≤ 3.0 T
Maximum Spatial Field Gradient	30 T/m (3,000 gauss/cm)
RF Excitation	Circularly Polarized (CP)
RF Transmit Coil Type	For body transmit coil, landmarking at least 30 cm from the implant, or ensuring the implant is located outside of the coil. Extremity T/R coils permitted. Excludes Head T/R coil.
Operating Mode	Normal Operating Mode in the allowed imaging zone
Maximum Whole-Body SAR	2 W/kg (Normal Operating Mode)
Maximum Head SAR	Not evaluated for head landmark
Scan Duration	No specific constraints due to implant heating

Training and Education

- Adin strongly recommends that dental professionals, both beginners and experienced implantologists, always keep up-to-date and current with published data and knowledge related to surgical and prosthetic treatment using dental implants and abutments
- Adin offers a wide range of courses at various levels, and provides support through a global network of experienced experts.
- Please contact your local Adin representative for more information regarding certified training centers.

Implant Connection Types



Touareg S/OS™

- Standard internal hex connection (RS) for all implant diameters.
- Touareg™-OS - OsseoFix™ surface.
- Touareg™-S - Alumina oxide blast/Acid etched surface.



Diameter (mm)	Lengths (mm)						
ø3.5mm		8mm	10mm	11.5mm	13mm	16mm	18mm
ø3.75mm		8mm	10mm	11.5mm	13mm	16mm	18mm
ø4.2mm	6.25mm	8mm	10mm	11.5mm	13mm	16mm	18mm
ø5.0mm	6.25mm	8mm	10mm	11.5mm	13mm	16mm	18mm
ø6.0mm	6.25mm	8mm	10mm	11.5mm	13mm		

Swell™

AB/AE Surface Treatment.

- Standard internal hex connection (RS) for all implant diameters
- Alumina oxide blast/Acid etched surface
- Diameter and length range:



Diameter (mm)	Lengths (mm)						
ø3.3mm			10mm	11.5mm	13mm	16mm	18mm
ø3.75mm		8mm	10mm	11.5mm	13mm	16mm	18mm
ø4.2mm	6.25mm	8mm	10mm	11.5mm	13mm	16mm	18mm
ø5.0mm	6.25mm	8mm	10mm	11.5mm	13mm	16mm	
ø6.0mm	6.25mm	8mm	10mm	11.5mm	13mm		

CloseFit™

CloseFit™ Implant:

- Conical connection
- OsseoFix™ surface

CloseFit™ implants' restorative platforms are identified by specific colors, which is consistent for all surgical and restorative components and tools:

UNP Ultra Narrow Platform ø2.75 10°



Diameter (mm)	Lengths (mm)				
ø2.75mm	10mm	11.5mm	13mm	16mm	18mm

● Titanium- 2.75mm Ultra Narrow Platform

NP Narrow Platform ø3.0mm 20°



Diameter (mm)	Lengths (mm)					
ø3.0mm	8mm	10mm	11.5mm	13mm	16mm	18mm

● Yellow- 3mm Narrow Platform

RP Regular Platform ø3.5mm



Diameter (mm)	Lengths (mm)					
ø3.5mm	8mm	10mm	11.5mm	13mm	15mm	18mm

● Pink- 3.5mm Regular Platform

WP Wide Platform ø5.0/4.3mm



Diameter (mm)	Lengths (mm)					
ø4.3mm	8mm	10mm	11.5mm	13mm	15mm	18mm
ø5.0mm	8mm	10mm	11.5mm	13mm	15mm	18mm

● Blue- 4.3/5mm Wide Platform

UniFit™

UniFit™ implant system offers bone level implants that are designed for high primary stability and immediate loading procedures. This system simplifies surgical and restoration procedures by offering a unified single implant-abutment connection for all UniFit™ implants and UniFit™ prosthetic components.

The UniFit™ system offers a unified internal connection for various implant sizes with external design shapes.

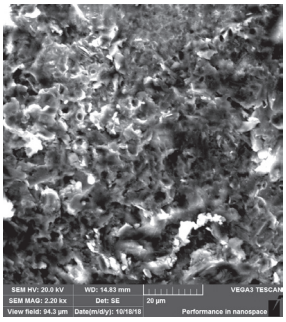
- UniFit™ conical star connection for all available diameters
- All UniFit™ implants have the OsseoFix™ surface, which uses calcium phosphate.



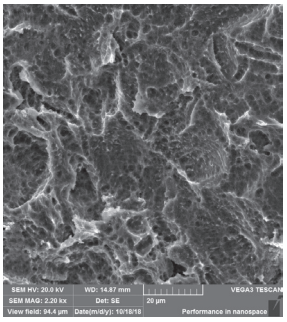
Diameter (mm)	Lengths (mm)						
ø3.5mm		8mm	10mm	11.5mm	13mm	16mm	18mm
ø3.75mm		8mm	10mm	11.5mm	13mm	16mm	18mm
ø4.3mm	6mm	8mm	10mm	11.5mm	13mm	16mm	18mm
ø5.0mm	6mm	8mm	10mm	11.5mm	13mm	16mm	18mm
ø6.0mm	6mm	8mm	10mm	11.5mm	13mm		

Surface Types

Adin Dental Implants are available in two surface types:

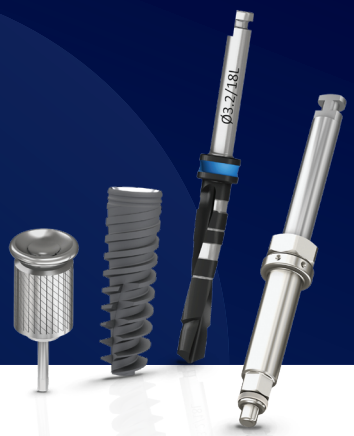


OsseoFix™ surface: uses calcium phosphate, a to achieve the desired surface roughness and cleanliness levels.



AB/AE surface: uses alumina and acid etching technology to achieve surface topography and roughness.

Surgical Procedures



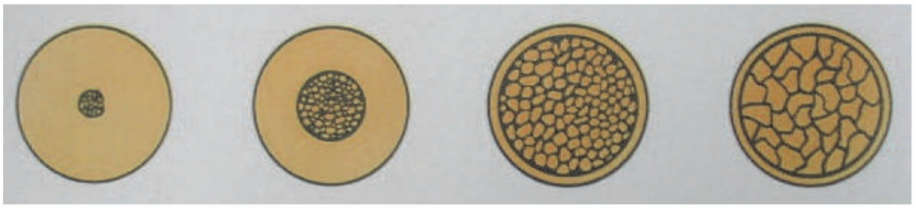
Surgical Treatment Planning

- Adin implant systems include a wide range of implant diameters, lengths and platforms, to meet numerous clinical scenarios, even in cases with minimal bone volume.
- The number of implants is determined as part of a comprehensive treatment planning process, based on the number of missing teeth, and the planned restoration.
- Implants' diameters and lengths are determined based on available bone dimensions and on the distance from adjacent teeth and other critical anatomical structures based on up-to-date radiographs and CT scans.
- The use of a surgical guide is highly recommended to ensure correct position and angulation of each implant.

Bone Quality and Quantity types

- Dense, compact (Type I) bone provides better initial stability for implants, when compared to porous (Type IV) bone.
- Treatment planning and loading protocols should be decided upon based on individual bone conditions at each specific placement site.
- A minimum of 1.5mm of bone should surround each implant.
- A minimal distance of 2mm from critical anatomical structures (e.g., nerves) should be planned and maintained to avoid damage to these structures.

Type I: homogeneous cortical bone;
Type II: thick cortical bone with marrow cavity;
Type III: thin cortical bone with dense trabecular bone of good strength;
Type IV: very thin cortical bone with low density trabecular bone of poor strength.



Lekholm U, Zarb GA (1985)

Implants' Shape and Design Considerations

Adin's implants variety, Swell™, Touareg-S™, Touareg-OS™, CloseFit™ and UniFit™ feature:

- A large range of diameters and lengths to be used even when bone volume is limited.
- A unique thread design that ensures excellent anchorage and stabilization in all bone types, be it in standard or immediate implant placement procedures.
- The optimized thread pitch allows faster insertion compared to conventional implants, reducing the number of rotations required for full placement.
- The active apex and sharp threads allow for angulation changes during placement, to enable correct final positioning of each implant.
  Caution: Due to the active apex, implants may not stop at the bottom of the osteotomy. This requires full attention by the surgeon to prevent damage to surrounding structures.
- A distinct collar narrowing of Adin's wider implants is designed to support optimal ridge adaptation, especially when crestal ridge width is limited.
- Special attention is required in the planning and surgical procedures to avoid harming critical structures such as nerves, vessels and sinuses.

Implant Size and their Recommended Sites

Important: Clinicians should take into consideration occlusal forces and harmful habits as well as local anatomical structures and bone availability when planning which implant to place at each site. Adequate radiographs and CBCT are mandatory prior to treatment planning and use of Adin implants.

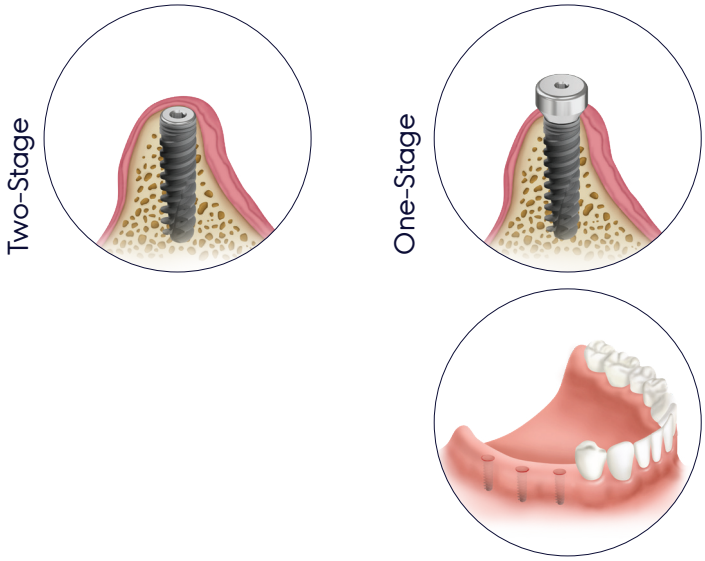
- All Adin implants and platforms, with a diameter of 3.5mm or more, can be used to restore any tooth in the mouth, both in the mandible and in the maxilla.
- When treating patients with heavy occlusal forces, bruxism or damaging oral habits consider using implants with wider diameters.
- Narrow platform (NP) and Ultra Narrow platform (UNP) implants should only be limited to fixed partial denture restorations for replacing maxillary lateral incisors or mandibular incisors. In all other sites, NP and UNP implants should only be used when connected via a fixed partial denture restoration to other, wider implants.

Implant placement notes:

- Adin implants can be placed either by hand or with a contra-angle at speeds of up to 25–30 rpm.
- Insertion torque should not exceed 50Ncm, to avoid damage to implant's connection.
- The use of Adin's Surgical Torque Ratchet or a torque measuring physio-dispenser can ensure correct torquing forces.
- Adin's Implants may be placed at angulations up to 45°.
- Implants placed at angulations of 30° or more cannot support a single unit restoration. They must be connected to other implants in the jaw.

Two-stage and One-stage Surgical Approaches

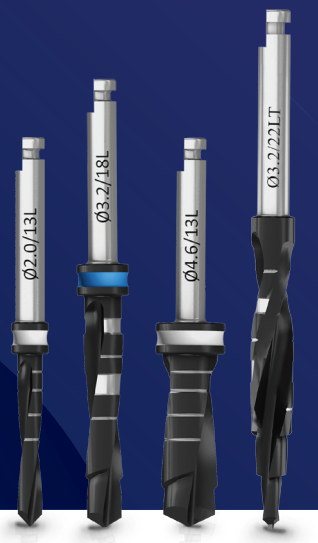
- Adin implants may be implanted with the two-stage or one-stage surgical approach or following the one-stage surgical approach. The decision as to which approach to use lies completely in the hands of the surgeon.
- In the two-stage surgical approach, implants are covered by gingival tissues during the healing phase. After placement, a cover screw (supplied with each implant) is used to block the implant's connection, and the soft tissue is sutured above it. Once osseointegration is achieved, a second surgery is required to expose the connection of the implant and a healing cap or an abutment is used to fabricate an interim restoration and replace the cover screw, and the soft tissue is sutured.
- In the one-stage surgical approach, a healing cap or an abutment with a temporary restoration are connected to the implants on the day of implant placement, so the implant is not covered by gingival tissue. Thus in the one-stage approach there is no need for a second surgical procedure for implant exposure.
  One stage protocol should only be used when the implant has high primary stability at the time of placement.
  Note: Healing abutments should extend to about 2mm above gingival margins, to ensure that soft tissues do not cover it during the healing phase.



Flapless Techniques

- Adin implants may be placed utilizing flapless techniques.
- However, since these techniques prevent direct view of the bone, it requires meticulous planning and execution and should only be considered when using computerized-based guided surgery techniques.

Drilling Protocols



Drills Intended Use

Adin's Dental Drills are bone cutting instruments intended for use in reconstructive oral surgery to drill or cut into the upper or lower jaw to prepare the bone for dental implant insertion.

Drills Description and Characteristics

- Adin's drills are made of surgical stainless steel and are used with external irrigation.
- Drills are available in three lengths: Short 6-13mm, Long 8-18mm and Extra long 16-25mm.

Depth Measurement System

- Each Adin drill is marked with a unique line sequencing pattern to ensure correct measurement of the desired drilling depth.

Caution:

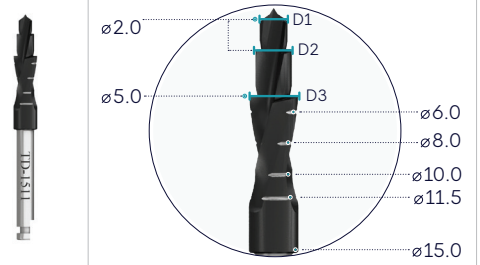
The markings on short and long Adin drills are not identical. Clinicians must become thoroughly familiar with each depth pattern prior to use to avoid damage to adjacent anatomical structures.

- The drills are marked so that preparation is up to 1mm longer than the actual length of the corresponding implants.
- Failure to properly drill to the desired depth can result in permanent damage and injury to nerves and other anatomical structures.
- Stable, in-and-out vertical movements of the drill are critical to allow correct drilling, which allows irrigation and flushing away of debris while penetrating the bone.
- The use of drill stoppers is highly recommended to enable easier control of drill penetration to the correct depth.
- Drill to bone contact should not exceed a few seconds, while pushing the drill further into the bone up to the pre-determined length.
- Follow drill sequence recommendations to widen osteotomy to the desired implant diameter and length while adjusting to bone density characteristics in each site.
- Drilling should be performed at low speeds (800-2000rpm).
- Implant placement should be accomplished at very low speed (25-30rpm) or manually.

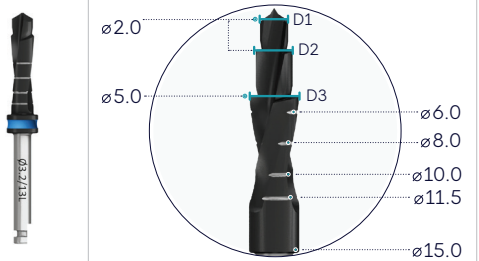
Adaptation of Drilling Protocols to Different Bone Conditions

- All drilling and pre-tapping procedures should be performed using sharp instruments, under constant and profuse irrigation. Replace drills regularly to ensure the use of sharp drills.
- Drilling protocols proposed by Adin cannot replace the professional knowledge and clinical judgement of the performing surgeon.
- The standard drilling protocols that are published in Adin's catalog refer to full bone conditions, i.e.: to cases in which implants are completely covered by bone.
- Following these protocols in type 1-3 bone will result in implants stable enough for standard or immediate loading, when applicable. Note: The success rate of immediate loaded implants does not rely only on their initial stability, but also on prosthetic procedures and occlusal loads that are the complete responsibility of the treating dentist.
- In soft bone conditions, it is recommended to utilize the undersized drilling protocol, that is to use one or two drills less than the relative standard drilling protocol. The self-tapping design and conical shape of the implants ensure smooth insertion and bone condensation during placement into such undersized osteotomies and result in adequate initial stability.
- In dense bone conditions, it is recommended to finalize the osteotomy by widening the entrance to the osteotomy using a drill that is closest to the implant's diameter, to avoid pressure on the cortical bone surrounding the implant
- NEVER exceed 50Ncm of torque when placing Adin dental implants.

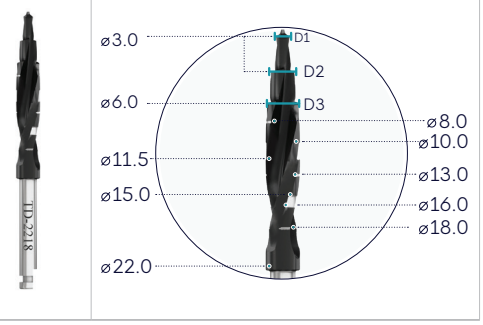
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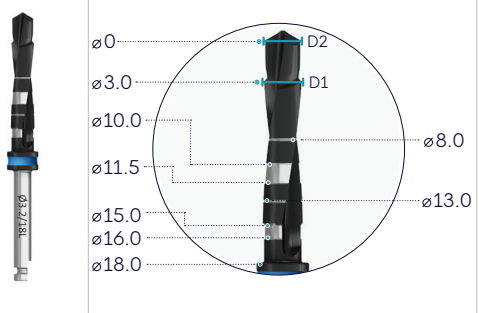
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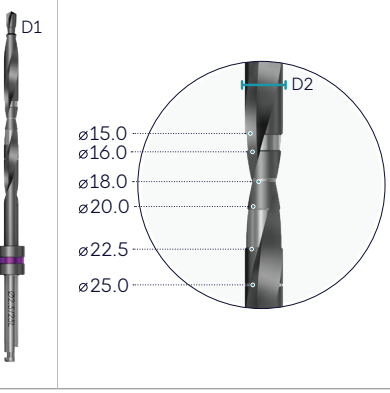
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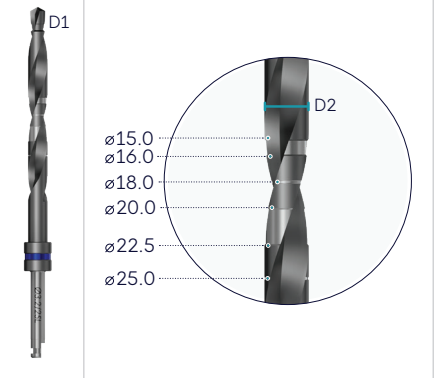
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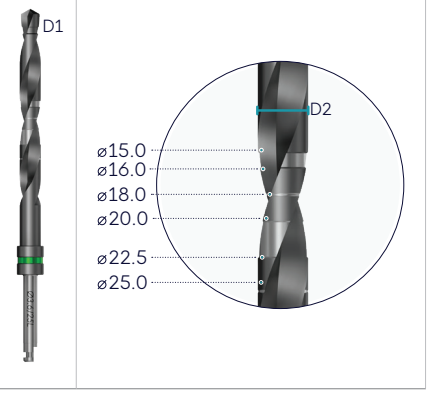
Catalog No. DL2525



Catalog No. DL2532



Catalog No. DL2536

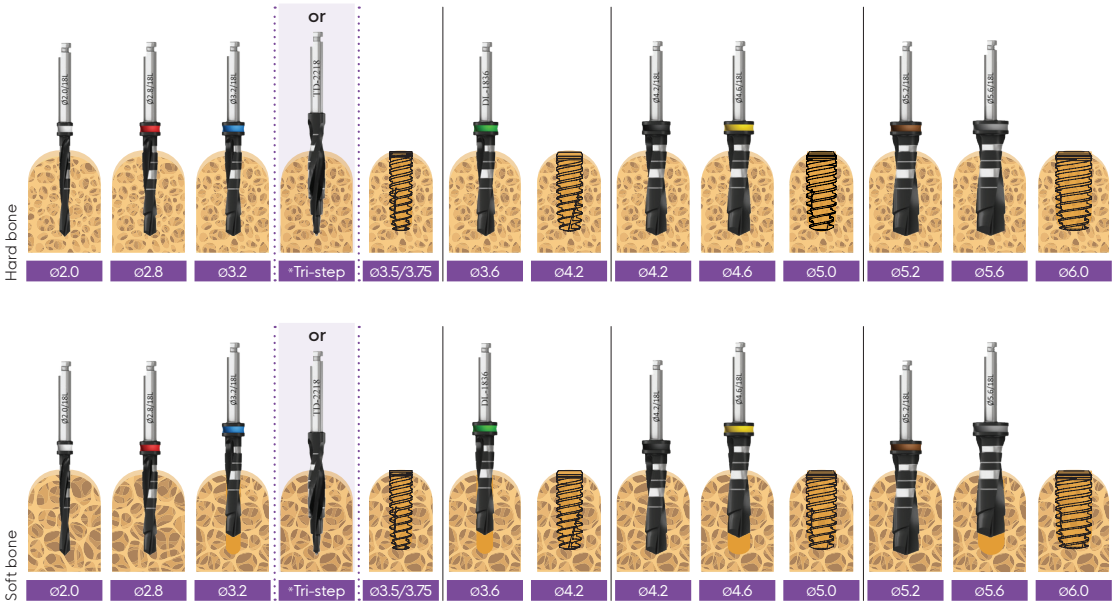


Important: All measurements are in mm.
Caution: The drills are marked so that preparation is up to 1mm longer than the actual length of the corresponding implants.

Step-by-Step Drilling Procedure

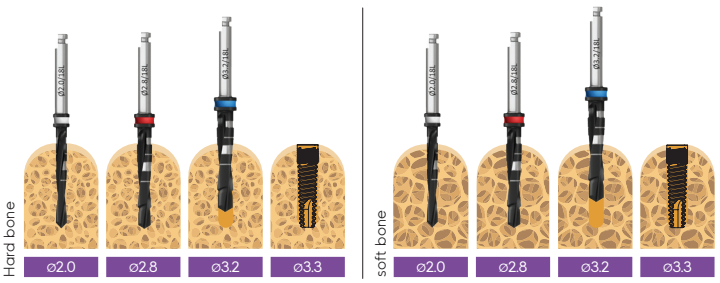
Drill Sequence for Touareg S/OS™ Recommended drilling speed up to 1200 rpm

Implant Diameter ø3.5/3.75 ø4.2 ø5.0 ø6.0

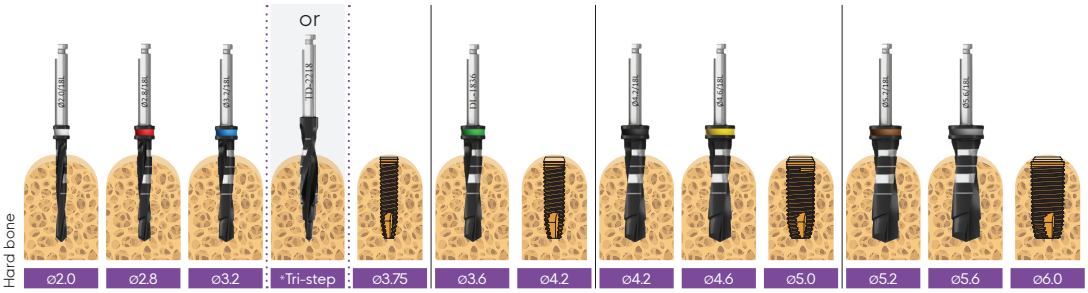


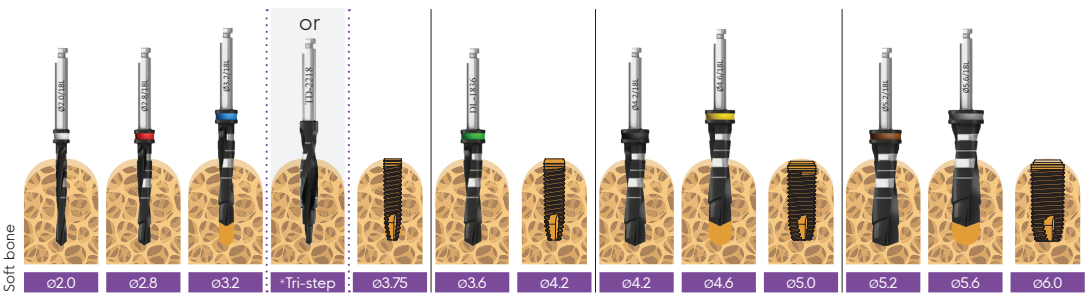
Drill Sequence for Swell™ Recommended drilling speed up to 1200 rpm

Implant Diameter ø3.3

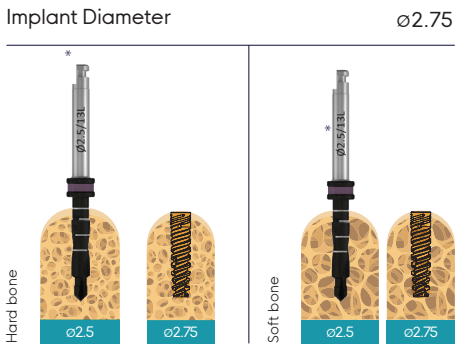


Implant Diameter 3.75 ø4.2 ø5.0 ø6.0

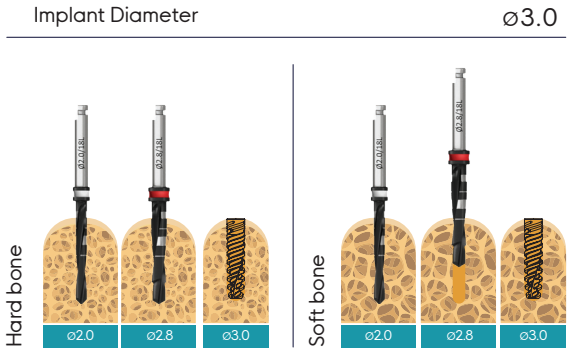




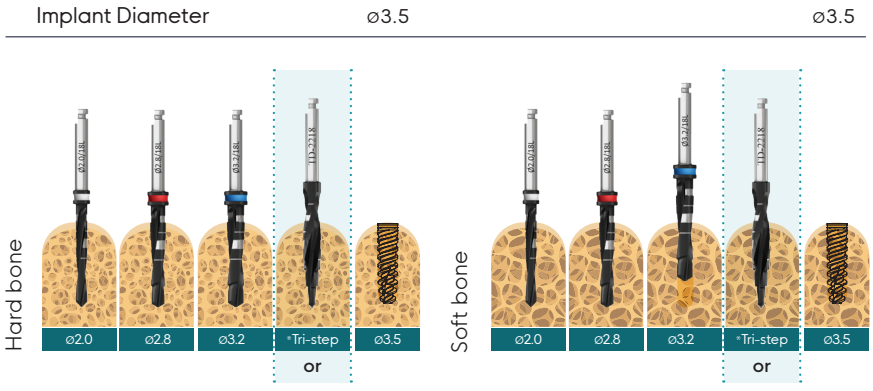
Drill Sequence for UNP Recommended drilling speed up to 1200 rpm



Drill Sequence for NP Recommended drilling speed up to 1200 rpm



Drill Sequence for RP Recommended drilling speed up to 1200 rpm



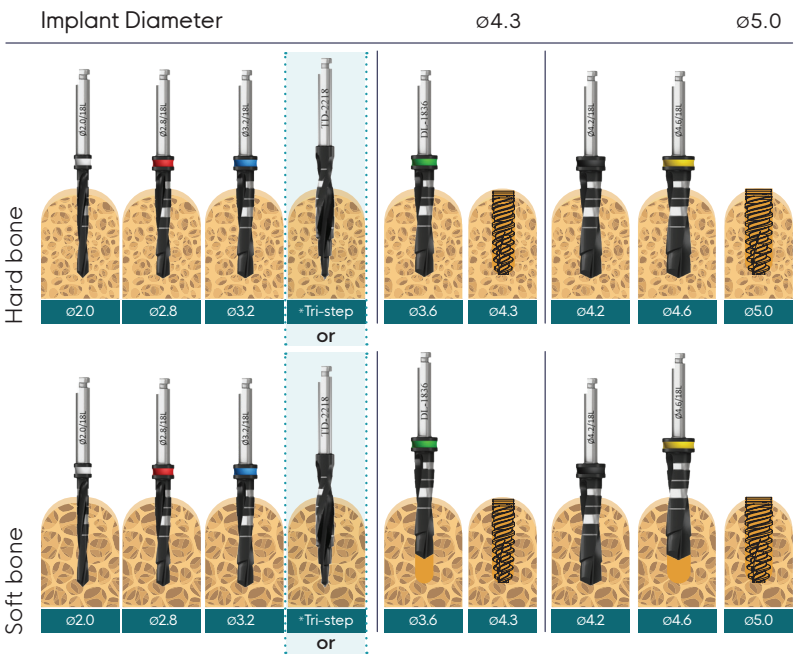
All measurements are in mm.

*For initial drilling, you may use Tri-step drill instead of ø2, ø2.8 and ø3.2 drills in sequence.

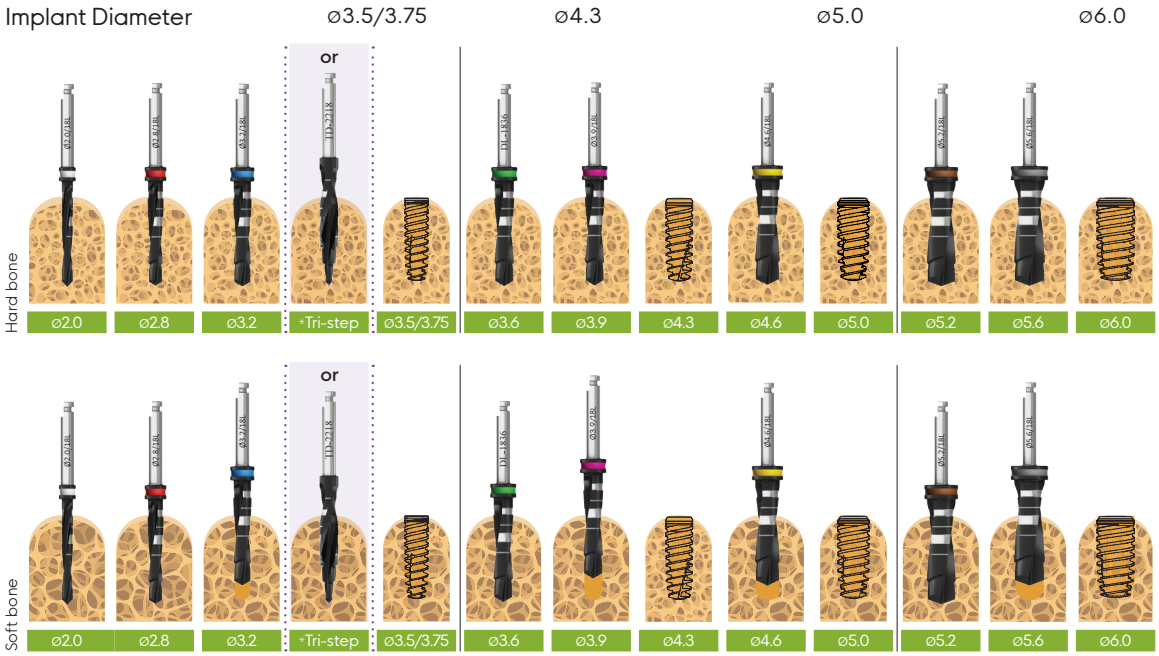
Note: (x.xx) Drill to the depth of the cortex only. All measurements are in mm.

⚠ CAUTION: The drill preparation is up to 1mm longer than the implant. * The drill apical step = 1.8mmD

Drill Sequence for WP Recommended drilling speed up to 1200 rpm



Drill Sequence for UniFit™ Recommended drilling speed up to 1200 rpm



All measurements are in mm.

*For initial drilling, you may use Tri-step drill instead of ø2, ø2.8 and ø3.2 drills in sequence.

Note: (x.xx) Drill to the depth of the cortex only. All measurements are in mm.
⚠ CAUTION: The drill preparation is up to 1mm longer than the implant. * The drill apical step = 1.8mmD

Drilling Accessories

Drill Extension Shaft

A Drill Extension Shaft is used to enable elongation of the regular drill shaft for instance, when drilling between two teeth or restorations. The elongated shaft requires adjustment of the irrigation mechanism to ensure that a constant flow of saline reaches the drill.
Caution: Extension shafts are not intended for use with any tool other than drills.

Parallel Implant Positioning

It is recommended that Implants be placed parallel or at mild angulations between each other.
Parallel Pins (supplied in all surgical kits) can be used after initial drilling to indicate implant positions and angulations.
After a parallel pin is placed into the first osteotomy, it can be used as a guide for the next osteotomies.
Additional parallel pins, inserted into multiple sites can ensure parallelism among all implants.
Attention: Although implant parallelism is highly recommended, bone anatomy and adjacent anatomical structures should be considered since they may prevent ideal implant parallelism. In such cases, consider using shorter implants or angulated implants to prevent damage to vital structures.

Drill Cautions and Warnings

- Adin drills should only be used by a licensed dentist who has the knowledge, skills and training related to the surgical placement and restoration of dental implants.
- Dental practitioners must review and become thoroughly familiar with Adin's measurement system to avoid damage to adjacent anatomical structures.
- Adin drills are supplied non-sterile. The drills must be cleaned, disinfected and sterilized prior to first use and before each reuse. Cleaning, disinfection and sterilization instructions are described in the relevant IFU.
- For the most up-to-date Instructions for Use refer to: https://eifu.adin-implants.com
- Prior to each use, drills should be inspected for any wear and/or damage. Defective drills must not be used.
- Do not exceed the maximum speeds published by Adin.
- Excessive drilling speed and/or drilling duration may cause overheating and may compromise healing and osseointegration.

Note: Dental professionals must review and become thoroughly familiar with Adin's systems and instructions prior to use to avoid damage to patients.

Cleaning, Disinfection and Sterilization

Adin dental abutments, drills and tools are supplied as non-sterile. Abutments, packaged together with an Abutment Screw, should be cleaned and sterilized before coming into contact with the patient.
These instructions for cleaning, disinfection and sterilization are applicable before first use of all tools (single-use and multi-use) and before each subsequent re-use in case of reusable tools. The devices must be cleaned manually or in an automatic washer. After cleaning, the devices must undergo manual or automatic disinfection. Each device/kit must be individually sealed in a sterilization pouch and sterilized.
The following cleaning, disinfection and sterilization processes have been validated according to international standards and guidelines:

Cleaning

Note: The following cleaning procedure should be performed prior to first clinical use and immediately after each surgery, as applicable to all of Adin's drills and instruments:

Manual cleaning using ultrasonic cleaner:

- Disassemble the entire kit, including all drills and components that were not used.
- Remove residual blood, soft or hard tissue debris using running tap water immediately after use. Brush each instrument thoroughly with a soft bristled brush, away from your body, for a minimum of two minutes.
- Clean the interior lumen using a thin brush (where applicable).
  Note: Do not use hot or boiling water.
- Clean each instrument-holding silicone tube separately to ensure removal of all blood or debris.
- Use an ultrasonic cleaner for 10 minutes using a neutral or mild pH enzymatic detergent (e.g. deconex® POWER ZYME) diluted with purified water as 1ml/liter or as per the manufacturer's instructions.
- Clean the kit's plastic components thoroughly using a mild detergent, and then rinse in running tap water.
- Inspect each tool or component for any remaining visible debris and repeat the cleaning process if needed.

Automated cleaning using automated washer:

Note: Applicable for all reusable drills and instruments

- Disassemble the entire kit, including all drills and components that were not used.
- Remove residual blood, soft or hard tissue debris using running tap water.
- Place the instruments in an automatic washer with neutral or mild pH enzymatic detergent (e.g. deconex® POWER ZYME) diluted per the manufacturer's instructions
- Perform a washing cycle, using the following cycle parameters:
  - 4 minutes pre-rinse with cold water at 30±5°C
  - 10 minutes cleaning with enzymatic detergent at 55±5°C
  - 1 minute intermediate rinse at 30±5°C
  - 10 minutes final rinse at 30±5°C with distilled water
  - 35 minutes drying at 80±5°C.
- Inspect each tool or component for any remaining visible debris and repeat the cleaning process if needed.

Disinfection

Note: Applicable for all reusable drills and instruments.

Manual Disinfection:

1. Wear disposable gloves.
2. Soak the device in a container filled with 70% Ethanol, for 5 minutes.
3. Wipe the device with a damp cloth.
4. Leave the device for complete air dry.

Automated Disinfection:

1. Pre-wash: with cold tap water 25-35°C, 3 min
2. Main Cleaning: with tap water add Deconex® POWER ZYME Cleaning at 55±5 °C, 5 min.
3. Rinse with warm (50°C) DI / RO water, 1 min.
4. Thermal disinfection: with DI- / RO-water at 80°C, 3 min.
5. Drying: 6 min at 100°C

Sterilization

- Prior to reassembly and sterilization, all components should be rinsed in running tap water to remove any residual detergent or cleaning solution.
- All components MUST be completely dry prior to steam-sterilization, to prevent corrosion. Dry the devices using paper toweling or dry heat not exceeding 132°C/270°F.
- Place assembled kits or individual tools and instruments in FDA-cleared sterilization bags or wrap them in sterilization level single-use wrapping material for these intended autoclave sterilization cycles. Kit's type and date of sterilization should be marked on the outside using a permanent marker.
- Adin recommends the use of steam sterilization using the following autoclave sterilization parameters:

Cycle Type	Temp.	Exposure Time	Drying Time
Gravity Displacement	132°C/270°F	15 Minutes	30 Minutes
Pre-Vacuum	132°C/270°F	4 Minutes	30 Minutes

Storage

Sterile kits should be stored in a clean cabinet/drawer at room temperature.
Note: Kits remain sterile for a limited period of time, based on the specifications provided by sterile bag/ wrap manufacturer.

Prosthetic Procedures

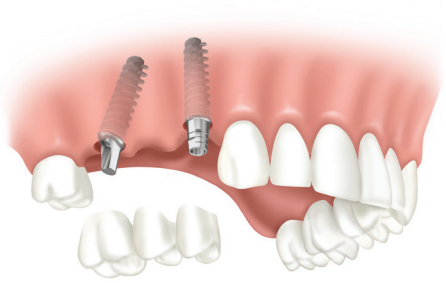


Restorative Options

- **Cement-retained restorations:** This method utilizes pre-fabricated or laboratory made abutments to create units that are similar to prepared teeth. Each abutment is screwed onto the implant, and a restoration is cemented onto single or multiple abutments.
- **Screw-retained restorations:** This method utilizes screws to attach restorations directly to implants, or to prefabricated abutments (TMAs). In this type of restoration, an access hole remains in the occlusal surface of the restoration.
- **Overdentures:** This method allows complete or partial removable dentures to gain support and retention using Ball or Grip Attachments that are connected to dental implants, or by using a bar which is connected to a few implants.

Main indications, benefits, and concerns related to each option:

Cement-Retained Restorations

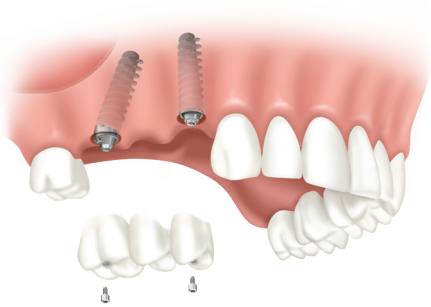


Main indications:
Single or multiple restorations.

Benefits:
A fixed solution. Resembles standard crown and bridge procedures. Stable occlusion. Better esthetics (no occlusal access holes).

Concerns:
Cement removal may be difficult. Difficult to retrieve.

Screw-Retained Restorations

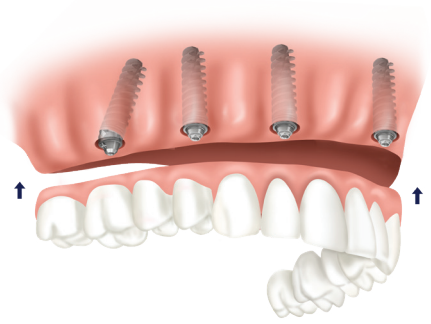


Main indications:
Single or multiple unit restorations

Benefits:
A fixed solution. Easy to retrieve.

Concerns:
Occlusal stability may be compromised due to screw access holes.

Overdentures

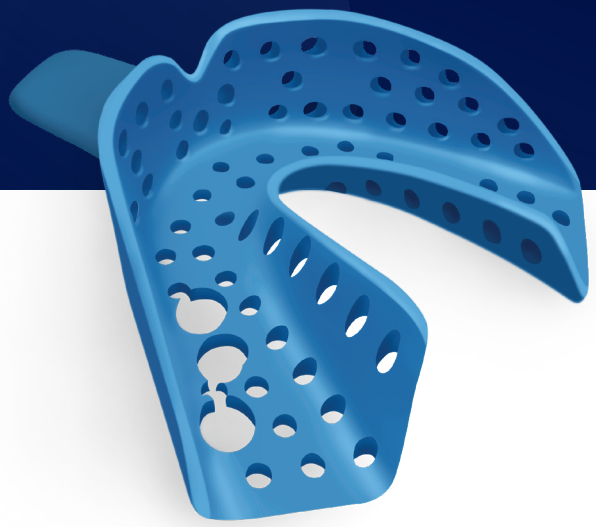


Main indications:
Edentulous jaws

Benefits:
Increased quality of life due to better retention and stability of the denture. Simple and easy cleaning and maintenance. Low cost.

Concerns:
At least two implants are required. Implants should be parallel.

Impressions

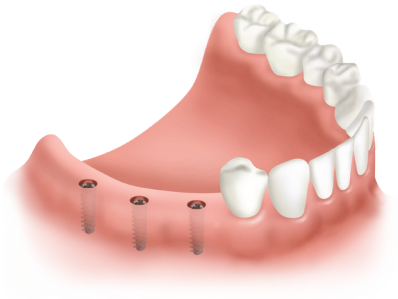


Impression Types

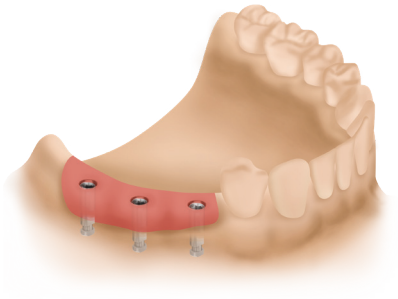
There are two impression types in implant dentistry:

Implant-Level Impressions
Transfers the accurate location and 3D position of each implant to the laboratory.

Patient

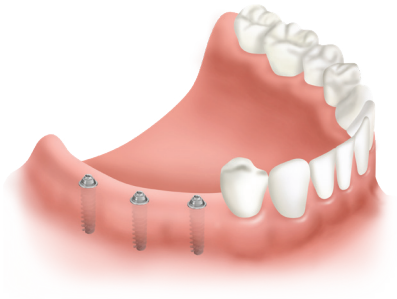


Model

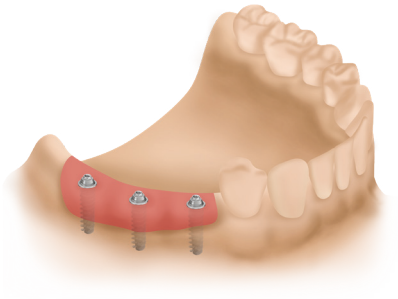


Abutment-Level Impressions
Transfers the accurate location and 3D position of each abutment to the laboratory.

Patient



Model



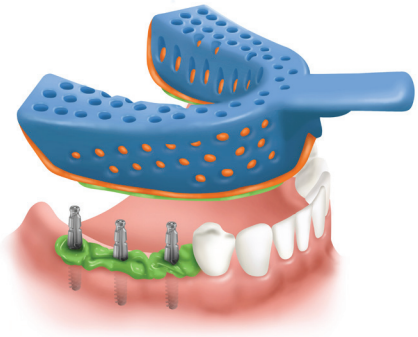
Each one of these impression types can be captured using one of three impression techniques:

Closed tray impression technique

This technique is similar in many ways to conventional crown and bridge impression techniques.
An impression coping is attached to each implant, and an impression tray filled with impression material records the oral structures.
After setting, the impression tray is taken out of the mouth, each impression coping is attached to an analog and then reinserted into its corresponding position in the impression.

Impression component
Short impression component, with mild retentions

The outcome
Impression components remain attached to the implants when tray is taken out of the mouth, and later are re-installed into the impression material



Open tray impression technique

In this technique, holes are made in the impression tray above each impression coping (hence the name "open tray"). As the impression tray filled with impression material is placed, the tips of the impression copings or their long screws must extend out of the tray and be visible to the dentist.
After setting, the screws are unscrewed, and the tray is taken out of the mouth while the impression copings are embedded within the impression material. Analogs are later attached to each coping.

Impression component
Long Impression component with extensive retentions

The outcome
Impression components remain embedded within the impression material when tray is taken out of the mouth

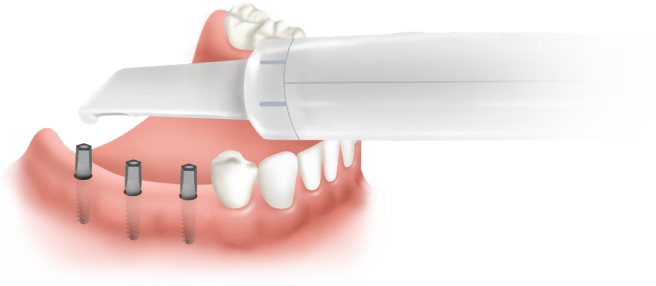


Digital impression

This technique utilizes specially made scan bodies that should be recognizable by the specific digital system, to capture the correct three-dimensional position of each implant and the surrounding oral structures.

Impression component
Scan body

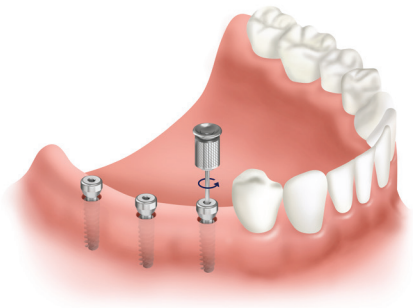
The outcome
3D digital data



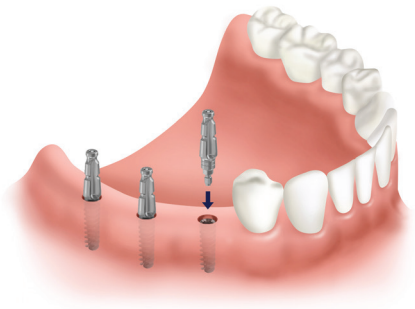
Closed Tray Impression Technique

Step By Step

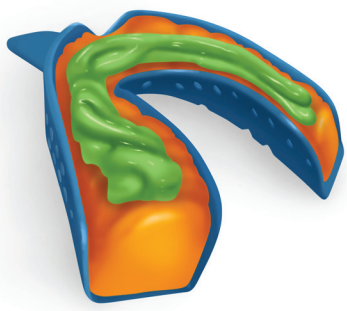
1. Remove healing cap or provisional restoration.



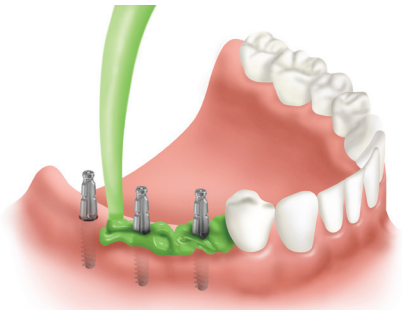
2. Attach a closed-tray impression coping to each implant. Ensure correct and complete seating of each coping.



3. Fill an impression tray with impression materials.



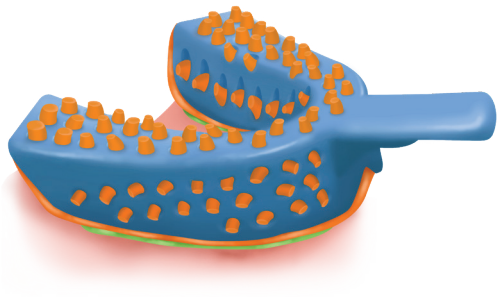
4. Inject a light or medium body impression material around each impression coping and the surrounding structures.



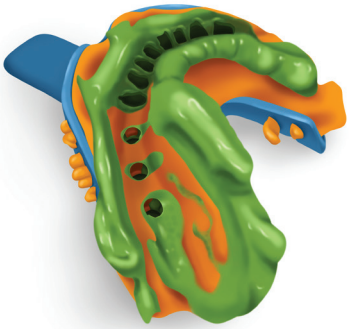
5 Place the impression tray into the mouth to take the impression.



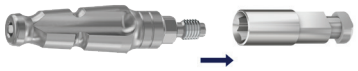
6 Hold tray in place until materials set.
Impression copings will remain attached to each implant when tray is removed from the mouth.



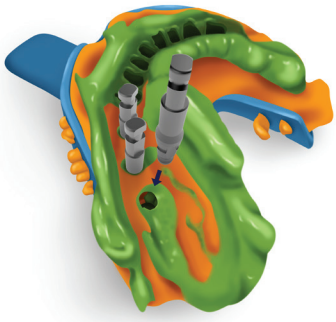
7 Once impression material sets, remove impression from the mouth.



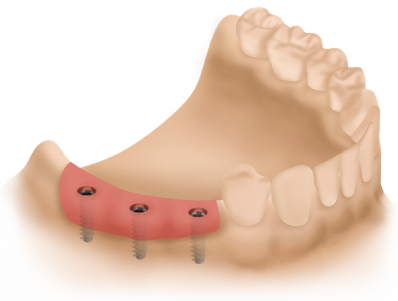
8 Remove each impression coping and connect it to an analog.



9 Re-install each coping-analog assembly to its original place within the impression.



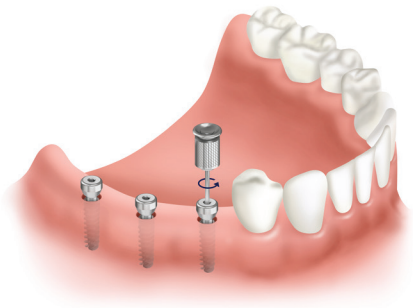
10 Fabricate a working model.



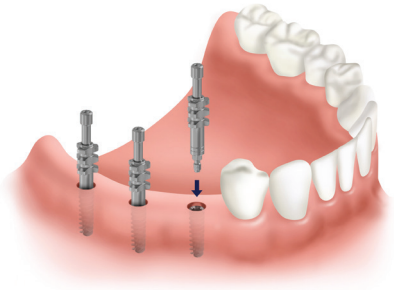
Open Tray Impression Technique

Step By Step

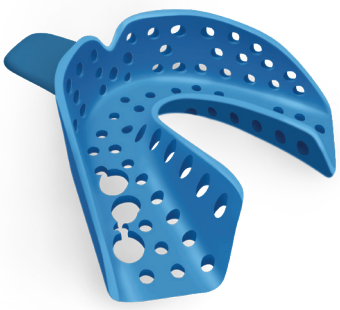
1. Remove healing cap or provisional restoration.



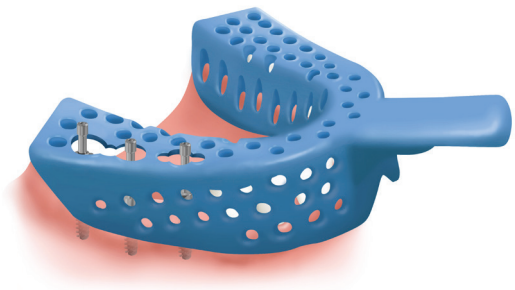
2. Attach an open-tray impression coping to each implant. Ensure correct and complete seating of each coping.



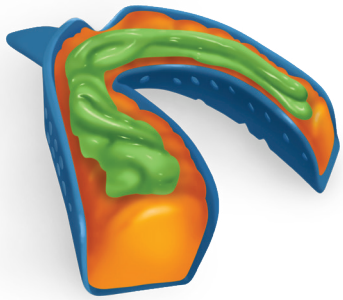
3. Create 5mm diameter holes above each impression coping.



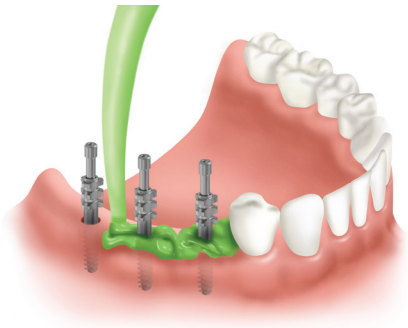
4. Make sure that the long screws are visible through the tray when it is placed in position.



5 Fill an impression tray with impression materials.



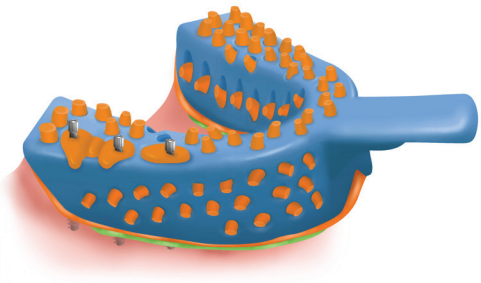
6 Inject a light or medium body impression material around each impression coping and the surrounding structures.



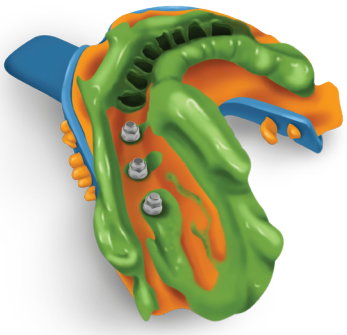
7 Place the impression tray into the mouth to take the impression.



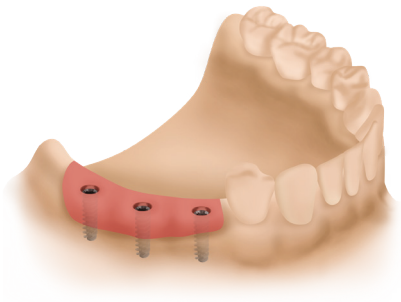
8 Ensure that each long screw is visible through the impression material.
Hold tray in place until materials set.
Unscrew each screw prior to removing tray.
Transfers will remain embedded within impression material.



9 Once impression material sets, remove impression from the mouth and attach an analog to each impression coping.



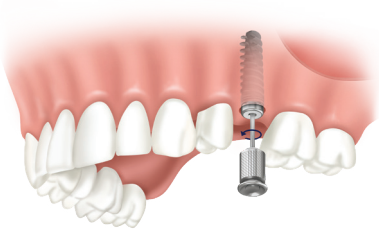
10 Fabricate a working model.



Digital Impression - Dental Implants

Step By Step

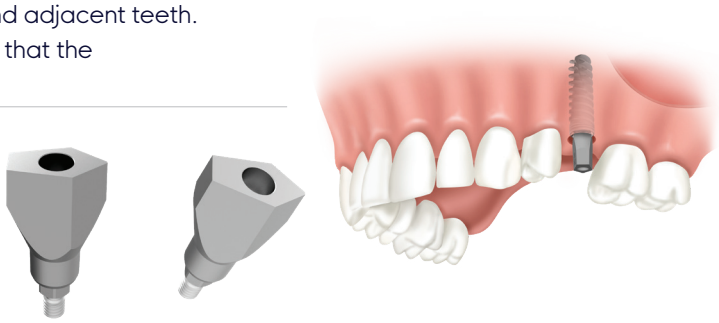
1. Remove healing cap or provisional restoration.



2. Scan implant site with surrounding teeth, ensuring that the proximal walls of teeth adjacent to implant site are completely captured.



3. Connect a scan-body to each implant, leaving as much space as possible between scan-body and adjacent teeth. Scan the area scanned in Step 2, ensuring that the scan body is correctly captured.



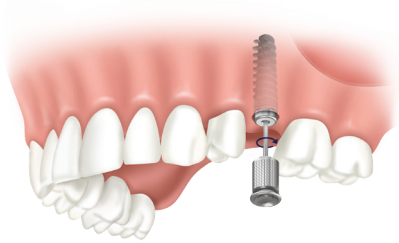
4 Scan the opposing dentition.



5 Remove scan-body.
Ensure that patient is in full occlusal contact and scan patient's teeth in full occlusion.



6 Reconnect healing abutments or provisional restoration.



Note: The following scanning sequence is provided for illustrative purposes only.
Users must adhere to the scanner manufacturer's Instructions for Use.

Abutment for Fixed Restorations

There are three main abutment types for the fabrication of fixed restorations:

- **Abutments for cement retained restorations**
  These are long, straight or angulated abutments, with or without a chamfer. The final restoration is cemented onto them like a conventional crown or bridge.
- **Abutments for screw retained restorations**
  Abutments such as TMAs are short, conical shaped abutments. The restoration is secured to the abutment using a dedicated prosthetic screw.
- **Abutments for direct screw retained restorations**
  These restorations are directly screw-retained to the implant or implant interface without an intermediate abutment. They are fabricated using either digital workflows or conventional casting techniques.
  Note: Provisional abutments are available for screw retained restoration types. They share the main characteristics of the corresponding final abutments.

Basic Abutment Type Comparison Table:

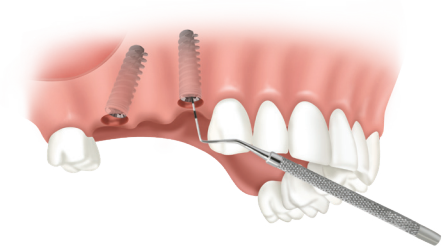
	Cement retained abutments	TMA abutments	Direct, screw retained abutments
Description	Long (UniFit™ 12.5mmL), straight or angulated abutments, with or without a chamfer	Short, conical, straight or angulated abutments	Long, straight abutments, with or without a pre-fabricated metal implant connection
Angulated abutment options	15°, 25°, 35°	17°, 30°, 45°, 52°, 60°	None
Available gingival heights	1-4mm	1-5mm (Straight TMAs only)	1-4mm
Main benefits	Most similar to standard crown and bridge procedures Can be modified chairside or in the dental laboratory	Retrievable	Low vertical height
Concerns	Abutment restorative portion should not be shorter than 4 mm	Access holes through occlusal surfaces	Access holes through occlusal surfaces May overload implant connection

Cement Retained Fixed Restorations

Step By Step

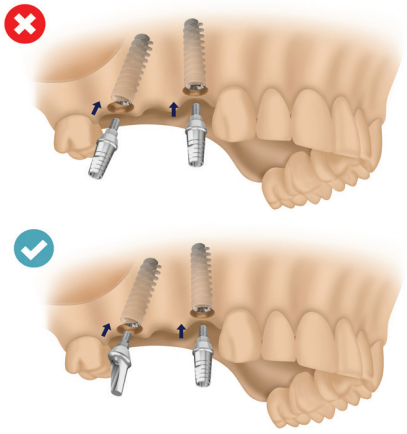
Abutment selection:

1. Measure the depth of the gingiva from the implant head.
Select abutments that are about 1mm below gingival margins, if the restoration is within the esthetic zone or if margins should not be visible. Otherwise, it is easier if margins are within gingival level or supra-gingival.
Note: Cement removal may be impossible if restoration's margins are located deep sub-gingival. Unremoved cement has been reported to cause damage to peri-implant tissues and to surrounding bone.

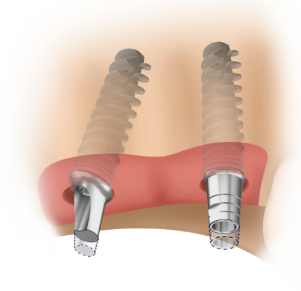


2. Choose angulated abutment/s when required. When fabricating a multiple-unit fixed restoration, all abutments need to be parallel to each other; it is advisable to choose all abutments before continuing.

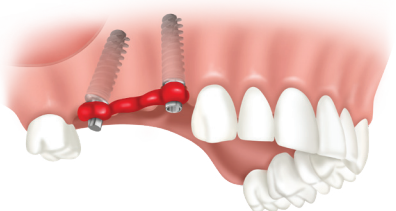
Note: Abutment selection is easiest when done on an accurate master model, not in the patient's mouth.



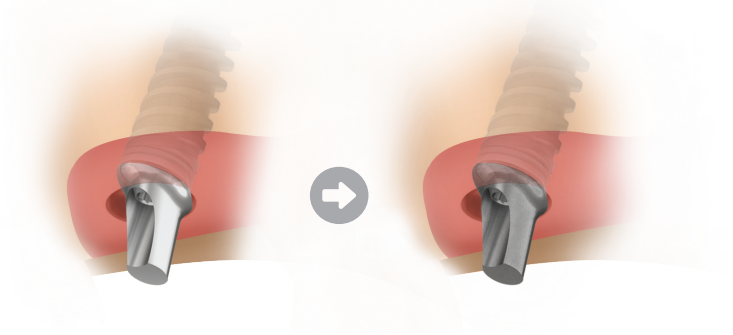
3. Shorten and modify abutments as needed, ensuring retention and resistance are not lost:
   - Do not shorten abutments so that their restorative section height is shorter than 4 mm.
   - Do not over-reduce abutment walls. This may compromise abutment strength.



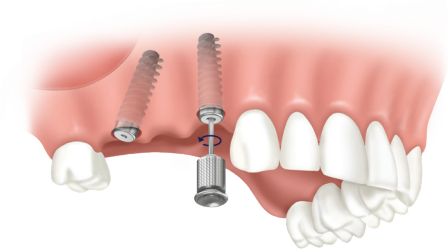
4. A pattern-resin key may enable easy placement of the abutments within the mouth or the master model. The key is a skeleton which surrounds each abutment so that each abutment has a single position within it, while allowing access to the adhering screws.
This key is of utmost importance when multiple angulated abutments are used.



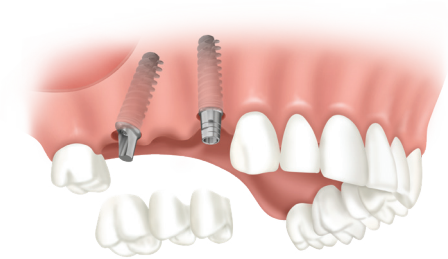
5 Follow standard crown and bridge fabrication processes to fabricate the desired cemented restoration.
Note: It is recommended that abutments be sandblasted before delivery, to ensure adequate retention of the cement.



6 Remove healing caps and connect each abutment to its corresponding implant. Use the pattern-resin key, if available, to ensure correct seating of the abutments.



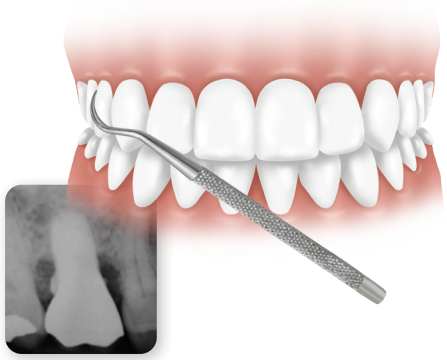
7 Fasten each abutment using a torque ratchet UNP = 25Ncm
NP/RP/WP/RS/UF = 35Ncm
Follow standard crown and bridge procedures to ensure proper seating of the restoration.



8 Adjust occlusion, making sure that there is no overloading of the implant-supported restoration in static and dynamic occlusal excursions.



9 Fill abutment screw access holes with a sealer or with a cotton ball to ensure that cement does not fill the head of the screw. Use a cement of your choice, making sure to remove all excess cement from around the margins. Reassess occlusal adjustment after cementation.
A radiograph can assure that no cement was left around the base of the restoration.

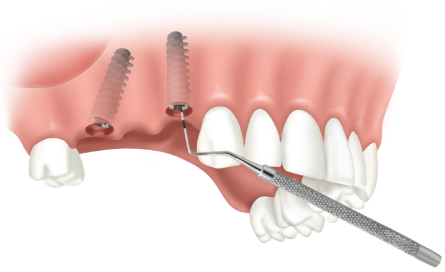


Screw Retained, TMA Abutments Fixed Restorations

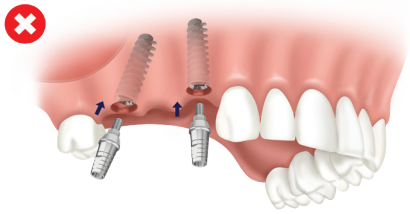
Step By Step

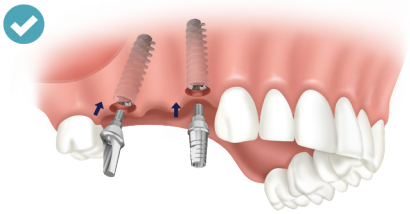
Abutment selection:

1. Measure the depth of the gingiva from the head of the implant. Select abutments that are about 1mm below gingival margins when the restoration is within the esthetic zone or if margins should not be visible. Otherwise, it is easier if margins are within gingival level or slightly supra-gingival.



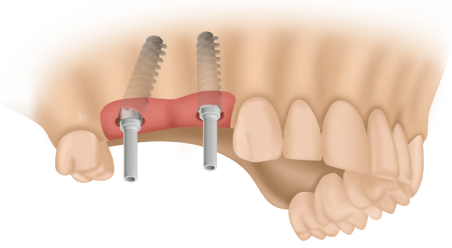
2. Choose angulated abutment/s when required. When fabricating a multiple unit fixed restoration, it is advisable to choose all abutments, straight and/or angulated abutments before continuing.



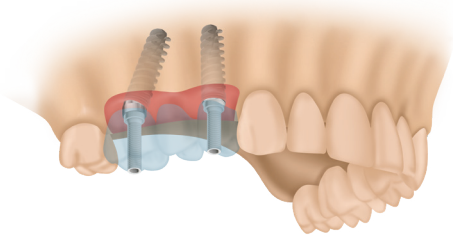


Note: Abutment selection is easiest when done on an accurate master model, not in the patient's mouth.

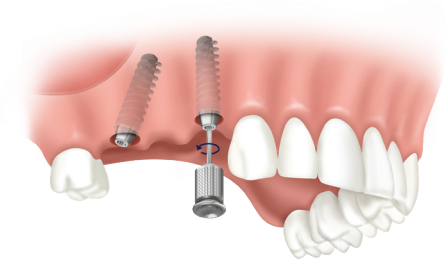
3.
- Attach TMA casting sleeves to each abutment, then shorten and modify the sleeves as needed.
- Alternative option: Scan master model using a 3D scanner.



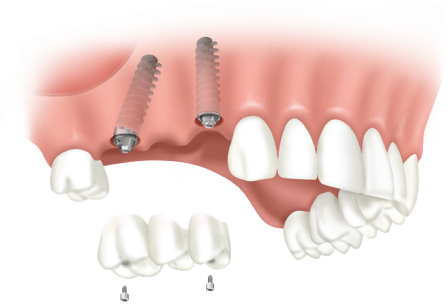
4. Follow standard crown and bridge fabrication steps to fabricate the desired restoration, making sure that access holes are left open for TMA screws.



5 Remove healing caps and connect each abutment to its corresponding implant.



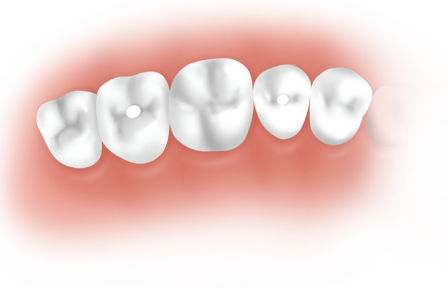
6 Place restoration on TMA abutments.
To assess passive fit screw the most distal screw on one side, and ensure complete seating of the restoration on all other TMA abutments. Subsequently, repeat this procedure using the most distal screw on the other side to ensure passive fit.
Then secure all screws at 15Ncm to fasten the restoration to its place.



7 Adjust occlusion, making sure that there is no overloading of the implant-supported restoration in static and dynamic occlusal excursions.



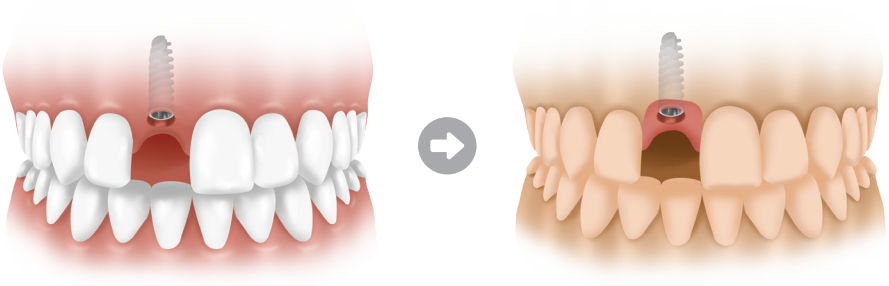
8 Once restoration is ready for delivery, remove the restoration and then fasten each TMA abutment using a torque ratchet at 35 Ncm, and fasten restoration's screws again at 15 Ncm. Cover each screw with a sealer or with a cotton ball and fill each access hole to ensure that the heads of the screws are not blocked. Use composite material to block the screw holes of the restoration. Reassess occlusal adjustment.



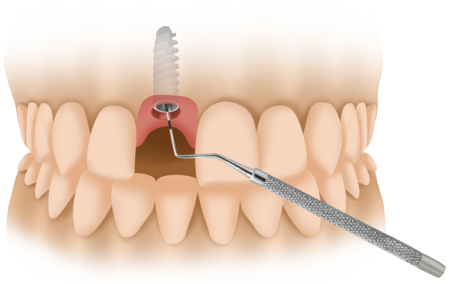
Direct Screw Retained Fixed Restorations

Step By Step

1. Take an implant level impression or digital scan.



2. Measure gingival depth and choose a Ti Base that is at least 2mm shorter than the gingival margins. The restorative section of the chosen Ti Base should be the highest possible, to support and retain the restoration.

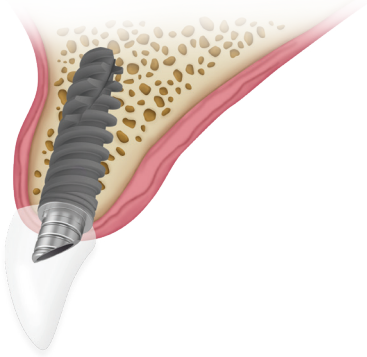


Ti Bases:

Notes: Ti Base units ensure accurate and long-lasting implant-restoration connection.
They are used for the fabrication of either custom CAD CAM abutments or direct CAD CAM screw retained restorations.
Direct screw retained restorations can be used for single-unit restorations and/or for multiple-unit restorations.
Direct multiple-unit restorations require that the implants be completely parallel to each other.

All Ti Base abutments are to be sent to the following Adin Dental validated milling center for manufacture (Steps 2-4):
Pittman Dental Laboratory, 2355 Centennial Circle, Gainesville, GA US 30504.Tel: +1-800-235-4720 | e-mail: support@pittmandental.com
For the current list of validated milling centers, see: https://www.adin-implants.com/user-manual

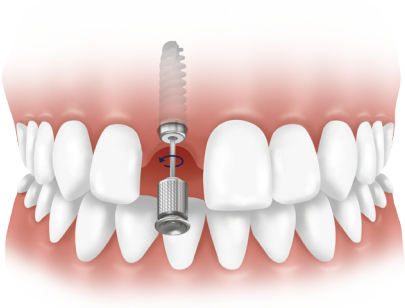
3. Attach the Ti-base to each implant analog. Minimal adjustments to Ti Base components are possible but not recommended.
Note: For single unit restorations ONLY use ENGAGED components.



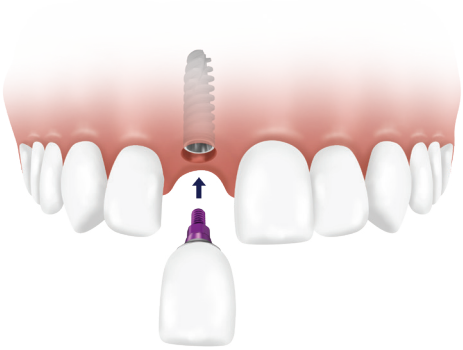
4 Restorations can be fabricated using CAD CAM or traditional crown and bridge fabrication techniques.
Make sure that access holes are left open for the fastening screw when cementing the restoration onto the Ti Base units.



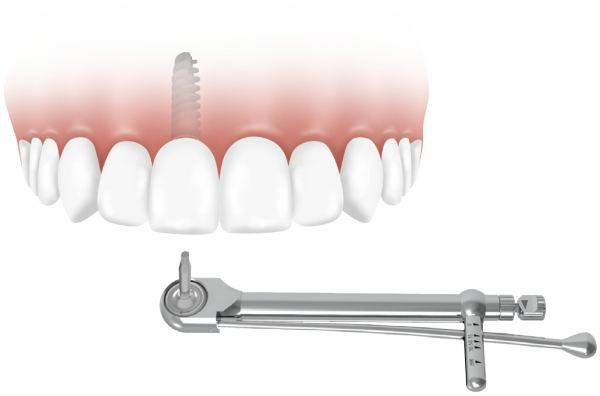
5 Clinical steps:
Remove healing abutment/s and connect the restoration to the implant/s.



6 Screw restoration into the implants using hand torque, and adjust occlusion, making sure that there is no overloading of the implant-supported restoration in static and dynamic occlusal excursions.



7 Once restoration is ready for delivery, fasten the restoration screws at UNP = 25Ncm, NP/RP/WP/RS/UF = 35Ncm.
Cover each screw with a sealer or with a cotton ball and fill each access hole to ensure that the heads of the screws are not blocked and use a composite material to block the screw holes of the restoration. Reassess occlusal adjustment.



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