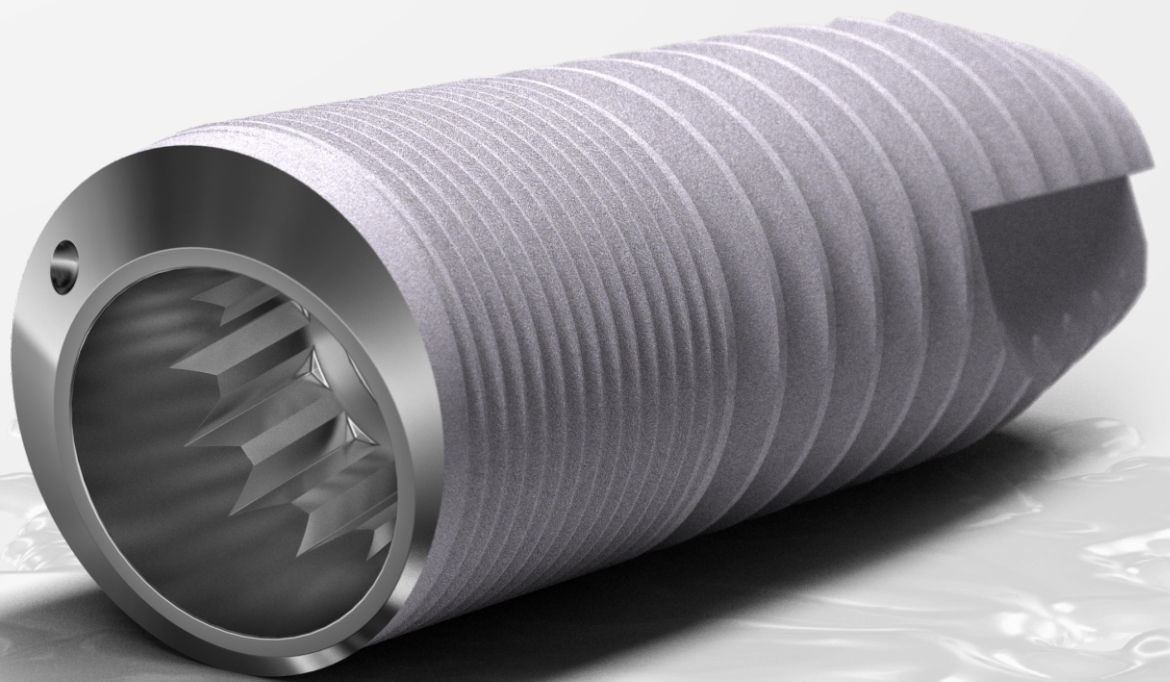




SURGICAL MANUAL

VERSION 1



Dental implants are now an indispensable part of dental treatment options. With the globalization of medical infrastructures and higher standards of living, implant applications continue to increase.

Southern Implants has been a manufacturer and distributor of dental implants since 1987. Today, the Southern group is a leading biomedical engineering entity, with major intellectual property and capabilities in implantable devices, arthroplasties and tissue regeneration. Top-end professional users, who want more choices, have driven our product range to enormous and exciting heights. Striving for excellence and meeting customer needs has led to our wide product range characterized by numerous unique and innovative products, which include:

- Multiple interfaces, both internal and external, to suit customer preference.
- The MAX implant, a specialised implant, specifically designed for immediate molar tooth replacement.
- Co-Axis™, the first angled-top, tapered, screw-form implant, available in angulations of 12°, 24° and 36°.
- The 55° Zygomatic implant and Oncology implant, optimized for prosthetic versatility.
- Many products engineered for primary stability and suitable for immediate loading.

My sincere thanks to all specialists, dentists and technicians who give continual feedback, suggestions and input. Our products are an interpretation of your needs.



Graham Blackbeard
Managing Director, Southern Implants

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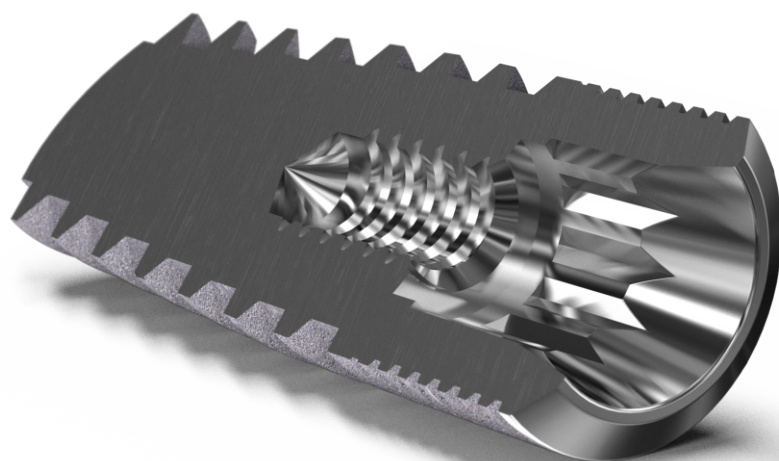
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Please note:

- Images are for illustration purposes only and do not necessarily accurately represent the product.
- All dimensions in this catalogue are in mm, unless otherwise specified.
- Not all products are cleared for sale in all countries.

Introduction

This surgical manual provides instructions for placement of the Southern Implants Deep Conical (DC) range of dental implants.

Note: This surgical manual is not intended as a substitute for adequate training. For the safe and effective use of dental implants, it is strongly suggested that specialized training be undertaken, including practical training to learn proper technique, biomechanical requirements, and radiographic evaluation.

Description Implant:

- The Deep Conical (DC) implant is a self-tapping implant made of commercially pure special Grade 4 Titanium (UTS 920 Mpa).
- Implants are available with either a tapered or parallel walled body shape. (See Table 1 for available implant diameters and lengths.)
- Micro-threads on the implant neck, maximize bone implant contact and optimally distribute load in the critical cortical bone region.
- All implants are surface-roughened up to the collar using Southern Implants' proven surface. The surface has a S_a value of 1.4 microns. For detailed information, see CAT-1116.
- The connection interface features an 22° internal cone for excellent implant-abutment junction sealing, and a double internal hex feature that offers rotational stability and tactile sensibility for the user, during placement.
- The beveled collar provides a built-in platform shift.
- Tapered implants feature a double-start thread offering a more aggressive pitch for improved primary stability in cases involving immediate loading and/or soft bone.
- The DC implant is also available in the angulated platform Co-Axis design. With a built-in platform angulation of 12° , this design enables tilting of the implant without compromising the restorative emergence angle. The DC Co-Axis implant is available in diameters of $\varnothing 3.5\text{mm}$ and $\varnothing 4.0\text{mm}$, and in

tapered or parallel walled body shapes. The tapered Co-Axis implant (DCT-12d) features a single start thread, with a 1mm pitch, to optimize vertical positioning of the implant. (a full rotation, will sink the implant 1mm deeper)

- Cover-screw and healing abutment are packed separately.

Considerations

Indications and intended use

These dental implants are intended for both one- and two stage surgical procedures in the following situations and with the following clinical protocols:

- replacing single and multiple missing teeth in the mandible and maxilla,
- immediate placement in extraction sites and in situations with a partially or completely healed alveolar ridge,
- immediate loading in all indications, except in single tooth situations on shorter than 8mm or in soft bone (type IV), where implant stability may be difficult to obtain and immediate loading may not be appropriate.

The intended use for $\varnothing 3.0\text{mm}$ Deep Conical implants is limited to replacement of maxillary lateral incisors and mandibular incisors.

Bone quality and quantity

Choose an appropriate size implant for the amount of bone available, without violating the biological width and sufficient bone volume surrounding the implant body. Take care to avoid anatomical structures such as the sinus and mental nerve.

In dense bone, use new drills and profuse irrigation. In low-density bone, it is recommended to undersize the osteotomy by drilling with a smaller final drill (i.e. if placing a diameter 4.0mm implant, final shaping drill would be 3.5).

Loading times

Healing period is generally 3-4 months in the mandible and 4-6 months in the maxilla; however, healing periods may vary for each patient. When a shorter healing time or immediate loading is being considered, the assessment must be based on the individual clinical situation (i.e. bone quality, bone quantity, primary stability achieved, loading conditions, design of superstructure, etc.)

Implants may be immediately temporized on single or splinted multiple-unit restorations, if good primary stability was achieved.

Immediately temporized restorations should be kept out of occlusion.

The patient should adhere to a soft diet and place minimal forces on the restoration for 6-12 weeks.

Troubleshooting

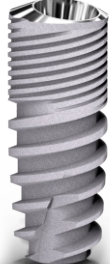
Implant mobility: If the fixture is very loose, consider removal and replacement with a wider diameter fixture, without further drilling.

Poor fixture alignment: If the angular misalignment is less than 35° , the problem can be addressed using angulated abutments. If the angle is greater than 35° , remove the implant and allow the surgical site to heal for approximately six months. Repeat surgery on the same area after the healing period, or use a Co-Axis implant to take full advantage of available bone.

DCC

DCC Co-Axis 12° 

DCT

DCT Co-Axis 12° 

Exposed threads: If the implant threads are exposed in the coronal region, perform a bone augmentation procedure.

Over-countersinking: Over-countersinking can cause complications with primary stability in cortical bone. The countersink should not extend beyond the cortical region whenever possible. Continue with normal treatment protocol, but it is recommended to avoid immediate or early loading, and to pay special attention to the stability of the implant in the first 3-6 months after placement.

Prosthetic planning

The Deep Conical prosthetic range has a broad and versatile collection, capable of solving all clinical indications. Please consult the various "Instructions for use" for more information.

Instrument care & sterilization

Please consult the Southern Implants Cleaning and Sterilization Procedure Guidelines (CAT-1039) for guidance concerning the maintenance of drills, instruments, and surgical trays.

Tooling

Southern Implants Twist Drills are made of stainless steel. Tapered dedicated drills and Screw Taps are made of titanium.

Contraindications

Do not use in patients:

- who are medically unfit for dental implant procedures.
- who are allergic or have hypersensitivity to pure titanium or titanium alloy (Ti-6AL-4V) or polyetheretherketone (PEEK).
- where adequate numbers of implants could not be placed to achieve full functional support for a prosthesis.

Warnings:

Failure to recognize actual lengths of drills relative to radiographic measurements can result in permanent injury to nerves or other vital structures. Drilling beyond the depth intended in the mandible may potentially result in permanent numbness to the lower lip and/or chin or lead to a hemorrhage in the floor of the mouth. Besides the mandatory precautions for any surgery such as asepsis, one must avoid damage to the nerves and arteries by referring to anatomical knowledge and preoperative radiographs.

Responsibility for proper patient selection, adequate training, experience in the placement of implants, and providing appropriate information for informed consent, rests with the practitioner. Improper technique can result in implant failure and/or loss of supporting bone. Southern Implants will not accept liability for damage caused by improper implant treatment.

Southern Implants, Dental Implants have only been validated for use with the corresponding Southern Implants abutments and accessories. Although care has been taken to create interfaces that are equivalent to similar products on the market, Southern Implants cannot guarantee outcomes obtained, using components from other manufacturers. Please refer to individual product catalogues for interface requirements. Southern Implants will not accept liability for damage caused by improper selection of incompatible abutments and accessories.

For short implants, clinicians should closely monitor patients for any of the following conditions: periimplant bone loss, changes to

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. If the clinicians choose a short implant, then clinicians should consider a two-stage surgical approach, splinting a short implant to an additional implant, and placement of the widest possible fixture. Allow longer periods for osseointegration and avoid immediate loading.

Cautions:

Implant success cannot be 100% guaranteed.

Implant treatment may result in biologic failures i.e. bone loss or mechanical failures, including fatigue fracture of implants.

It is strongly recommended that Deep Conical implants are used only with Southern Implants surgical instruments and prosthetic components.

New, as well as experienced implant users, should undertake special training before using a new system or a different treatment method. Contact your local Southern Implants representative for more information.

Before surgery:

A thorough radiological and clinical assessment must be done to determine the psychological and physical health of the patient.

Take care when treating patients with local or systemic factors that could affect the healing process of the tissues or interfere with the osseointegration process (i.e., smoking, uncontrolled diabetes, radiotherapy treatment, steroid therapy, poor oral hygiene, infection of the oral tissue, systemic bi-phosphonate therapy).

Treatment planning, (surgical and prosthetic design) must accommodate patient specific conditions. In case of bruxism or unfavorable jaw relationships the treatment option may have to be reassessed and adjusted.

Implant treatment is not recommended in juvenile patients, until the mature jaw bone growth phase has been reached.

Hard- or soft tissue defects may result in compromised treatment outcomes.

In cases where correction of angulation is necessary, consider a Co-Axis implant design with a 12 degree sub-crestal angulation correction.

At surgery:

Do not place Narrow implants in the posterior region. Avoid the risk of prosthetic overload, that could lead to implant failure or fracture.

All instruments and tooling used during procedures must be maintained in good condition and care must be taken that instrumentation does not damage implants or other components.

Surgical procedure:

Assess bone quality during drilling procedures and follow the appropriate drill sequence to ensure optimal primary stability.

Drill at high speed (1000- 1500 rpm. for all drilling). Use copious irrigation. (saline at room temperature), and drill with a

continuous intermittent motion, to avoid overheating of the bone.

The implants are ideally installed with low speed, max. 25 rpm, using a implant motor unit and handpiece.

Caution: Never exceed insertion torque of 70 Ncm when placing these implants. Over tightening an implant may lead to damage of the implant or fracture or necrosis of the bone. If a Surgical Driver is used to insert the implant, special care needs to be taken to avoid over torque.

If the implant gets stuck during implant installation or 70 Ncm of insertion torque is achieved before fully seated, rotate the implant counter clockwise (handpiece in reverse mode) or manual torque wrench and remove implant from site. Adjust the osteotomy before placing the implant again

To prepare the site with a Tap, place the screw tap into prepared implant site using low speed 25 rpm. and rotate tap to appropriate depth. Switch the implant motor unit to reverse mode and remove the Screw Tap anticlockwise. Continue with implant installation until desired position is achieved using max. 70 Ncm of insertion torque.

Depth measurement system: The marks on the Twist/Tapered shaping drills indicate actual millimeter lengths and correspond to the implant collar.

Final vertical positioning depends on several clinical parameters, including esthetics, tissue thickness and available vertical space.

In situations where adjacent natural teeth interfere with the contra-angle head preventing the drill from reaching the desired depth, a drill extension shaft may be used.

Caution: The drill preparation with twist Drills extend up to 1mm longer than the implant. Allow for this additional length when drilling near vital anatomical structures.

PACKAGING

- 1) Implants: The outer package consists of a rigid, clear box which acts as protection for the inner package. The inner package consists of a clear plastic-formed bubble-type base with a "peel-back" lid. The contents of this inner package are sterile. Labeling Information is located on the surface of the peel-back lid and on the outside of the rigid box. Within the inner package there is a hollow tube which contains one implant. Sterility is assured unless the container or seal is damaged or opened.
- 2) Other sterile components are packed in a peel pouch and sterilized by gamma irradiation. Labeling information is located on the bottom half of the pouch inside the packet. Sterility is assured unless the pouch is damaged or opened.
- 3) Other non-sterile components used in the laboratory are supplied clean but not sterile. These are: laboratory analogs, cast waxing sleeves, casting precision tools and gold abutments with plastic sleeves. Labeling information is located on the bottom half of the pouch inside the packet.

STERILITY

All dental implants and some abutments are shipped sterile and intended for single use, prior to the expiration date (see packaging label). Again, sterility is assured unless the container

or seal is damaged or opened. DO NOT re-sterilize or autoclave these components.

Do not reuse Implants, Cover screws, Temporary Abutments and Abutments. These are single-use products. Re-using these components may result in damage on the surface or critical dimensions. This may result in performance and compatibility issues. The removal of proteins from the metal (such as titanium) is extremely difficult and if not removed, it can lead to secondary infections.

Products provided non-sterile must be cleaned and sterilized prior to use, according to the guidelines in CAT1039 and the Surgical Manual.

CLEANING

- Refer to CAT-1039
- Used instruments should be soaked immediately in instrument cleaning solution to avoid the drying of blood, saliva and tissue residue.
- Used surgical trays including grommets must be cleaned with suitable disinfectants.
- Multiple-part instruments must be disassembled prior to cleaning and sterilization.
- Internal debris/residue of instruments must be removed with a soft brush.
- Instruments should be inspected, cleaned separately and discarded if damaged.
- Best results are achieved if surgical instruments are cleaned by material type.
- Instruments and trays can be cleaned and disinfected in a dedicated instrument washer or alternatively by hand, followed by an ultrasonic bath with a detergent appropriate for surgical instruments.
- Instruments and trays must be rinsed and dried thoroughly.

STERILIZATION

- Refer to CAT-1039
- Instruments and trays should be autoclaved at 121°C or 250°F for 30 minutes or at 134-137°C for 3-7 minutes with a sufficient drying cycle to avoid instruments corrosion.

POTENTIAL ADVERSE EFFECTS

Dental implant therapy has normal contradictions and risks that are extensively documented in the dental implant literature.

POST-PLACEMENT PROCEDURES

The following considerations should be reviewed prior to the restorative phase:

- Quantity, quality and health of soft and hard tissues
- Implant stability
- Implant position and abutment selection
- Occlusal analysis
- Oral hygiene assessment

MAGNETIC RESONANCE (MR) SAFETY INFORMATION:

Deep Conical implants have not been evaluated for safety and compatibility in the MR environment. It has not been tested for heating, migration or image artefact in the MR environment. The safety of Deep Conical implants in the MR environment is unknown. Scanning a patient who has this device may result in patient injury.

STORAGE AND HANDLING

Devices should be stored at room temperature. Refer to the individual product packaging label and the corresponding manual (CAT-2004, CAT-2005, CAT-2020) for special handling instructions.

CAUTION: (USA ONLY)

United States Federal Law restricts this device to sale to, or on the order of, a licensed dentist or physician.

For Technical Assistance or additional product literature, please contact:

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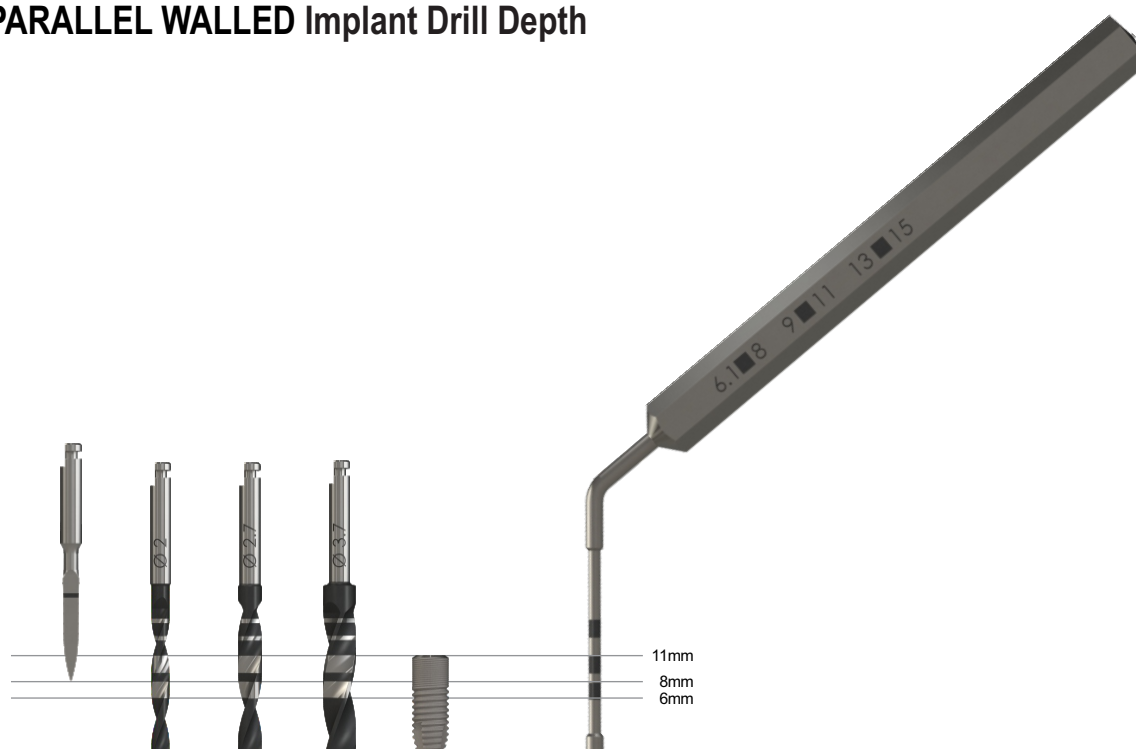
DC PARALLEL WALLED IMPLANTS

PRODUCT RANGE

		Cylindrical	6.1mm	8mm	9mm	11mm	13mm	15mm
		Ø3.0mm	-	-	-	DCC3011	DCC3013	DCC3015
		Ø3.5mm	-	DCC3508	DCC3509	DCC3511	DCC3513	DCC3515
		Ø4.0mm	DCC4006	DCC4008	DCC4009	DCC4011	DCC4013	DCC4015
		Ø5.0mm	-	-	DCC5009	DCC5011	DCC5013	DCC5015
		Ø3.5mm Co-Axis	-	DCC3508-12d	DCC3509-12d	DCC3511-12d	DCC3513-12d	DCC3515-12d
		Ø4.0mm Co-Axis	-	DCC4008-12d	DCC4009-12d	DCC4011-12d	DCC4013-12d	DCC4015-12d

Note: Ø3.0mm straight and Ø3.5mm Co-Axis implants use DC3 prosthetic components
 Ø3.5mm straight, Ø4.0mm straight and Ø4.0mm Co-Axis implants use DC4 prosthetic components.

PARALLEL WALLED Implant Drill Depth

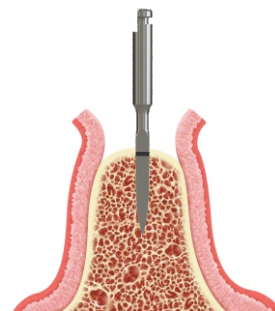


DC PARALLEL WALLED IMPLANTS**Step-by-Step Surgical Placement****Step 1: Initiate the osteotomy**

Note: It is recommended to raise a full-thickness mucoperiosteal flap.

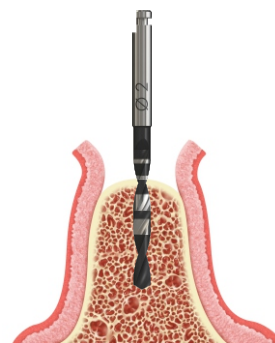
The 3Spade drill (D-3Spade) is used to initiate the osteotomy by perforating the cortical plate at the desired location.

All drilling should be performed at a speed of 1000-1500rpm with copious irrigation. An intermittent technique should be used to avoid overheating the bone

**Step 2: Pilot drilling – Ø2mm Twist Drill**

Drill in the planned direction to the appropriate depth, as indicated by the depth markings on the drill.

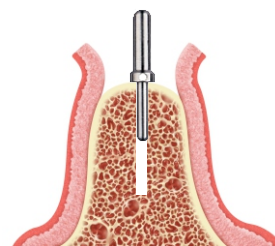
Note: Depth should allow implant to be inserted level with or slightly submerged in surrounding marginal bone.

**Step 3: Check alignment**

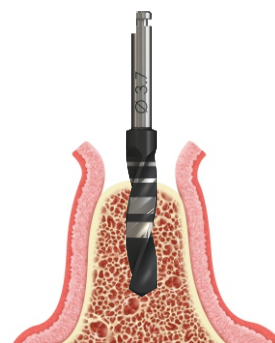
Insert the Direction Indicator (I-DI) after using each Twist Drill, to verify the alignment with adjacent teeth/implants.

A radiograph should be taken at this point to verify depth and direction, using the appropriate twist drill as a depth and direction guide.

If the drilling direction is incorrect, start a new direction with the pilot drill as in Step 2 and continue with the remaining procedures.

**Step 4: Gradually enlarge the osteotomy**

Repeat Step 2 for each consecutive Twist Drill in the sequence corresponding to the selected implant.

**Step 5: Implant placement**

Connect the Handpiece Insertion Tool (I-HDCx-S/M) to the handpiece. Engage the internal hex of the implant. Carefully remove the implant from the sterile vial. Alternatively, the Wrench Insertion Tool (I-WI-DCx-S/M) can be connected to the Ratchet Wrench (I-RATCHET-2) and used to extract the implant from its packaging.

Insert the implant at low speed (15-20rpm). Set the maximum torque to 70Ncm.



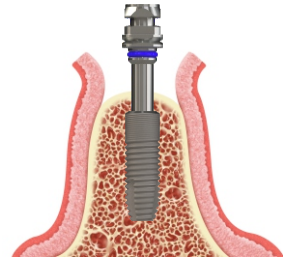
DC PARALLEL WALLED IMPLANTS

Step 6: Fully seat the implant

The Ratchet Wrench (I-RATCHET-2), in combination with the Converter (I-WI-C) and Handpiece Insertion Tools (I-HDCx-S/M), or Wrench Insertion Tool (I-WI-DCx-S/M), may be used for final manual seating of the implant.

Use light finger force on the Ratchet Wrench when leveling the implant. Excessive torque (>70Ncm) with the Ratchet Wrench should be avoided, as this will cause too much compression in the bone or damage to the implant. A torque exceeding the maximum limit indicates that the implant should be retrieved and additional drilling should be performed in the site.

Note: Because the implants are self-tapping, it is recommended to stop rotation once the implant has reached the prepared depth. The implant may continue to advance beyond the drilled depth with further rotations, owing to the effective self-tapping thread. Care should be taken not to countersink the implant too far, especially in soft bone.



Ratchet

I-RATCHET-2



Insertion Tools

I-HDC3-S/M

I-HDC4-S/M

I-HDC5-S/M



Wrench Insertion Tools

I-WI-DC3-S/M

I-WI-DC4-S/M

I-WI-DC5-S/M



Converters

I-WI-C-S



Converts handpiece tools with W&H Hex, to be used with wrench

DC PARALLEL WALLED IMPLANTS

Step 7:

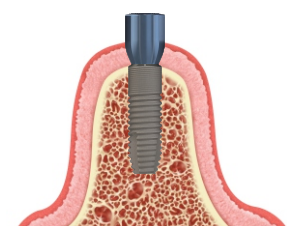
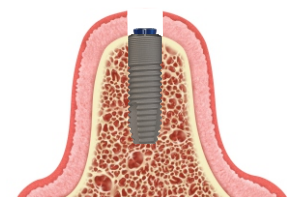
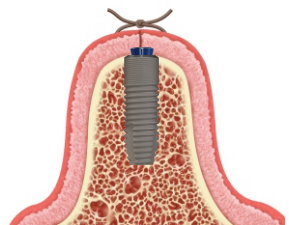
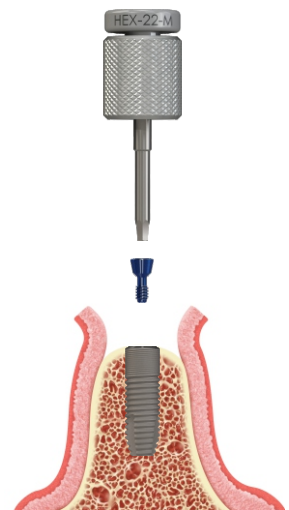
Two-stage procedure

Place the Cover Screw [CS-DC(x)] with a 1.22 Hex Driver (I-HD-S/M/L).

Tighten to 5-10Ncm. Reposition the flap margins together and suture closed.

After an appropriate healing phase, expose and remove the Cover Screw using the Hex Driver. Exposure of the cover screw can be done either with a mid-crestal incision using a scalpel, or if the keratinized mucosa is broad, a soft tissue punch of the appropriate diameter may be used. Locate the cover screw by probing the soft tissue.

Place the selected healing abutment (HA-DCx or HA-DCx-W) or appropriate definitive abutment. There is a range of healing abutments to select from, according to length and width. Select a length at least 2 mm supra-mucosal. Refer to DC range Catalogue (CAT-2042) for healing abutment options.



Tissue Cutters

I-TC1



Ø4.0mm

I-TC5



Ø5.0mm

Healing abutments

HA-DC3-2



HA-DC3-W2



HA-DC3-4



HA-DC3-W4



HA-DC3-W4



HA-DC4-N2



HA-DC4-W2



HA-DC4-4



HA-DC4-W4



HA-DC4-6



HA-DC4-W6



HA-DC5-2



HA-DC5-W2



HA-DC5-4



HA-DC5-W4



HA-DC5-6



HA-DC5-W6



DC PARALLEL WALLED IMPLANTS

Step 7:

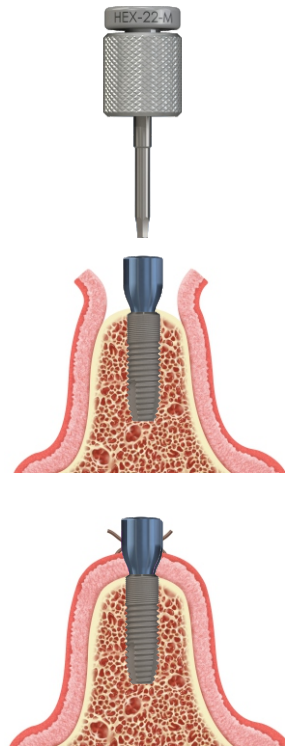
One-stage procedure

Place the selected healing abutment (HA-DCx or HA-DCx-W) or appropriate definitive abutment with a 1.22 Hex Drive (I-HD-S/M/L).

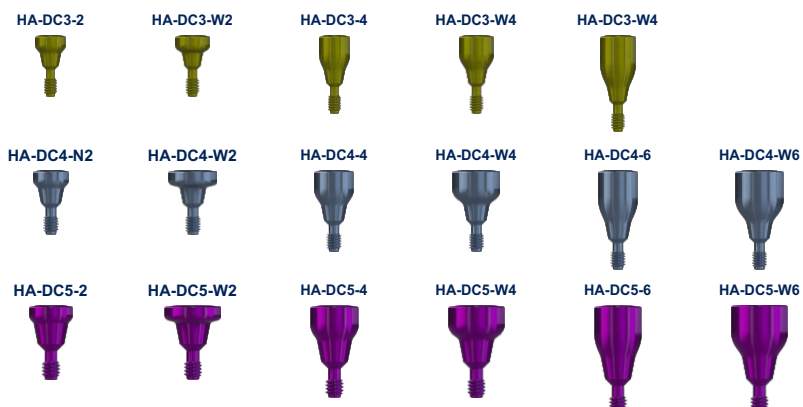
Tighten to 5-10Ncm

Arrange the flap margins around the Healing Abutment for a tight seal and suture.

There is a range of healing abutments to select from. Select a length at least 2 mm supra-mucosal. Refer to the DC Implant Product Catalogue (CAT-2042) for Healing Abutment options.



Healing abutments



DC PARALLEL WALLED IMPLANTS

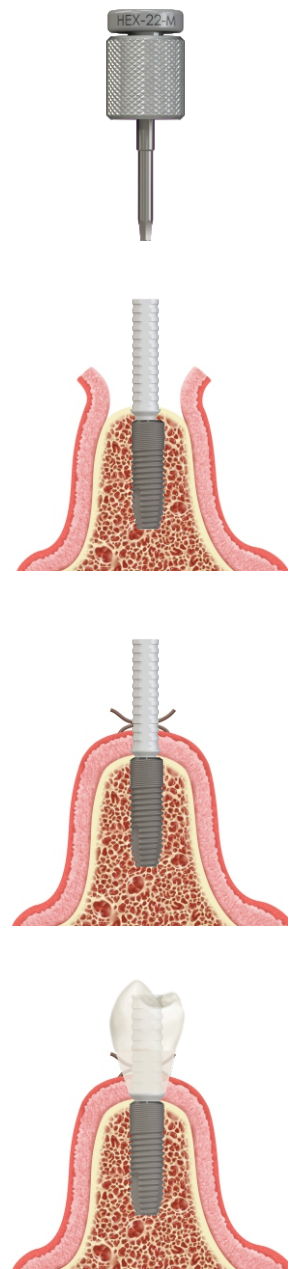
Step 7:

Immediate loading

Place the Temporary Titanium or PEEK cylinder and retention screw with a 1.22 Hex Driver (I-HD-S/M/L). Refer to the DC Implant Product Catalogue (CAT-2042) for Abutment screw options (TS-DC3-14 / TS-DC4-16 / TS-DC5-20).

Tighten to 10-15Ncm.

Arrange the flap margins around the Temporary Cylinder to create a tight seal and suture. Fabricate the temporary crown in the preferred material and technique. It is recommended that single and partial units be kept out of the occlusion during the healing phase.



Temporary Cylinders

Titanium Cylinders

TC-DC3-1
(Engaging)
TC-NDC3-1
(Non-Engaging)



TC-DC4-1
(Engaging)
TC-NDC4-1
(Non-Engaging)



TC-DC5-1
(Engaging)
TC-NDC5-1
(Non-Engaging)



PEEK Cylinders

PKC-DC3-2
(Engaging)
PKC-NDC3-2
(Non-Engaging)



PKC-DC4-2
(Engaging)
PKC-NDC4-2
(Non-Engaging)



PKC-DC5-2
(Engaging)
PKC-NDC5-2
(Non-Engaging)



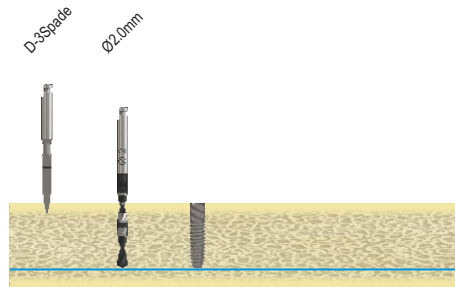
DC PARALLEL WALLED IMPLANTS

Drill Sequence

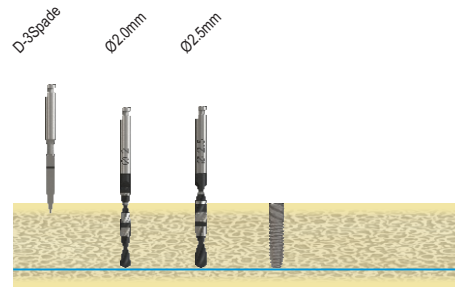
Ø3.0mm Parallel Walled (DCC30)



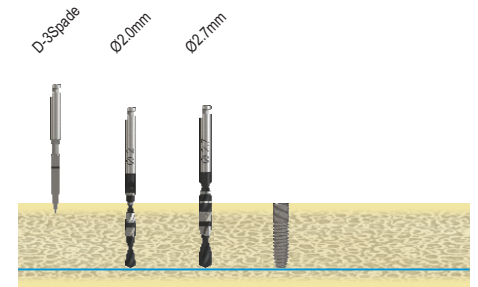
Soft Bone



Medium Bone



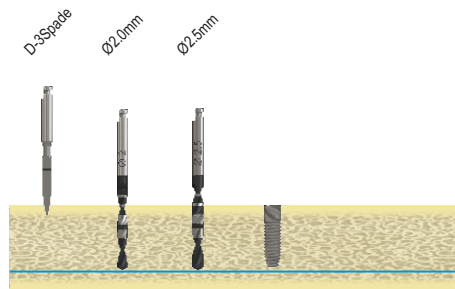
Dense Bone



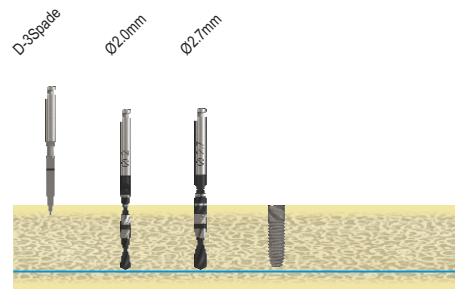
Ø3.5mm Parallel Walled (DCC35)



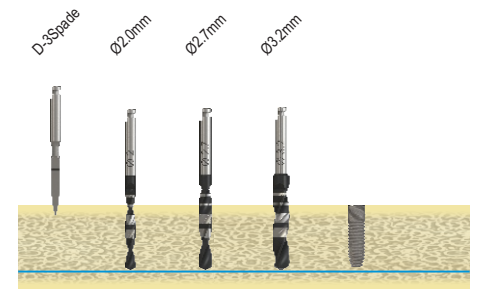
Soft Bone



Medium Bone



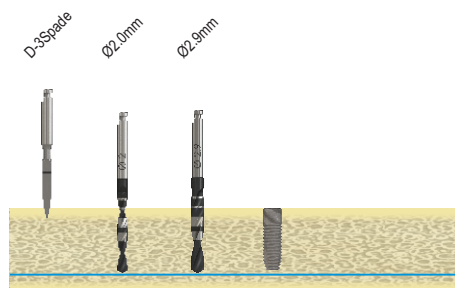
Dense Bone



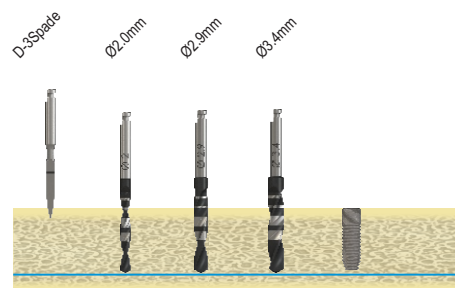
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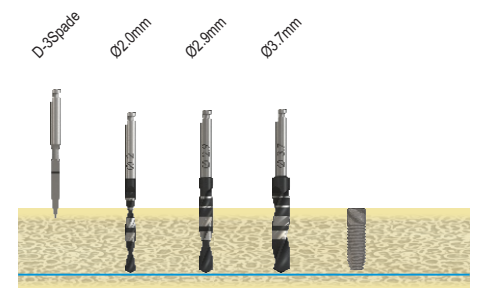
Soft Bone



Medium Bone



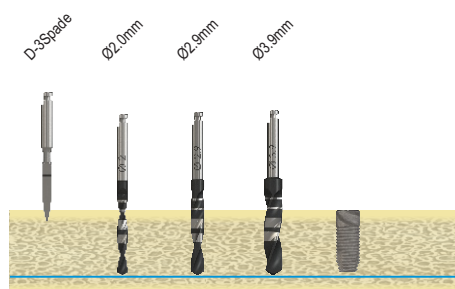
Dense Bone



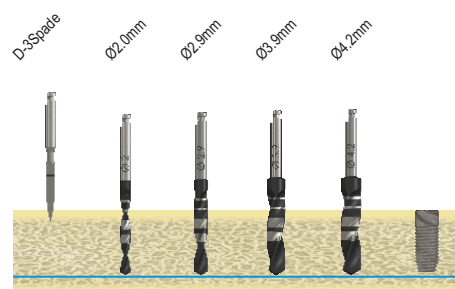
Ø5.0mm Parallel Walled (DCC50)



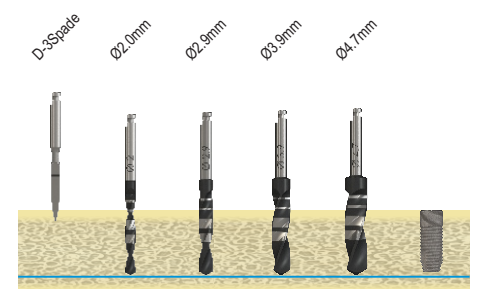
Soft Bone



Medium Bone



Dense Bone



(illustration is for 13mm implants)

NOTE: Site preparation Sequence recommended by Southern Implants does not replace the judgement and experience of the surgeon.

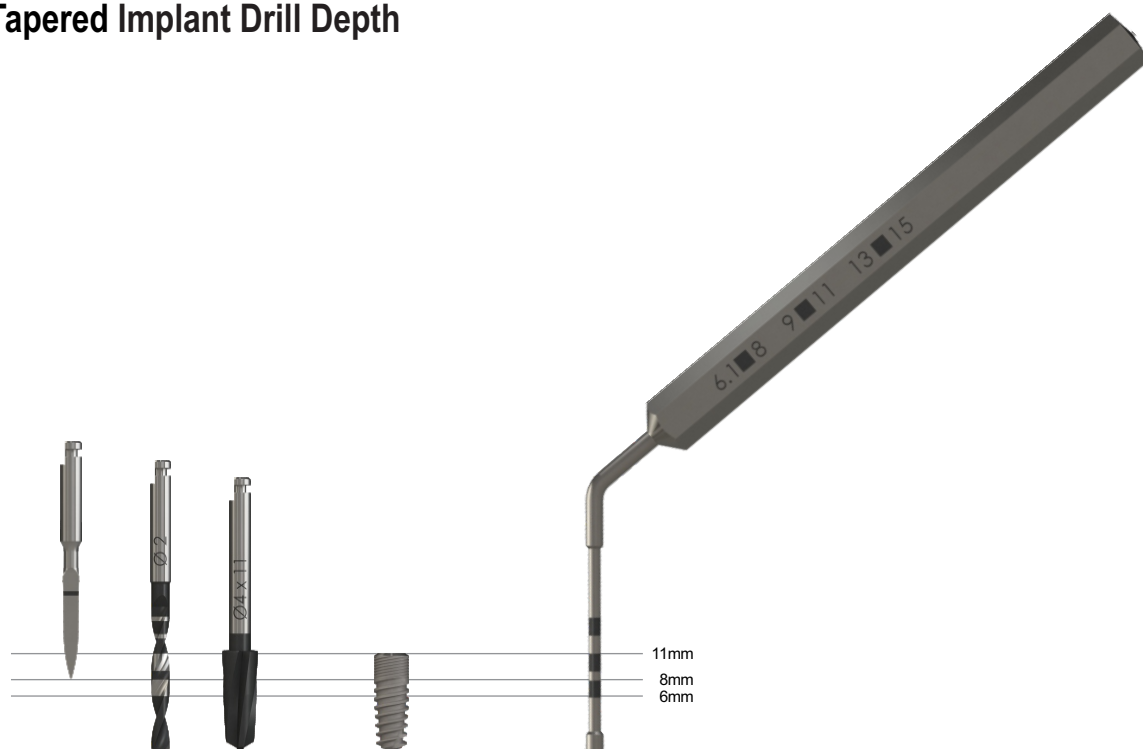
DC TAPERED IMPLANTS

PRODUCT RANGE

		Tapered	6.1mm	8mm	9mm	11mm	13mm	15mm
		Ø3.0mm	-	-	DCT3009	DCT3011	DCT3013	-
		Ø3.5mm	-	DCT3508	DCT3509	DCT3511	DCT3513	DCT3515
		Ø4.0mm	DCT4006	DCT4008	DCT4009	DCT4011	DCT4013	DCT4015
		Ø5.0mm	-	-	DCT5009	DCT5011	DCT5013	DCT5015
		Ø3.5mm Co-Axis	-	DCT3508-12d	DCT3509-12d	DCT3511-12d	DCT3513-12d	DCT3515-12d
		Ø4.0mm Co-Axis	-	DCT4008-12d	DCT4009-12d	DCT4011-12d	DCT4013-12d	DCT4015-12d

Note: Ø3.0mm straight and Ø3.5mm Co-Axis implants use DC3 prosthetic components
 Ø3.5mm straight, Ø4.0mm straight and Ø4.0mm Co-Axis implants use DC4 prosthetic components.

Tapered Implant Drill Depth

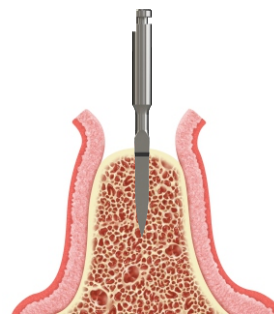


DC TAPERED IMPLANTS**Step-by-Step Surgical Placement****Step 1: Initiate the osteotomy**

Note: It is recommended to raise a full-thickness mucoperiosteal flap.

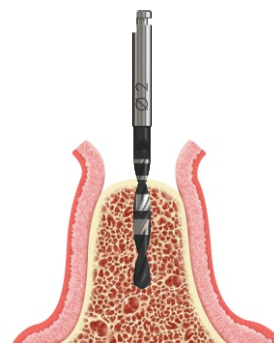
The 3Spade drill (D-3Spade) is used to initiate the osteotomy by perforating the cortical plate at the desired location.

All drilling should be performed at a speed of 1000-1500rpm with copious irrigation. An intermittent technique should be used to avoid overheating of the bone.

**Step 2: Pilot drilling – Ø2mm Twist Drill**

Drill in the planned direction to the appropriate depth, as indicated by the depth markings on the drill.

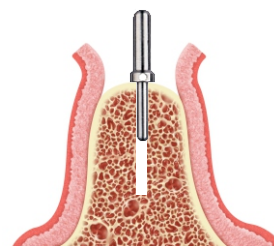
Note: Depth should allow implant to be inserted level with or slightly submerged in surrounding marginal bone.

**Step 3: Check alignment**

Insert the Direction Indicator (I-DI) after using each Twist Drill to verify the alignment with adjacent teeth/implants and opposing arch.

A radiograph should be taken at this point to verify depth and direction, using the appropriate twist drill as a depth and direction guide.

If the drilling direction is incorrect, start a new direction with the pilot drill as in Step 2 and continue with the remaining procedures.

**Step 4: Gradually enlarge the osteotomy**

The DCT tapered shaping drills are length and diameter specific.

Use the length and diameter drill, corresponding to the implant that is selected.

Widen the osteotomy intermittently to the desired diameter using the tapered drill.

**Step 5: Implant placement**

Connect the Hand-piece Insertion Tool [I-HDC(x)-S/M] to the hand-piece.

Engage the internal hex of the implant with the insertion tool and carefully remove the implant from the sterile vial. Alternatively, the Wrench Insertion Tool [I-WI-DC(x)-S/M], can be connected to the Ratchet Wrench (I-RATCHET-2) and used to extract the implant from its packaging.

Insert the implant at low speed (15-20rpm).
Set the maximum torque to 40Ncm.

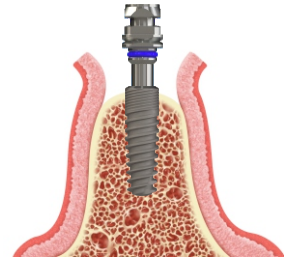


DC TAPERED IMPLANTS

Step 6: Fully seat the implant

The Ratchet Wrench (I-RATCHET-2), in combination with the Wrench Insertion Tool [I-WI-DC(x)-S/M], or the Converter (I-WI-C) in combination with the Hand-piece Insertion Tools [I-HDC(x)-S/M], may be used for manual and final seating of the implant.

Use light finger force on the Ratchet Wrench when leveling the implant. Excessive torque (>70Ncm) with the Ratchet Wrench should be avoided, as this will cause damage to the implant or insertion tool. A torque exceeding the maximum limit indicates that the implant should be retrieved and additional drilling should be performed to increase the depth and diameter of the osteotomy site.



Note: Because the implants are self-tapping, it is recommended to stop rotation once the implant has reached the prepared depth. The implant may continue to advance beyond the drilled depth with further rotations, owing to the effective self-tapping thread. Care should be taken not to sink the implant too far, especially in soft bone.

Ratchet

I-RATCHET-2



Insertion Tools

I-HDC3-S/M

I-HDC4-S/M

I-HDC5-S/M



Wrench Insertion Tools

I-WI-DC3-S/M

I-WI-DC4-S/M

I-WI-DC5-S/M



Converters

I-WI-C-S



Converts handpiece tools with W&H Hex, to be used with wrench

DC TAPERED IMPLANTS

Step 7:

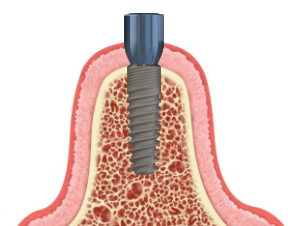
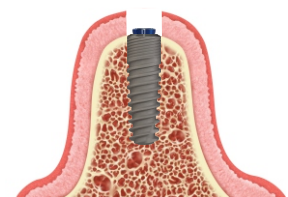
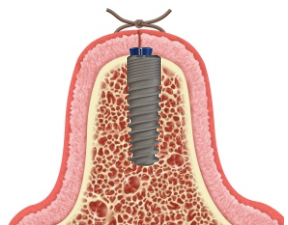
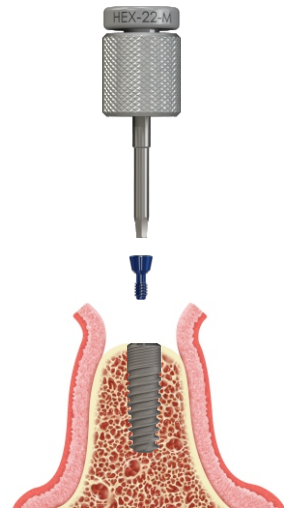
Two-stage procedure

Place the Cover Screw [CS-DC(x)] with a 1.22 Hex Driver (I-HD-S/M/L).

Tighten to 5-10Ncm. Reposition the flap margins together and suture closed.

After an appropriate healing phase, expose and remove the Cover Screw using the Hex Driver. Exposure of the cover screw can be done either with a mid-crestal incision using a scalpel, or if the keratinized mucosa is broad, a soft tissue punch of the appropriate diameter may be used. Locate the cover screw by probing the soft tissue.

Place the selected healing abutment [HA-DC(x) or HA-DC(x)-W] or appropriate definitive abutment. There is a range of healing abutments to select from according to length and width. Select a length at least 2mm supra mucosal. Refer to the DC Implant Product Catalogue (CAT-2042) for Healing Abutment options.



Tissue Cutters

I-TC1



Ø4.0mm

I-TC5



Ø5.0mm

Healing abutments

HA-DC3-2



HA-DC3-W2



HA-DC3-4



HA-DC3-W4



HA-DC3-W4



HA-DC4-N2



HA-DC4-W2



HA-DC4-4



HA-DC4-W4



HA-DC4-6



HA-DC4-W6



HA-DC5-2



HA-DC5-W2



HA-DC5-4



HA-DC5-W4



HA-DC5-6



HA-DC5-W6



DC TAPERED IMPLANTS

Step 7:

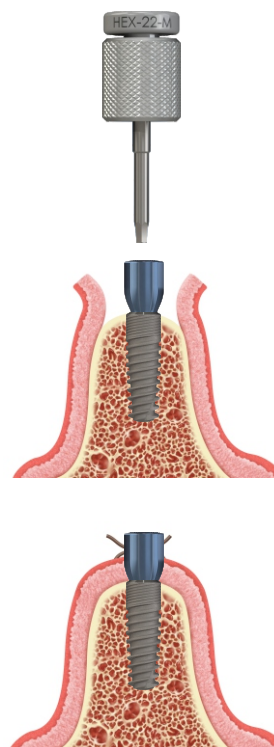
One-stage procedure

Place the selected healing abutment [HA-DC(x) or HA-DC(x)-W] or appropriate definitive abutment with the 1.22 Hex Driver (I-HD-S/M/L).

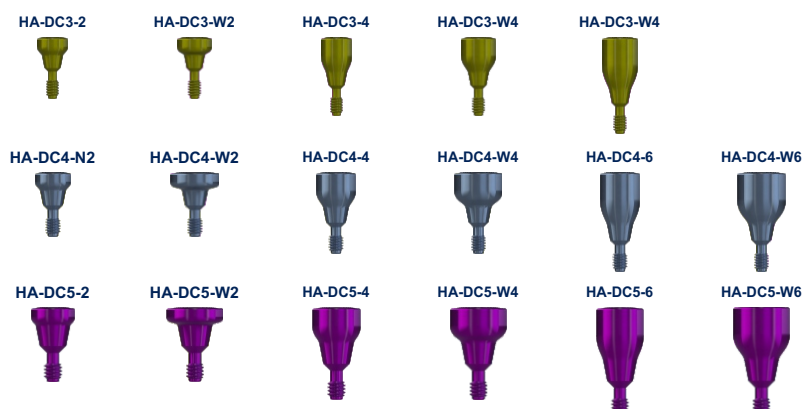
Tighten to 5-10Ncm.

Arrange the flap margins around the Healing Abutment for a tight seal and suture.

There is a range of healing abutments to select from according to length and width. Select a length at least 2mm supra mucosal. Refer to the DC Implant Product Catalogue (CAT-2042) for Healing Abutment options.



Healing abutments



DC TAPERED IMPLANTS

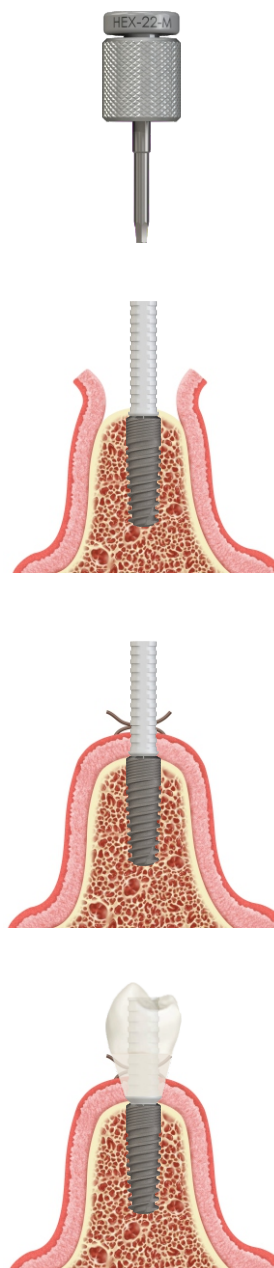
Step 7:

Immediate loading

Place the Temporary Titanium or PEEK cylinder and retention screw with a 1.22 Hex Driver (I-HD-S/M/L). Refer to the DC Implant Product Catalogue (CAT-2042) for Abutment screw options (TS-DC3-14 / TS-DC4-16 / TS-DC5-20).

Tighten to 10-15Ncm.

Arrange the flap margins around the Temporary Cylinder to create a tight seal and suture. Fabricate the temporary crown in the preferred material and technique. It is recommended that single and partial units be kept out of the occlusion during the healing phase.



Temporary Cylinders

Titanium Cylinders

TC-DC3-1
(Engaging)
TC-NDC3-1
(Non-Engaging)



TC-DC4-1
(Engaging)
TC-NDC4-1
(Non-Engaging)



TC-DC5-1
(Engaging)
TC-NDC5-1
(Non-Engaging)



PEEK Cylinders

PKC-DC3-2
(Engaging)
PKC-NDC3-2
(Non-Engaging)



PKC-DC4-2
(Engaging)
PKC-NDC4-2
(Non-Engaging)



PKC-DC5-2
(Engaging)
PKC-NDC5-2
(Non-Engaging)



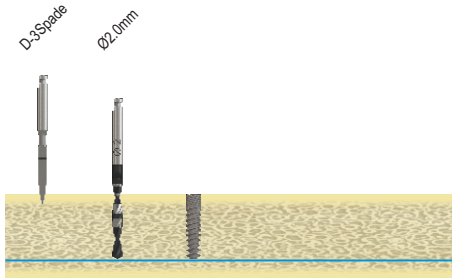
DC TAPERED IMPLANTS

Drill Sequence

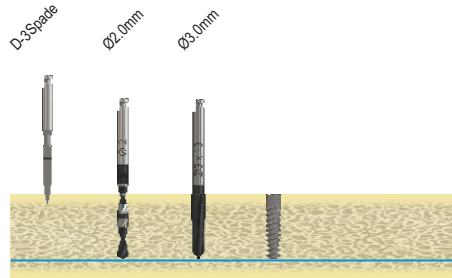
Ø3.0mm Tapered (DCT30)



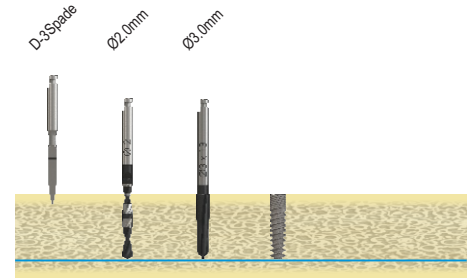
Soft Bone



Medium Bone



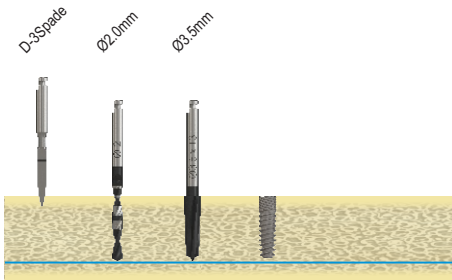
Dense Bone



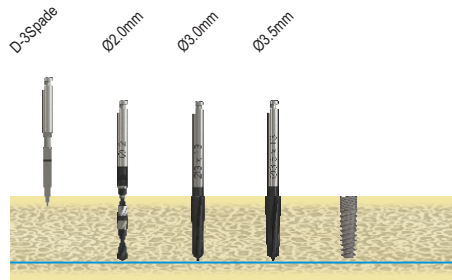
Ø3.5mm Tapered (DCT35)



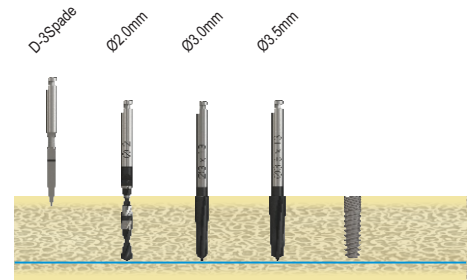
Soft Bone



Medium Bone



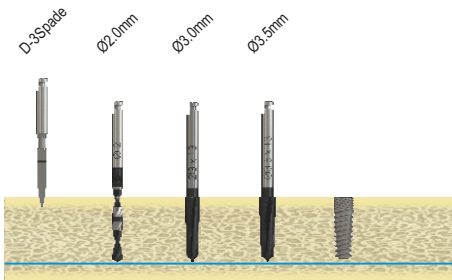
Dense Bone



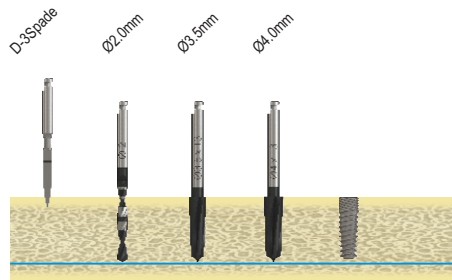
Ø4.0mm Tapered (DCT40)



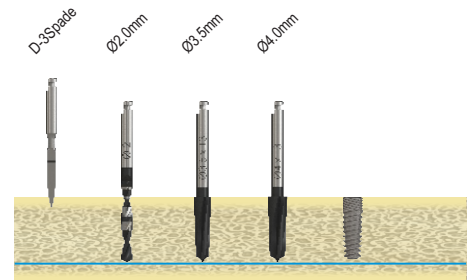
Soft Bone



Medium Bone



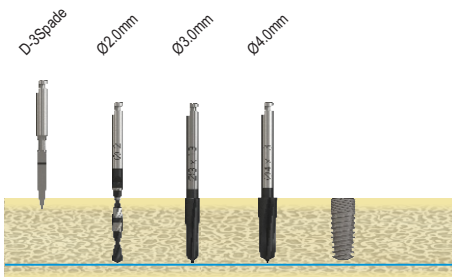
Dense Bone



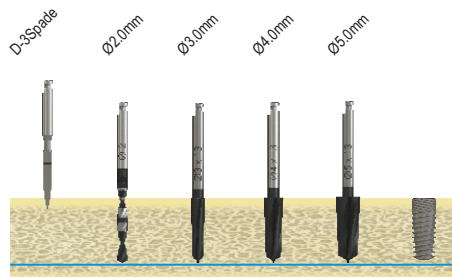
Ø5.0mm Tapered (DCT50)



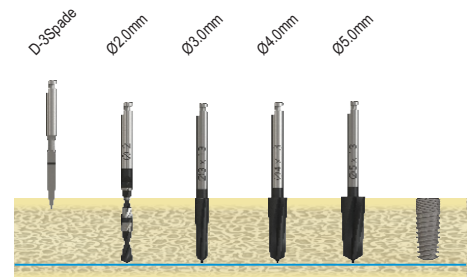
Soft Bone



Medium Bone



Dense Bone



(illustration is for 13mm implants)

NOTE: Site preparation Sequence recommended by Southern Implants does not replace the judgement and experience of the surgeon.

DC (tapered & parallel walled) Co-Axis™ 12d Implant

Step-by-Step Surgical Placement

IMMEDIATE PLACEMENT STEP-BY-STEP SURGICAL PROTOCOL

Step 1: Extraction

When extracting a tooth for immediate implant placement it is important to do the extraction atraumatically to keep the buccal bone plate intact. Preferably a periosteal elevator should be used to carefully loosen the tooth from the periodontium.

After extraction, evaluate the buccal bone plate.

If the bone is intact, evaluate the buccal soft tissue height. This will give you an indication of the vertical placement. It is recommended that the implant be placed 2-3mm sub-crestal, depending on the void between implant and buccal bone plate.

Carefully curettage the socket and remove all infected tissue where necessary.

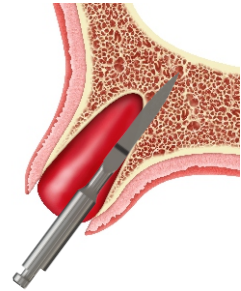
(If the bone is not intact it is recommended to abort the procedure and let the socket heal with or without augmentation material.)



Step 2: Initiate the osteotomy

The 3-Spade drill (D-3Spade) is used to initiate the osteotomy at the desired location. **In an extraction socket, initiate drilling on the palatal wall approximately 1/3 from the apex.**

All drilling should be performed at a speed of 1000-1500rpm with copious irrigation. An intermittent technique should be used to avoid overheating the bone.

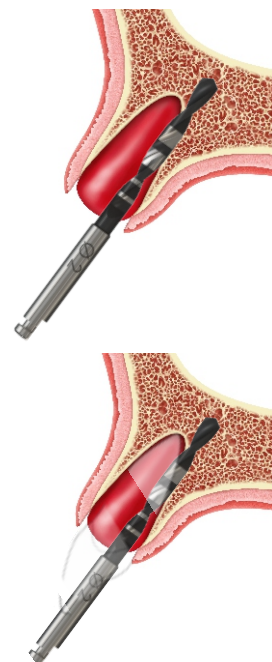


Step 3: Pilot drilling – Ø2mm Twist Drill

Drill in the planned direction to the appropriate depth, as indicated by the depth markings on the drill. If an anterior implant is being placed, ***align the drill to the incisal edge of the adjacent tooth.***

With the 12 degree Co-Axis™ angulation, the screw access hole will come out on the palatal side in the area of the cingulum if aligned correctly. If the osteotomy is angulated too much to the palatal side (e.g. normal direction when preparing for a screw retained restoration) there is a risk of sub-optimal restoration angle, with soft and hard tissue being compromised on the palatal side.

Note: Vertical positioning is dependent on soft tissue height and the jump gap between the buccal wall and implant.



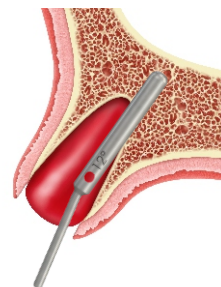
DC Co-Axis™ 12d Implant

Step 4: Check alignment

Insert the Direction Indicator (I-DI-12d) after using the 2mm Twist Drill to verify the alignment with adjacent teeth/implants and opposing dentition.

A radiograph may be taken at this point to verify depth and direction.

If the drilling direction is incorrect, start a new direction with the pilot drill as in Step 2 and continue with the remaining steps.



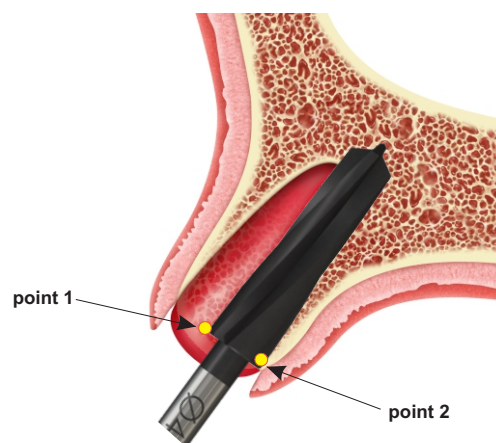
Step 5: Gradually enlarge the osteotomy

The DC Tapered shaping drills are length and diameter specific. Use the length corresponding to the implant that are selected to be placed. Widen the osteotomy stepwise to desired diameter.

Parallel walled : Drill to the desired mark on the twist drill, corresponding to the length and diameter of the selected implant. (refer to drill sequence - page 28).

Care should be taken to drill to planned depth. The implant should be placed at the same vertical level as the prepared osteotomy. If the implant is being forced deeper, there is a risk in soft bone that primary stability will be compromised.

Note: Caution should be taken to not over prepare the implant site, especially for shorter length implants (9mm and shorter).



*Final Tapered Drill Position

PLEASE NOTE:

Point 1

This corner of the drill is to be at bone level.

Point 2

This corner of the drill will be subcrestal.

DC Co-Axis™ 12d Implant

Step 6: Implant placement

The Co-Axis implants are supplied pre-mounted with a fixture mount, which features an angle correction of 12°. This enables the Co-Axis implant to be placed in the same manner as a straight implant.

Connect the Fixture Mount Driver (I-CON-X) to the hand piece.

Carefully remove the implant with fixture mount assembly from the sterile vial. On the fixture mount a black laser marking is visible at 3 mm above the implant platform (to indicate depth of placement). One full turn of the implant corresponds to 1 mm in placement depth.

If inter-dental space is limited, the Fixture Mount Extension (I-FME-X) may be used to extend the fixture mount. In these cases the implant needs to be placed manually with the Ratchet Wrench (I-RATCHET-2).

Hand piece Insertion Tools [I-HDC(x)-S/M] fit into the top of the implant fixture mount and may also be used if space is limited.

Insert the implant at low speed (15-20rpm).

Set the maximum torque to 40Ncm.



Ratchet

I-RATCHET-2



Driver

I-CON-X



Insertion Tools

I-HDC3-S/M

I-HDC4-S/M

I-HDC5-S/M



Wrench Insertion Tools

I-WI-DC3-S/M

I-WI-DC4-S/M

I-WI-DC5-S/M



Converters

I-WI-C-S



Converts handpiece tools with W&H Hex, to be used with wrench

DC Co-Axis™ 12d Implant

Step 7: Fully seat the implant

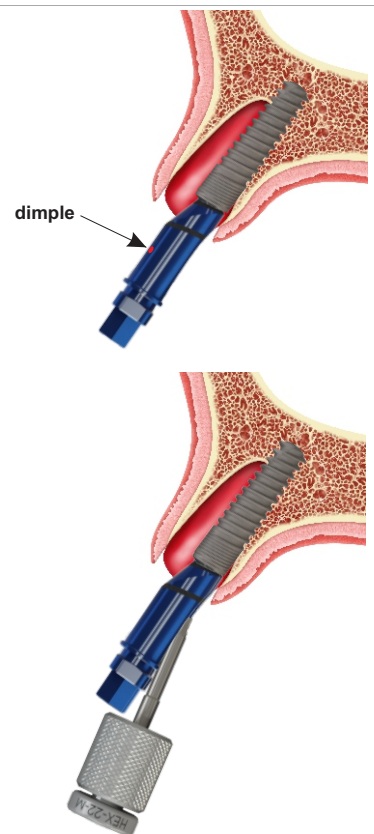
The Ratchet Wrench (I-RATCHET-2), in combination with the Fixture Mount Extension (I-FME-XM), may be used for manual seating of the implant.

Use light finger force on the Ratchet Wrench when leveling the implant. The dimple on the fixture mount platform assists the user in obtaining the correct rotational alignment of the implant. The dimple is located above the highest point of the angulated platform. For each full turn of the implant, the implant is placed 1 mm deeper.

Excessive torque (>70Ncm) with the Ratchet Wrench should be avoided, as this will cause damage to the implant or insertion tool. A torque exceeding the maximum limit indicates that the implant should be retrieved and additional drilling should be performed to increase the depth and diameter of the osteotomy site.

Note: Because the implants are self-tapping, it is recommended to stop rotation once the implant has reached the prepared depth. The implant may continue to advance beyond the drilled depth with further rotations, owing to the effective self-tapping thread. Care should be taken not to sink the implant too far, especially in soft bone. There is also a risk that the implant may spin.

Once the implant is fully seated, loosen the fixture mount screw with the 1.22mm Hex Driver (I-HD-22), and remove the fixture mount.



DC Co-Axis™ 12d Implant

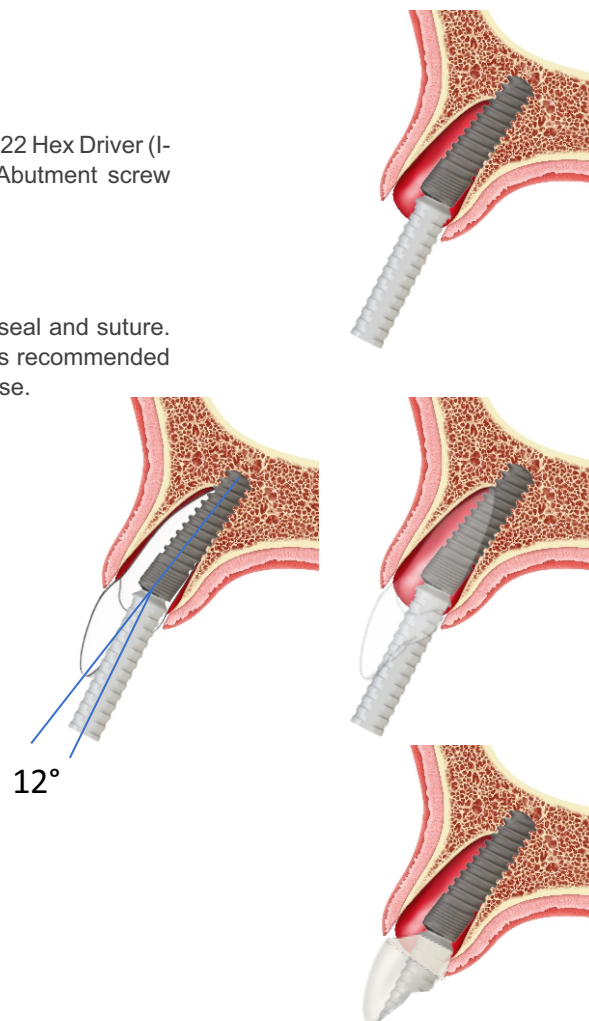
Step 8:

Immediate loading

Place the Temporary Titanium or PEEK cylinder and retention screw with a 1.22 Hex Driver (I-HD-S/M/L). Refer to the DC Implant Product Catalogue (CAT-2042) for Abutment screw options (TS-DC3-14 / TS-DC4-16 / TS-DC5-20).

Tighten to 10-15Ncm.

Arrange the flap margins around the Temporary Cylinder to create a tight seal and suture. Fabricate the temporary crown in the preferred material and technique. It is recommended that single and partial units be kept out of the occlusion during the healing phase.



Temporary Cylinders

Titanium Cylinders

TC-DC3-1
(Engaging)
TC-NDC3-1
(Non-Engaging)



TC-DC4-1
(Engaging)
TC-NDC4-1
(Non-Engaging)



TC-DC5-1
(Engaging)
TC-NDC5-1
(Non-Engaging)



PEEK Cylinders

PKC-DC3-2
(Engaging)
PKC-NDC3-2
(Non-Engaging)

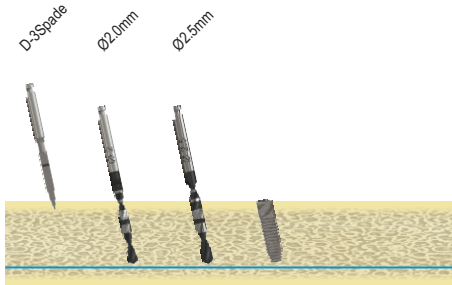
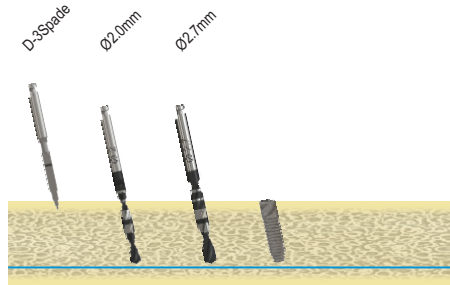
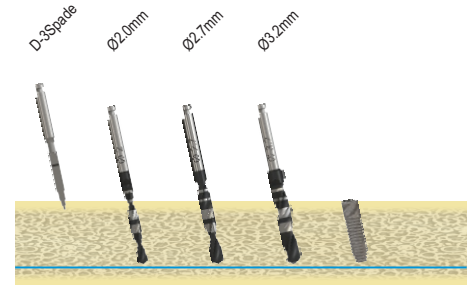
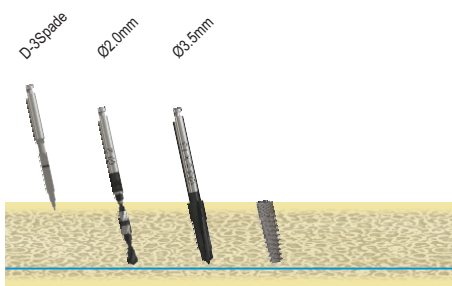
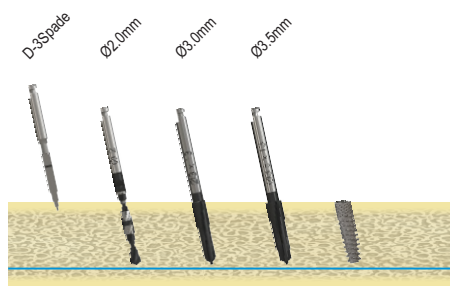
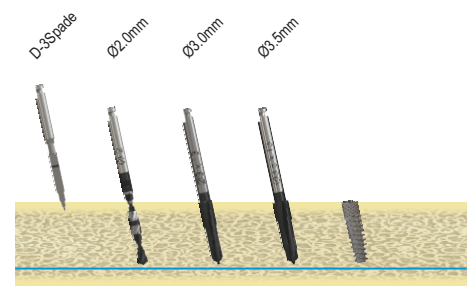
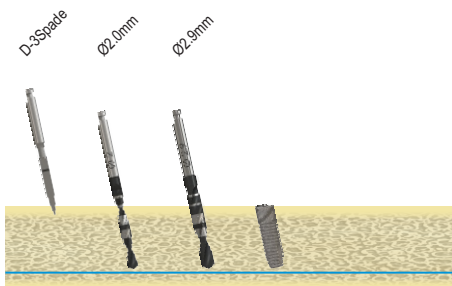
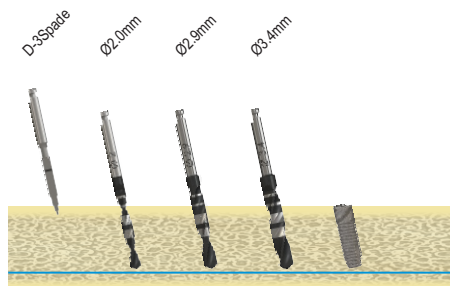
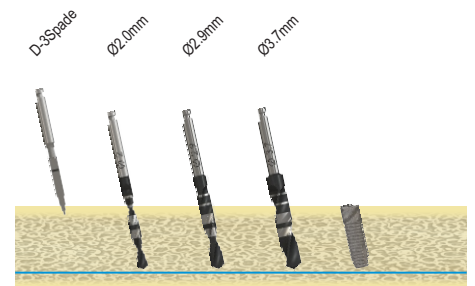
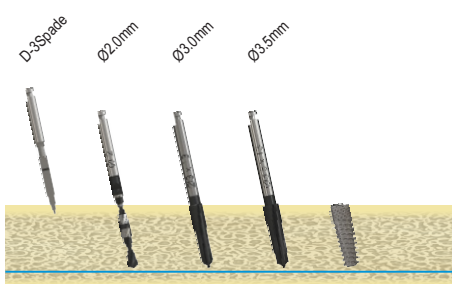
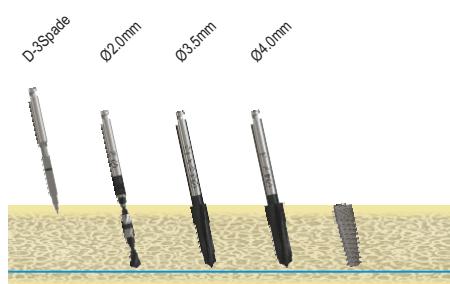
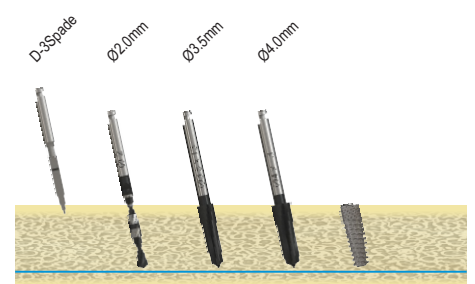


PKC-DC4-2
(Engaging)
PKC-NDC4-2
(Non-Engaging)



PKC-DC5-2
(Engaging)
PKC-NDC5-2
(Non-Engaging)



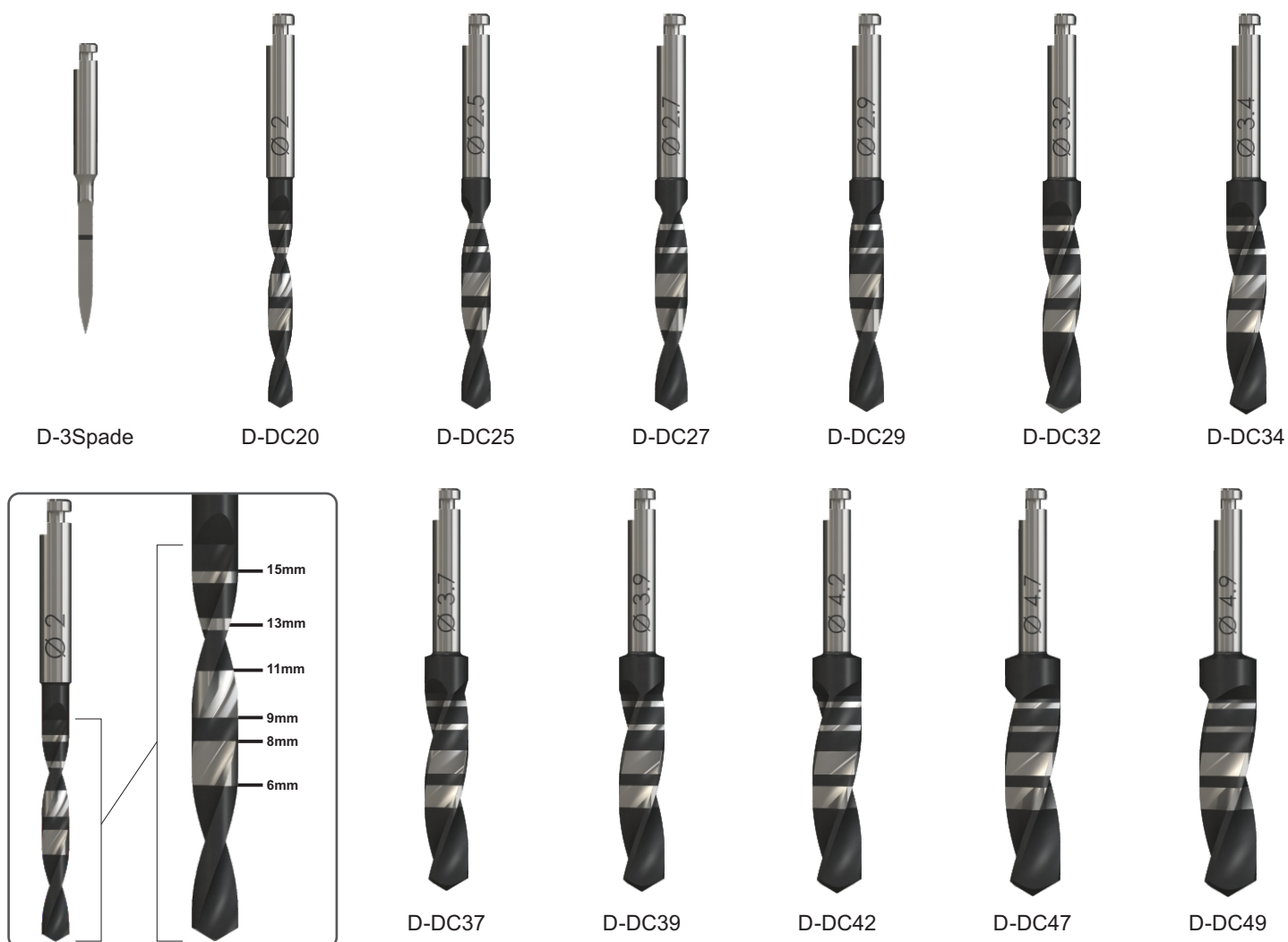
DC Co-Axis™ 12d Implant**Drill Sequence****Ø3.5mm Parallel Walled (DCC35-12d Co-Axis)****Soft Bone****Medium Bone****Dense Bone****Ø3.5mm Tapered (DCT35-12d Co-Axis)****Soft Bone****Medium Bone****Dense Bone****Ø4.0mm Parallel Walled (DCC40-12d Co-Axis)****Soft Bone****Medium Bone****Dense Bone****Ø4.0mm Tapered (DCT40-12d Co-Axis)****Soft Bone****Medium Bone****Dense Bone**

(illustration is for 13mm implants)

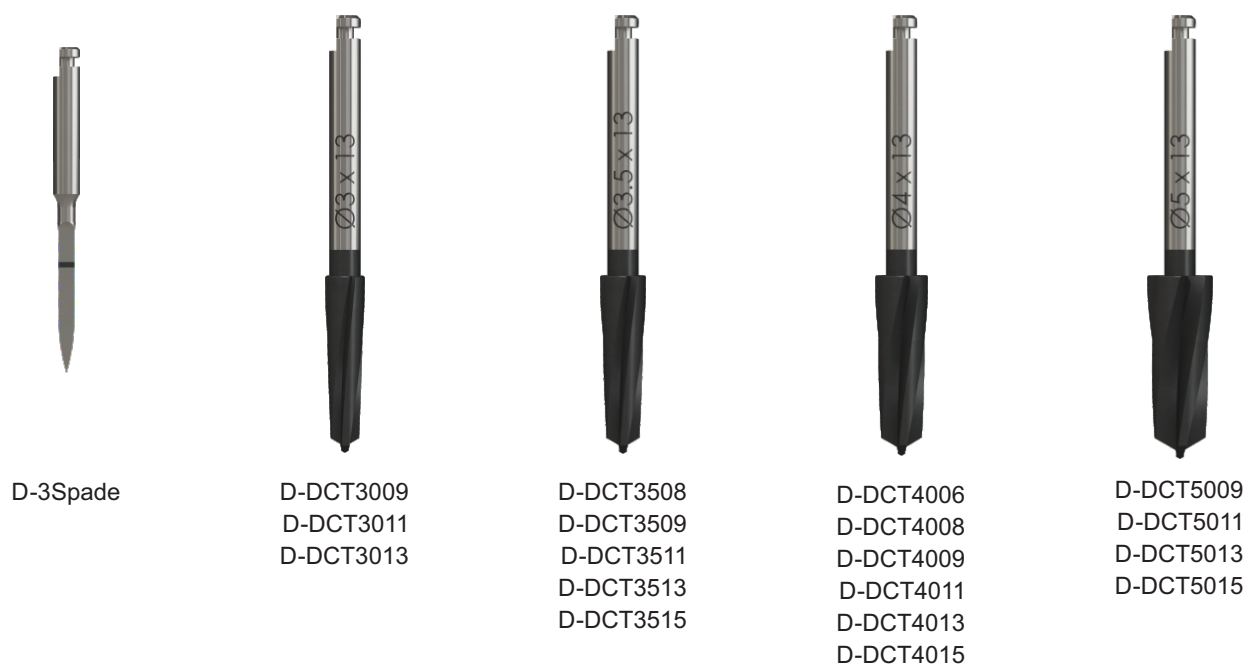
NOTE: Site preparation Sequence recommended by Southern Implants does not replace the judgement and experience of the surgeon.

DC DRILLS & INSTRUMENT INFORMATION

Twist Drills for DCC Implants

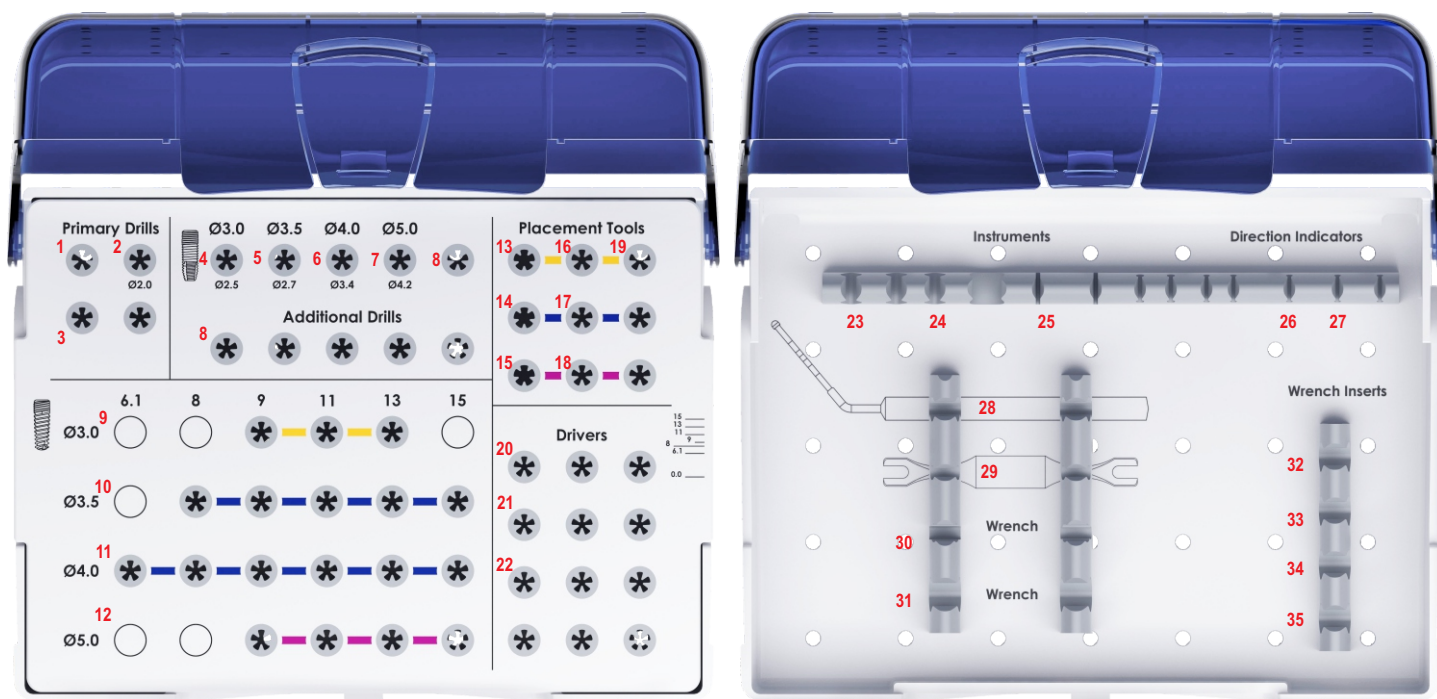


Tapered drills for DCT Implants



I-DC-EG For surgical placement of Deep Conical Implants

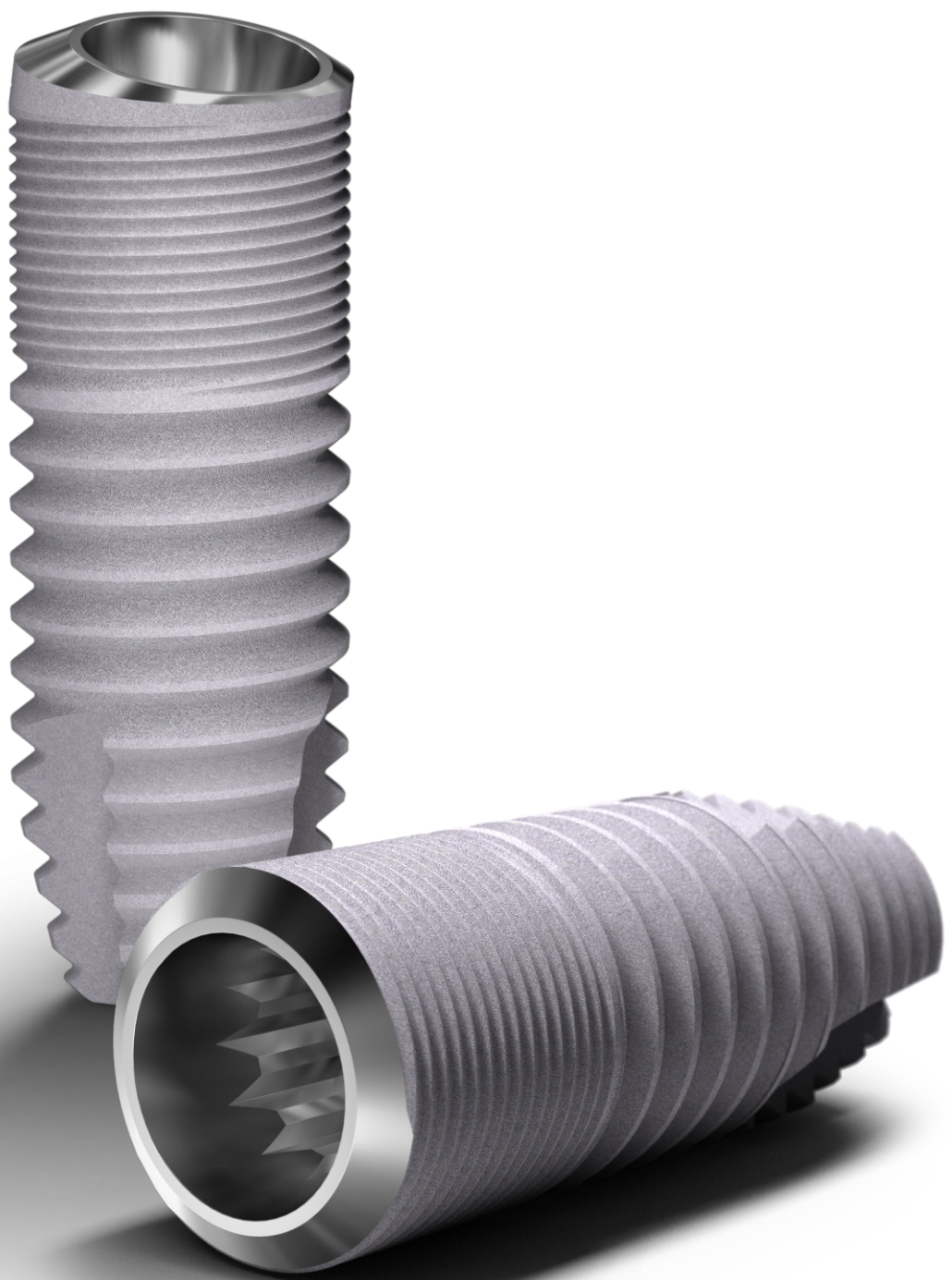
(for Cleaning & Sterilization instructions see CAT-1039)



Layout Information

1	D-3Spade-1.8M	3-Spade Drill Ø1.8/L16
2	D-DC20	Twist Drill Ø2.0mm
3	D-CSS-M	Countersink
4	D-DC25	Twist Drill Ø2.5mm
5	D-DC27	Twist Drill Ø2.7mm
6	D-DC34	Twist Drill Ø3.4mm
7	D-DC42	Twist Drill Ø4.2mm
8	Additional drills. Refer to site preparation sequence	
9	D-DCT3009 / 3011 / 3013	Ø3.0mm Tapered Drills
10	D-DCT3508 / 3509 / 3511 / 3513 / 3515	Ø3.5mm Tapered Drills
11	D-DCT4006 / 4008 / 4009 / 4011 / 4013 / 4015	Ø4.0mm Tapered Drills
12	D-DCT5009 / 5011 / 5013 / 5015	Ø5.0mm Tapered Drills
13	I-WI-DC3	Wrench Insert Ø3.0 Implant, Short / Medium
14	I-WI-DC4	Wrench Insert Ø3.5 / Ø4.0 Implant, Short / Medium
15	I-WI-DC5	Wrench Insert Ø5.0 Implant, Short / Medium
16	I-HDC3	Handpiece Insert Ø3.0 Implant, Short / Medium
17	I-HDC4	Handpiece Insert Ø3.5 / Ø4.0 Implant, Short / Medium
18	I-HDC5	Handpiece Insert Ø5.0 Implant, Short / Medium
19	I-CON-X	Connector to Handpiece / Short
20	I-HD-S	Hand-held Hex Driver
21	I-WI-22	Wrench Insert Hex Driver
22	I-HHD-22	Handpiece Hex Driver
23	I-FME-XS / M / L	Fixture Mount Extension, Short / Medium / Long
24	I-WI-C-S / L	Converter to Wrench, Short / Long
25	I-DE-K / G	Drill Extension
26	I-DI	Direction Indicator
27	I-DI-12d	Direction Indicator, 12° Angled
28	I-DG-DC	Depth Gauge
29	I-SP-X	Fixture Mount Spanner
30	I-TWS	Torque Wrench Surgical
31	I-TWS-B45/B100	Torque Gauge attachment for I-TWS
32	I-WI-CST	Wrench Converter (W&H Hex)
33	I-WI-SH	Fixture Mount Converter
34	I-WI-SL	Latch Converter
35	I-WI-SS	Square Converter

* Most Instruments available in Short / Medium / Long.

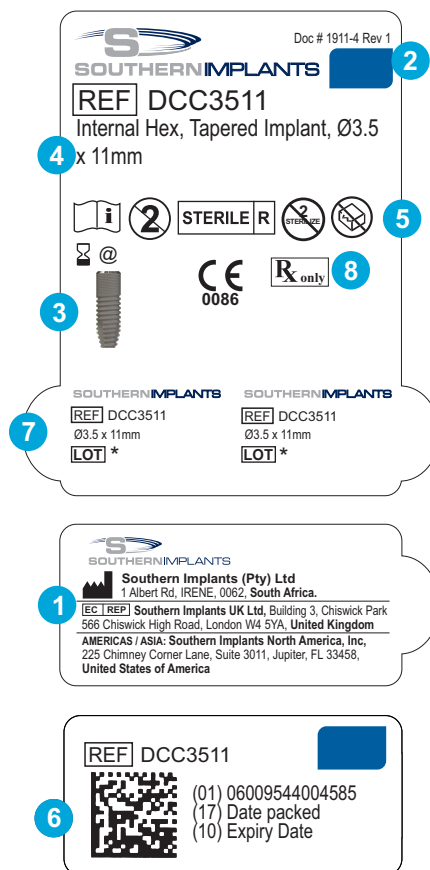


Explanation of symbols

The following symbols are used on our packaging labels and they indicate the following:

- 1  **Manufacturer**
- 2  **Colour code indicating platform diameter**
- 3  **Implant image**
- 4  **Implant details and size**
- 5  **Sterilization using Irradiation**
 -  **Do not Resterilize**
 -  **Consult instruction for use**
 -  **Do not reuse**
 -  **Caution**
 -  **CE mark and notified body number**
 -  **Use by mm-yy**
 -  **Sterile unless package is opened or damaged**
- 6  **2D Bar coding**
Contains the GTIN code.
- 7  **Patient sticker for documentation purposes**
(to be used by health care provider on patient file)
- 8  **Prescription device**

CAUTION: FEDERAL LAW RESTRICTS THE DEVICE TO SALE BY OR ON THE ORDER OF A LICENCED HEALTH CARE PROVIDER.



Platform diameters

 Ø3.0

 Ø3.5

 Ø4.0

 Ø5.0

The background of the page is a light gray gradient. In the upper right corner, there is a solid blue square. At the bottom of the page, there are several realistic water splashes and droplets in a light gray color, creating a sense of movement and freshness.

For contact information on your nearest distributor,
visit www.southernimplants.com

CAT-2061-00 (C864)