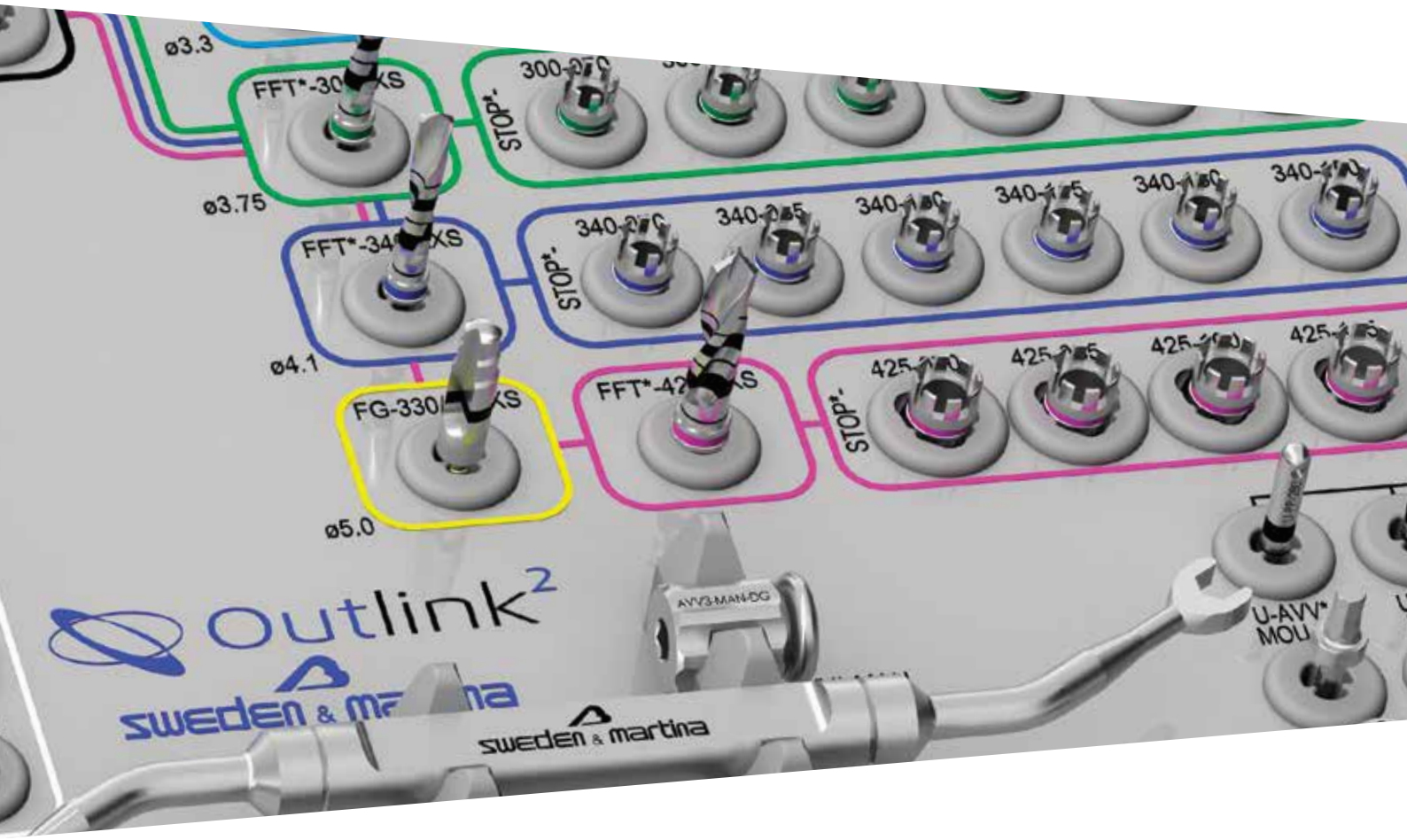
SURGICAL MANUAL

Outlink²



sweden & martina

SURGICAL MANUAL CONTENTS

In implant-prosthetic rehabilitation with Outlink² implants, exclusively original prosthetic components by Sweden & Martina must be used. Use of non-original components limits the responsibility of Sweden & Martina S.p.A. and renders the product warranty void.
Suitable surgical instruments must be used to insert the fixtures surgically. These instruments are sold individually or in kits. It is recommended to use original surgical accessories manufactured by Sweden & Martina. The Company declines all responsibility for use of any non-original instruments.
Outlink² dental implants are implantable devices suitable for the rehabilitation of patients affected by **total or partial edentulism**. They are intended to be inserted surgically in the mandibular or maxillary bone. They can be inserted in different sites of the oral cavity with various techniques and then connected to the prosthesis at different times.

This manual contains the instructions for use of Outlink² dental implants and of the respective surgical instruments.

Clinical indications for resorting to implantoprosthetic therapies

When assessing the patient, in addition to his/her eligibility as regards implant-prosthetic rehabilitation, it is usually necessary to consider the contraindications that apply to oral surgery procedures in general.

These include:

- clotting disorders, anticoagulant therapy;
- healing or bone regeneration disorders;
- decompensated diabetes mellitus;
- metabolic or systemic diseases that compromise tissue regeneration with a particular influence on healing and bone regeneration;
- alcohol abuse, smoking and use of drugs;
- immunosuppressive therapy, such as: chemotherapy and radiotherapy;
- infections and inflammations, such as periodontitis and gingivitis;
- poor oral hygiene;
- inadequate motivation;
- occlusion and/or articulation disorders as well as an inadequate interocclusal space;
- inadequate alveolar process.

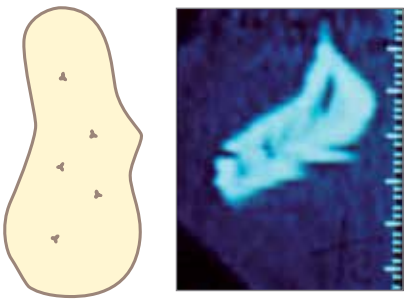
It is contraindicated to fit implants and implant restorations in patients with poor general or oral health, those who are unable to monitor their general conditions properly or those who have had organ transplants. Psychologically unstable patients, alcohol or drug abusers, and poorly motivated or uncooperative patients should also be considered unsuitable for this kind of treatment. Patients with poor periodontal health should first be treated and allowed to recover. In the presence of a lack of bone substance or poor quality of the receiving bone, such as to compromise the stability of the implant, suitable guided tissue regeneration must be performed prior to implant treatment. Contraindications also include: bruxism, allergy to titanium (extremely rare), acute or chronic infectious diseases, sub-acute chronic maxillary osteitis, systemic diseases, endocrine disorders, diseases resulting in microvascular disorders, pregnancy, breastfeeding, previous exposure to radiation, haemophilia, neutropenia, steroid use, diabetes mellitus, kidney failure and fibrous dysplasia. The normal contraindications common to all oral surgery must also be observed. Surgery is not recommended for patients on anti-coagulant, anti-convulsant and immunosuppressant therapies, with active inflammatory-infective processes of the oral cavity, and patients with BUN and creatinine values outside the norm. Patients with cardiovascular disease, hypertension, thyroid or parathyroid diseases, malignant tumours found in the 5 years preceding the operation, or nodular swellings must also be rejected. Chemotherapies reduce or eliminate the ability of osseointegration, therefore patients undergoing these treatments must be carefully screened before being rehabilitated with oral implantoprostheses. Numerous cases of bisphosphonate-associated peri-implant osteonecrosis of the mandible have been reported in the literature. This problem particularly applies to patients treated intravenously.
As a post-operative precaution, the patient must avoid any kind of strenuous physical activity.

Side and secondary effects

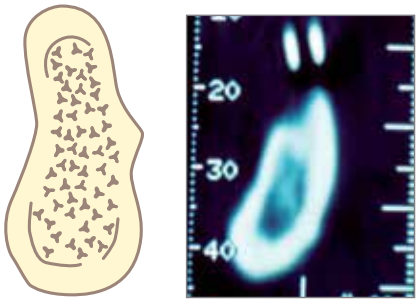
Situations that may occur after surgical procedures include temporary local swelling, oedema, haematoma, temporary sensitivity alterations, temporary masticatory limitations, post-surgical micro-haemorrhages in the following 12-24 hours. The patient may also experience pain, speech problems, gingivitis, loss of bone crest, permanent paresthesia, dysesthesia, local or systemic infections, exfoliation, hyperplasia, and oronasal and oroantral fistulas, perforation of the labial or lingual plate, perforation of the Schneider membrane, bone fractures, implant fractures, fractures of the over-structures, aesthetic problems, unnoticed perforation of the nasal sinus, nerve injuries, impairment of natural dentition.
The following pathophysiological problems can increase the risks: cardiovascular failure, coronary disease, arrhythmia, pulmonary or chronic respiratory disease, gastrointestinal disease, hepatitis, inflammatory bowel disease, chronic kidney failure and disorders of the urinary system, endocrine disorders, diabetes, thyroid diseases, hematologic disorders, anaemia, leukaemia, coagulation problems, osteoporosis or musculoskeletal arthritis, stroke, neurological disorders, mental retardation, paralysis.
Before proceeding, it is important to perform a careful pre-operative analysis of the patient's medical history to verify his or her suitability for the implant treatment. It is also recommended to collect and file all the clinical, radiological and radiographic records.
After making models of the two arches, the best position and orientation of the chosen implants will be evaluated based on the occlusal plane and on a correct distribution of the forces. In this phase, a surgical stent may be created to guide the specialist to correctly position the implants during the operation.
Depending on the specific case, a decision will be made on whether to use a single or double phase surgical procedure, using titanium cylinders (code DIM) to make the radiological/surgical stent.

A radiological and surgical stent can be made by using the special cylinders in titanium (code DIM), which can be used to obtain an ideal positioning of the implants in terms of biomechanics and aesthetics.

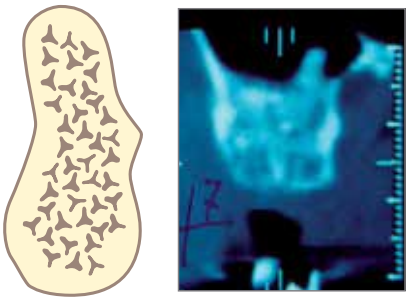
In addition to an oral examination, both clinical and with x-rays, it is recommended to take a T.C. scan of the interested area; once the x-rays and scans have been obtained, the specialist can identify the most suitable implant with the help of convenient transparent radiographic guides.
The pre-operative study of the T.C. Dentalscan allows identifying the type of bone present in the insertion point of the implant. The choice of the surgical procedure must take into consideration the type of bone present.
The bone is normally classified into 4 types according to the density. The classification (according to Karl Misch) is the following:



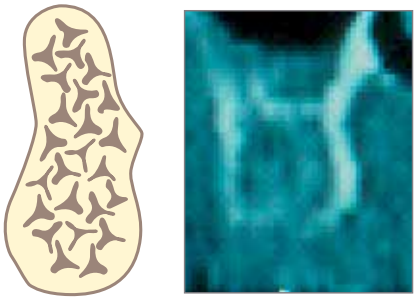
BONE D1: all cortical bone.



BONE D2: a core of bone marrow enclosed in a shell of cortical bone.



BONE D3: all bone marrow without crest cortical



BONE D4: all bone marrow with very poor mineralisation.

Dentalscan images by kind permission of Dr. Marco Csonka - Catania

General indications

Outlink² implant fixtures are long-term implantable medical devices. All the fixtures are sold in single-use sterile packs. The function of the fixtures is to replace missing dental roots. The fixtures have a connection in the crown part for receiving an implant post aimed at supporting a dental prosthesis.
The implants have a cylindrical shape, they are screw shaped with an external thread and have a hexagonal external connection for connecting the prosthetic components. Outlink² implants can be inserted in both edentulous and post-extraction sites, either immediate (insertion of the implant at the same time as the removal of the tooth or root), or deferred (normally about 3/4 weeks between extraction and insertion of the implant fixture).
All the fixtures are sold with the respective closing cover screws (also called, surgical screws), preassembled on practical mounters which also act as transfer and post, secured to the connections with special screws. The surgical cover screws are also medical devices that can be implanted surgically.
They are designed to remain in the oral cavity for more than 30 days. The surgical cover screws can also be sold individually, in sterile packs.
In accordance with Directive 93/42/EEC adopted in Italy with L.D. 46/97 of 26 March 1997, Annex IX, Sweden & Martina declares to be the manufacturer of Outlink² devices and identifies the risk classes shown in table 01 (see pages 83-84). Normally, dental implants, even though they can be implanted in all patients who have the suitable therapeutic indications, must only be used by professional dentists or surgeons with the necessary qualifications and training.

Method of use

The methods of use can be divided into two main surgical techniques:

- **Two stage**: the first stage is "submerged" i.e. where the implant is inserted under the mucosa, and the connection well is covered with a surgical cover screw (or closing screw), which is then sutured. Then, after 2 to 6 months, the mucosa is reopened and the prosthesis is inserted;
- **One stage**: insertion of the implant, closure of the connection with a transgingival healing screw, instead of a surgical cover screw. Alternatively, in the presence of suitable therapeutic indications, it can be loaded immediately with an appropriate temporary or permanent dental post, depending on the case.

Implants are inserted in the bone based on surgical protocols that must be considered according to the quantity and quality of the receiving bone, the implant or the kind of prosthesis, and the possible need for regenerative therapies. The "implantologist" or dental surgeon creates a site in the patient's bone (corresponding to the new tooth to be placed or replaced), by using a series of calibrated burs or suitable instruments such as bone expanders, bone compactors or similar instruments. The necessary conditions for the success of the implant are:

- the presence of a certain amount of bone;
- good periodontal (gingival) support;
- no bruxism (teeth grinding) or serious malocclusion;
- the presence of good occlusal balance (correct masticatory occlusal plane).

Outlink² implants have been tested in a wide range of clinical situations:

- standard operating procedures involving the double or single surgical phase;
- immediate and early loading;
- simultaneous use with regenerative therapies;
- post-extraction situations, even combined with immediate loading.

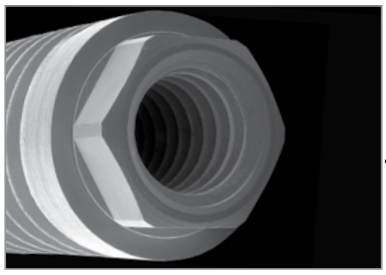
Generally, masticatory loading with a fixed prosthesis occurs at a second stage, after 2 to 3 months for the mandible and after 4 to 6 months for the upper jaw. In some cases, but not all, immediate loading of the implants is possible; to do this it requires good primary stability, with no mobility or movement limited to a few microns. The bone-implant interface must therefore be of the order of a few millimicrons, otherwise there is the risk of fibrous integration.

The clinical indication for choosing the Outlink² implant depends on the site in which the implant is to be inserted, on the anatomy of the receiving bone and on the technique chosen from among those mentioned above. The choice must be made exclusively by the doctor, who must have the suitable training and experience and must plan the prosthetic rehabilitations beforehand.

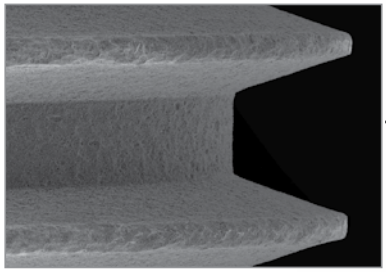
Sweden & Martina has conducted 5.000.000-cycle fatigue resistance tests on Outlink² implants. The implants passed the test. Fatigue tests are conducted according to the standards and evaluated further with finite element calculations.

Outlink² ø 3.30 implant

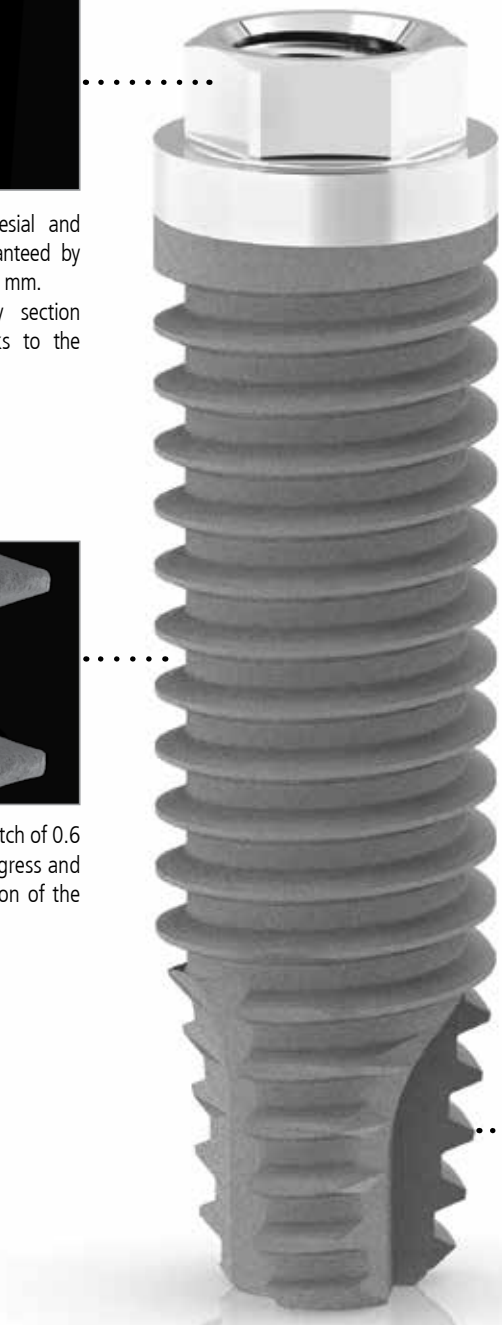
The Outlink² ø 3.30 implant has a platform with 2.40 mm external hexagon, 1.00 mm high and internal threading of M 1.8, allowing any type of prosthetic restoration to be produced satisfactorily.
Due to their small diameter, ø 3.30 implants are ideal for implant-prosthetic rehabilitation when there is limited space between adjacent teeth, as in the case of single crowns in upper lateral incisor positions and in lower intraforaminal situations.*



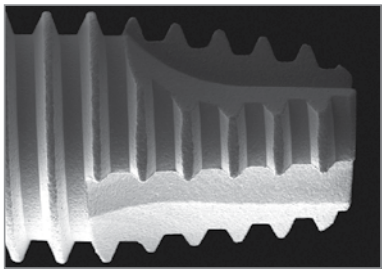
Stability with respect to disto-mesial and antero-posterior stress most guaranteed by the external hexagon height of 1.00 mm.
Resistant and particularly sturdy section despite its small diameter, thanks to the external hexagon connection.

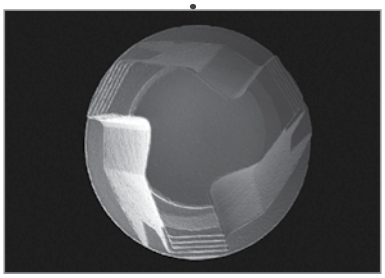


The thread of the implants has a pitch of 0.6 mm which facilitates screwing progress and limits bone trauma after application of the load.



Tapered apex with large discharge notches that give the implant excellent self-tapping properties; the fully threaded apex section considerably simplifies its insertion





* They can also be used for the rehabilitation of single crowns at premolar level.
In distal sectors they must be used exclusively for the rehabilitation of multiple fixed structures.
They are also very useful in the case of total edentulism on thin mandibular crests where it is preferred not to carry out regeneration.
In this case it is recommended to use at least 4 fixed implants with a bar.

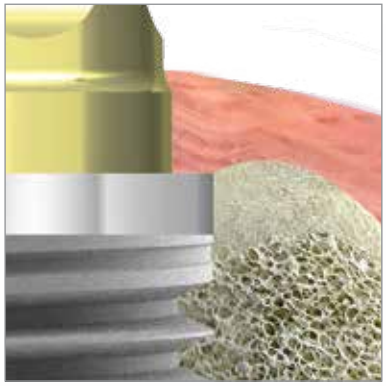
Outlink² ø 3.75 and ø 4.10 implants

The Outlink² implant with prosthetic platform ø 4.10, with 2.70 mm standard hexagon (universal) 0.70 mm high and internal threading of M 2.0, is available both with a 4.10 mm neck and 3.75 mm spire and with a 4.10 mm neck and 4.10 mm spire.
Using the same platform (4.10 mm) it is thus possible to choose between two different spire diameters, 3.75 mm and 4.10 mm, depending on the available bone thickness.

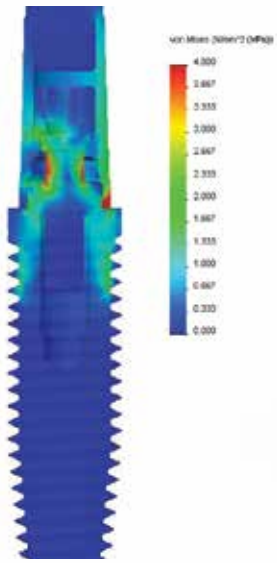
The connection platform of Outlink² implants has an external hexagon that today is generally recognised as standard at world level.
The external connection makes them particularly suitable for operations in the case of multiple edentulism with severe disparallelism, as it considerably facilitates the phase of taking the impression and the subsequent insertion and removal of prostheses.

Outlink² ø 4.10 SP implant (Switching Platform)

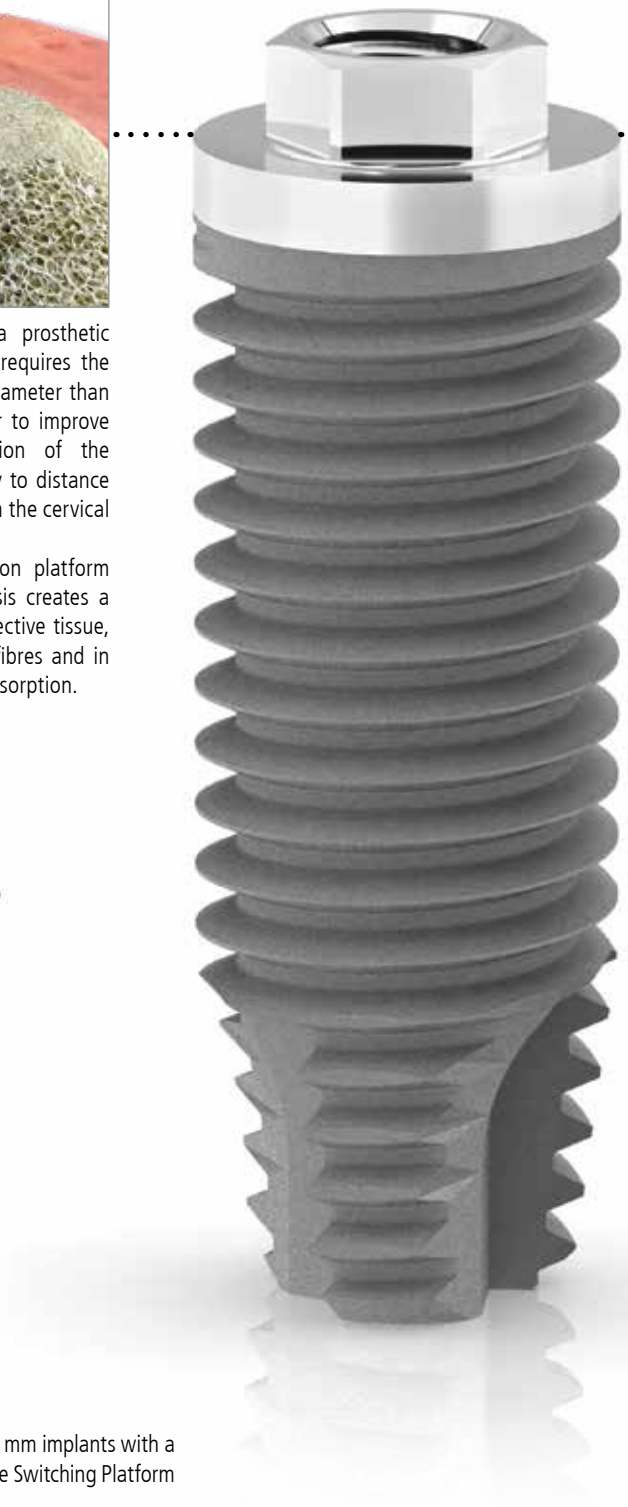
The Outlink² ø 4.10 SP implant has a 4.10 mm prosthetic platform, a 2.40 mm hexagon 1.00 mm high with internal threading of M 1.8, the same as those of the ø 3.30 implant. This characteristic allows the use of prosthetic components with diameter 3.30 mm, optimally performing the Switching Platform technique which takes advantage of the horizontal component of the biological width, thus minimising the loss of crestal bone.



The Switching Platform is a prosthetic rehabilitation technique that requires the use of posts with a smaller diameter than the implant platform in order to improve the biomechanical distribution of the prosthetic load, but especially to distance the prosthetic connection from the cervical bone.
The portion of the connection platform not occupied by the prosthesis creates a supporting base for the connective tissue, thus stabilising the collagen fibres and in this way minimising bone reabsorption.



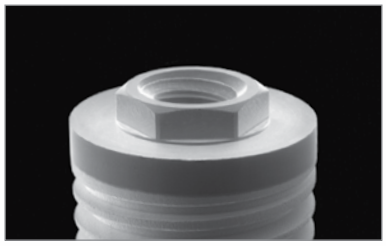
FEM analysis of Outlink² ø 4.10 mm implants with a ø 3.30 mm post according to the Switching Platform protocol.



The Switching Platform technique is possible with ø 4.10 mm SP implants, using ø 3.30 mm prosthetic components on these implants.

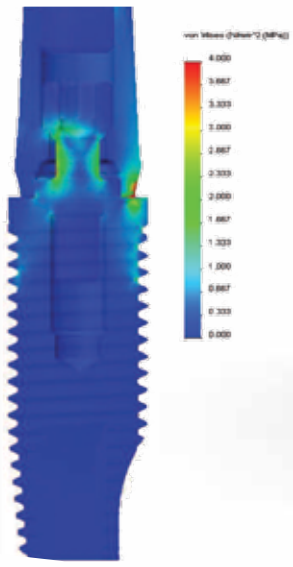
Outlink² ø 5.00 implant

The Outlink² ø 5.00 presents a prosthetic platform with diameter 5.00 mm with 2.70 mm external hexagon, 0.70 mm high and internal threading M.20, the same as those of the standard 4.10 mm platform, which guarantees high precision and versatility.
Outlink² ø 5.00 implants allow the application of the Switching Platform technique using ø 4.10 mm prosthetic components.



The 5.00 mm diameter of this implant makes it ideal for implant-prosthetic rehabilitation on thick bone crests.
The external connection and the wide diameter of the spires give this implant extraordinary sturdiness and stability.

The Switching Platform technique is possible with ø 5.00 mm implants, using ø 4.10 mm prosthetic components on these implants. This improves the preservation of the crestal bone.



FEM analysis of Outlink² ø 5.00 mm implants with a ø 4.10 mm post according to the Switching Platform protocol.

Multifunctional mounter

The Outlink² implant has the mounter already assembled in the PMMA vial. As well as the traditional carrier function for the transport and positioning of the implant, the particular conformation of the Outlink² mounter also allows it to be used as a transfer when taking the impression and as a post during prosthetic rehabilitation.

The retentive tabs can be cut easily, so that the mounter adapts to the morphology of the element to be prosthesized and thus become a practical post.

The conical profile of the mounter facilitates insertion and removal of the crowns or of bridges, in the case of multiple structures.

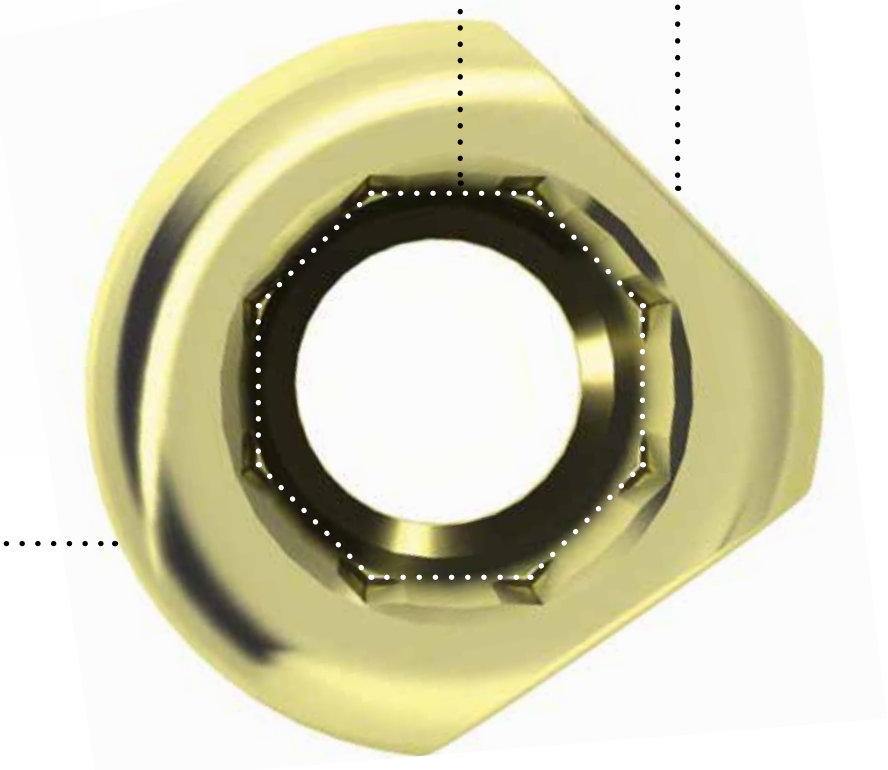
The mounter is supplied already preassembled with the implant. The connecting screw is also available separately as a spare.

The golden colour of the mounter guarantees maximum results as regards the aesthetic appearance of reconstructions.

The thickness of the mounter is such as to allow it to be reduced in height if necessary, or milled, and to create coulisses in the walls for repositioning the prosthesis.

Practicality of the surgical procedure: the view of the mounter from above shows the conformation of the upper part, with an internal octagon, which allows it to be easily lifted by the driver and put into position.

Face aligned with one side of the implant hexagon.



The mounters with all diameters have two repositioning faces to guarantee a good non-rotational aspect while taking the impression.

IMPORTANT WARNING

During production the implant is secured to its mounter at 12 Ncm so as to prevent the two parts becoming disconnected during transport, but at the same time to allow easy removal of the mounter if immediate loading is not being performed. If the mounter-post is left in place for an immediate loading procedure, it is advised to complete tightening until the recommended value of 20-25 Ncm is reached.

Outlink² Shorty implants

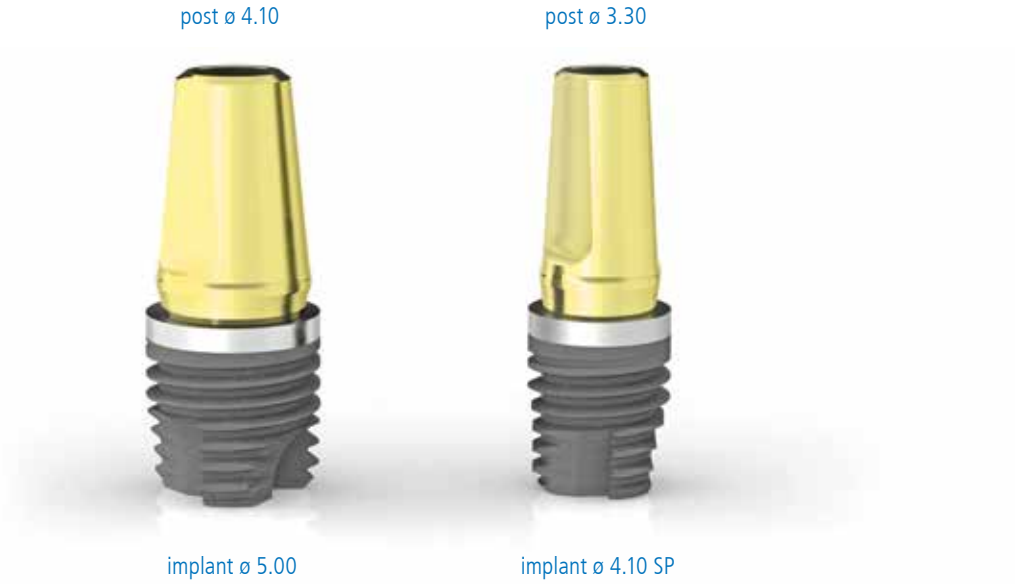
Shorty Outlink² fixtures with height 5.00 mm, 7.00 mm and 8.50 mm are available in the program which can be used, according to the most recent clinical protocols in all cases where there is small vertical bone dimension. The slight apical tapering facilitates insertion of the fixtures, and the pitch and depth of the thread guarantee excellent primary stability. In view of the small size of these implants, it is recommended to use them only to support multiple prostheses, together with implants of a larger size.

IMPORTANT WARNING

Never use these implants for rehabilitating single crowns, but only as support posts combined with longer fixtures for multiple rehabilitations. It is also recommended to always use, whenever possible, implants with the largest diameter possible depending on the thickness of the crest.

Sweden & Martina have developed a drilling kit specifically for inserting Shorty implants: for details see page 64.

In case of very short implants (5.00 mm and 7.00 mm), the apical tapering was redesigned to improve primary stability even further. Installing a prosthesis with the Switching Platform technique is recommended for these implants in order to preserve the already reduced vertical dimension of the crest as much as possible. This choice is necessary in Outlink² Shorty implants with a diameter of 4.10 mm (platform 4.10 SP) because they have a 2.40 mm hexagon instead of the 2.70 mm standard hexagon.



Key to the implant codes

The implant codes are so-called "mnemonic" codes, i.e. they allow easy identification of the piece. Below is a table showing how the mnemonic codes work using Code E2-ZT-410-115 as an example:

Type of implant E2-	Surface ZT-	Diameter 410	Connection SP	Length 115
E2: Outlink² implant	3S: Trisurface Surface ZT: ZirTi surface	330: 3.30 mm 375: 4.10 mm 410 - 410SP: 4.10 mm 500: 5.00 mm	SP: Switching Platform (ES. 2.40 mm)	050: 5.00 mm 070: 7.00 mm 085: 8.50 mm 100: 10.00 mm 115: 11.50 mm 130: 13.00 mm 150: 15.00 mm
		is the size of the platform of the implant connection	*If no specifications are available, it refers to a standard connection (e.g. 2.70 mm)*	*refers to the length of the implant*

Table of colour codes

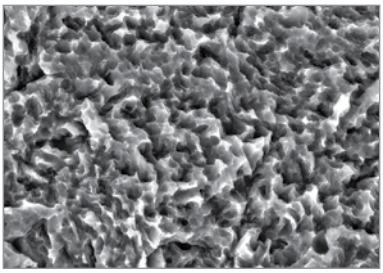
A colour code system has been defined in the Outlink² implant system for identifying the intraosseous diameter of the implant.
The colour code identifies:
- the transfers for taking an impression and the laboratory analogs;
- the final drills;
- the sequence on the surgical tray.

	ø 3.30	ø 3.75	ø 4.10	ø 4.10SP	ø 5.00
Colour code on the pack					

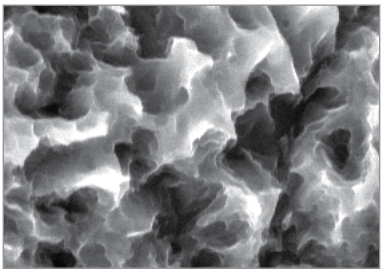
Surfaces

These studies have shown that the closer the roughness is to the size of the fibroblasts, the more influence it has on cell behaviour, causing the platelet activity to increase with respect to a smooth surface, thus accelerating the repair and osseointegration processes. The roughness is able to orient the cell layout, to influence their metabolism and proliferation, to differentiate osteoblasts and to modulate the production of extra-cellular matrix.
These studies have led to the current development of the Outlink² implant surfaces: ZirTi (Zirconium Sand Blasted Acid Etched Titanium) and TriSurface.

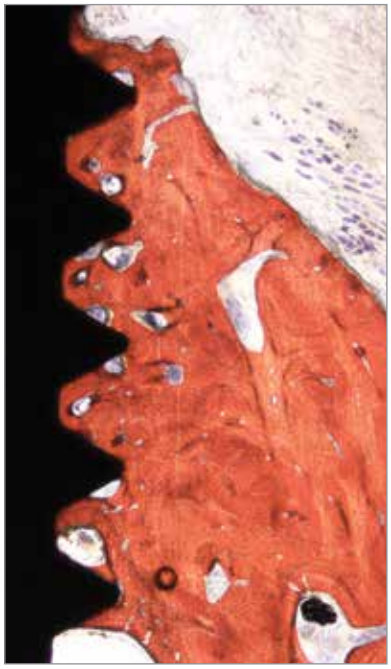
ZirTi Surface



This is a surface in which the roughness is obtained with subtraction techniques by sand-blasting with zirconium oxide and acid-etching with mineral acids.

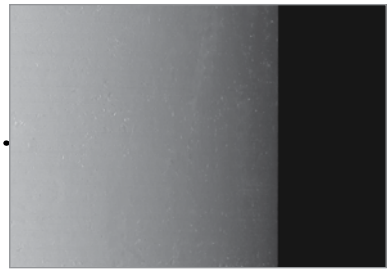


The roughness assumed by the surface of the implant body is an ideal situation for promoting osteoblastic proliferation and differentiation, as well as the formation and growth of bone tissue.



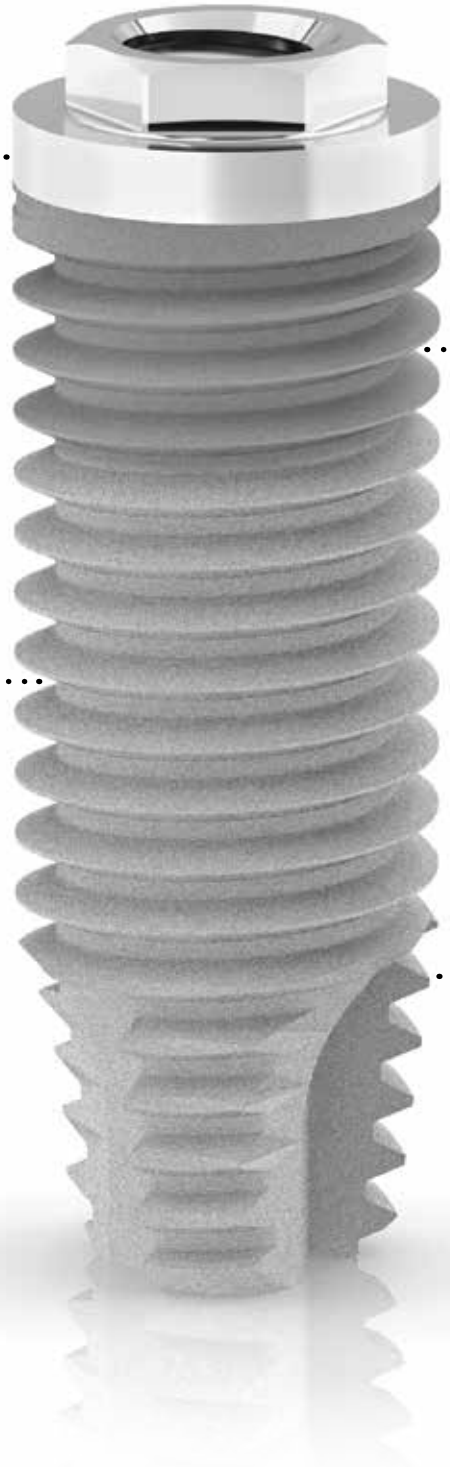
Histology showing vital mineralised bone in intimate contact with the ZirTi surface of an Outlink² implant. Osteons and areas of bone marrow can be seen.

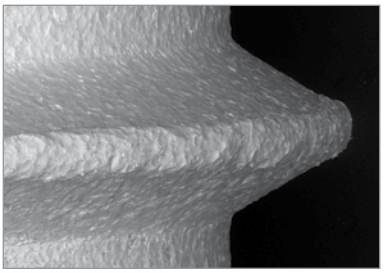
Image and caption by kind permission of Dr Daniele Botticelli.



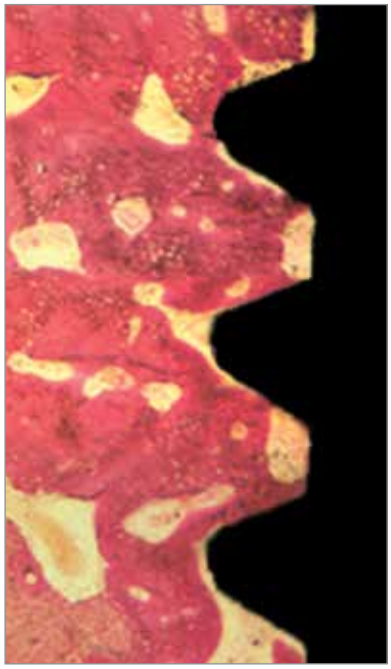
In both types of surface the collar is smooth for 0.75 mm of the height.

TriSurface Surface



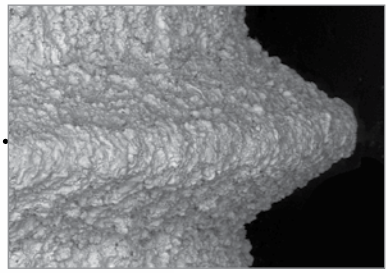


The implant with a TriSurface surface has a sandblasted coronal portion, in order to obtain an intermediate level of roughness that allows better control of any bacterial infections before they can degenerate into peri-implantitis.



Histological image of the bone growth around an Outlink² implant with a TriSurface surface.

Il Circolo
Rivista Periodica di Odontostomatologia,
1: 13-20, 2004



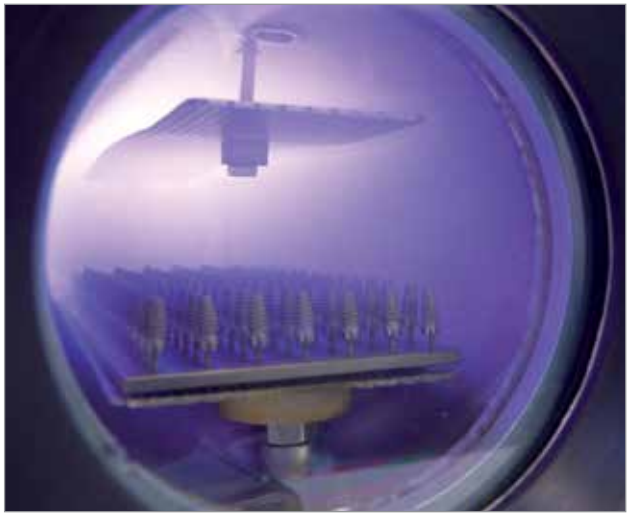
The middle apical portion of the body of the implant is coated with HRPS (High Roughness Plasma Spray) and has the maximum level of roughness that can be obtained, thus guaranteeing excellent primary stability even when the bone is only slightly mineralised, and significantly increasing the bone-implant contact surface.

For clinical findings concerning Sweden & Martina surfaces refer to the paragraph in the bibliography (see from page 85) with the list of numerous in-vitro and in-vivo studies.

Cold plasma surface decontamination

The better the processes of passivation, cleaning and decontamination of an implant surface, the greater the presence of pure titanium able to come in contact with the bone. This proportionally increases the possibilities of osseointegration.
At the end of the surface treatments, the implants are subjected to a careful cleaning and decontamination process by means of cold plasma triggered in argon after first being cleaned of the main processing residue with numerous washing cycles in specific solvents.
What is decontamination? It is the total removal of dirt, particle residue and bioburden from the surface of the implants, carried out before sterilisation.
During the Argon treatment, the gas atoms are partially ionised, they acquire energy and "bombard" the surface of the fixture violently. This kind of "atomic sand-blasting" removes organic contaminants without leaving any traces or additional residuals.

Implant before the decontamination treatment.



Working plasma reactor during surface decontamination of the implants.

Implant after the decontamination treatment.

As known, Argon is an inert gas that does not react with the titanium surfaces. The condition of surface decontamination is controlled regularly with randomised analyses of Bioburden residuals and a SEM visual examination on all the batches produced. This process activates the ionisation of the atoms on the surface of the titanium oxide which in turn increases the wettability of the fixture.

Implant packaging

The implants are packaged in PMMA vials in which they are held/housed in special titanium baskets that protect the surface of the fixture against possible recontaminations due to contact. All the materials comprising the packaging have been suitably tested to verify their suitability to sterilisation, preservation and medical use. All the fixtures are sold with the respective surgical cover screws, preassembled on practical mounters, secured to the connections with special screws. The surgical cover screws are medical devices that can be implanted surgically. They are designed to remain in the oral cavity for more than 30 days. The expiry date is indicated on the package. The sterile blister must be opened only at the moment of the operation. Before opening, make sure that the package is perfectly intact. Any damage could compromise the sterility of the implant and therefore the success of the operation. Implants that have already been used or are not sterile must never be reused. It is a single-use device: reuse is not allowed and may lead to loss of the implant and cross infections. There is a round label (sticker) on the bottom of the vial. This label indicates that it has been sterilised.
The packaging conforms to European standards.

The blister packs containing the implants are packed in cardboard boxes which also contain the labels for the patient records reporting the details for traceability of the product (code and batch number).

The vials are contained in a special PETG blister pack sealed by a Tyvek cover, which guarantees sterility of the product for 5 years. A label that changes colour is applied on the bottom of the vial. This label has the property of changing colour from orange to red during sterilisation. When an implant pack is opened, a red label is therefore proof that it has been sterilised.

Upon opening of the vial, the implants appear with the visible connection ready to be engaged by the drivers.

The surgical cover screw, supplied with every single implant, is housed in a special compartment in the top of a blue cap made of LDPE which closes the vial. In turn, a small transparent lid in PMMA closes the blue cap.

Sterilisation

Sterilisation is the total elimination of the residual microbial load present on the implant after the decontamination and packing process, it is carried out with the use of beta rays. The sterilisation procedures are carried out in accordance with the UNI EN ISO 13485 and UNI EN ISO 9001 quality standards. A beta ray sterilisation process was chosen because it has a variety of different advantages:

- the process occurs in a completely automatic way with computerised control of all the phases;
- the process is quick, reliable and extremely easy to repeat with safety and precision;
- the process is extremely eco-friendly, does not require the presence of radioactive sources and does not lead to the formation of toxic or radioactive products;
- beta rays are minimally invasive with regards to packaging due to the speed of the treatment. This guarantees preservation of the product's sterility over time (certified duration of 5 years).

IMPORTANT WARNING

It is recommended not to use the implants after the expiry date indicated on the pack. Use of the product after the expiry date may cause infections.

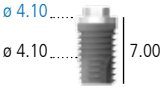
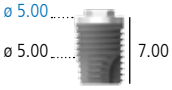
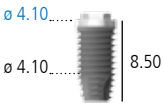
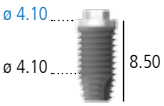
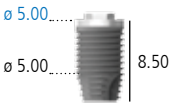
Outlink² implants

implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm	ø 4.10SP mm	ø 5.00 mm
mounter*	 E-MOU2-330	 E-MOU2-410	 E-MOU2-410	 E-MOU2-330	 E-MOU2-500
connecting screws	 VM-180	 VM-200	 VM-200	 VM-180	 VM-200
surgical cover screws**	 E-VT-330	 E-VT-410	 E-VT-410	 E-VT-330	 E-VT-500

* The mounters are sold preassembled with the implants. Both the mounters and the connecting screws (VM-180 and VM-200) are available on sale as individual spare parts. If the mounter is used as a post, the torque for tightening the screws is 20-25 Ncm.

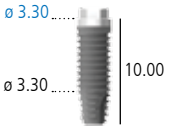
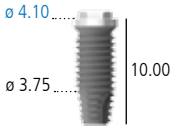
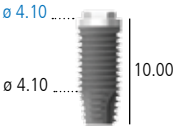
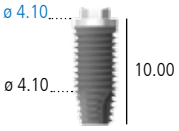
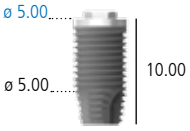
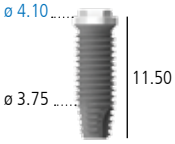
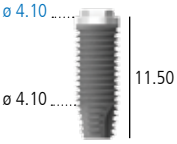
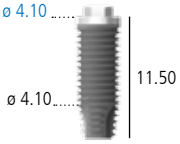
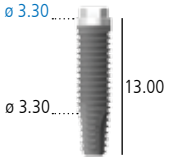
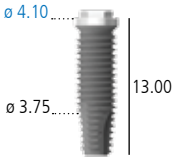
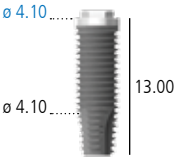
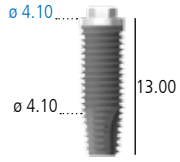
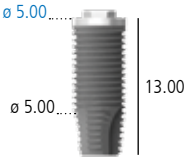
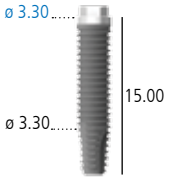
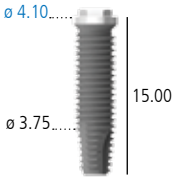
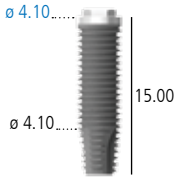
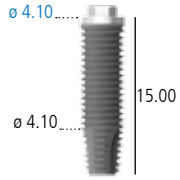
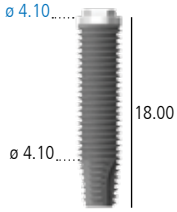
** Each implant is sold with its own surgical cover screw. The surgical screws are also available on sale individually in a sterile pack and must be tightened to 10 Ncm.

Shorty implants

implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm	ø 4.10SP mm	ø 5.00 mm
h 5.00	-	-	-		
ZirTi TriSurface				E2-ZT-410SP-050 -	E2-ZT-500-050 -
h 7.00	-	-	-		
ZirTi TriSurface				E2-ZT-410SP-070 -	E2-ZT-500-070 -
h 8.50	-				
ZirTi TriSurface		E2-ZT-375-085 E2-3S-375-085	E2-ZT-410-085 E2-3S-410-085	E2-ZT-410SP-085 E2-3S-410SP-085	E2-ZT-500-085 E2-3S-500-085

All measurements are given in mm, unless indicated otherwise.

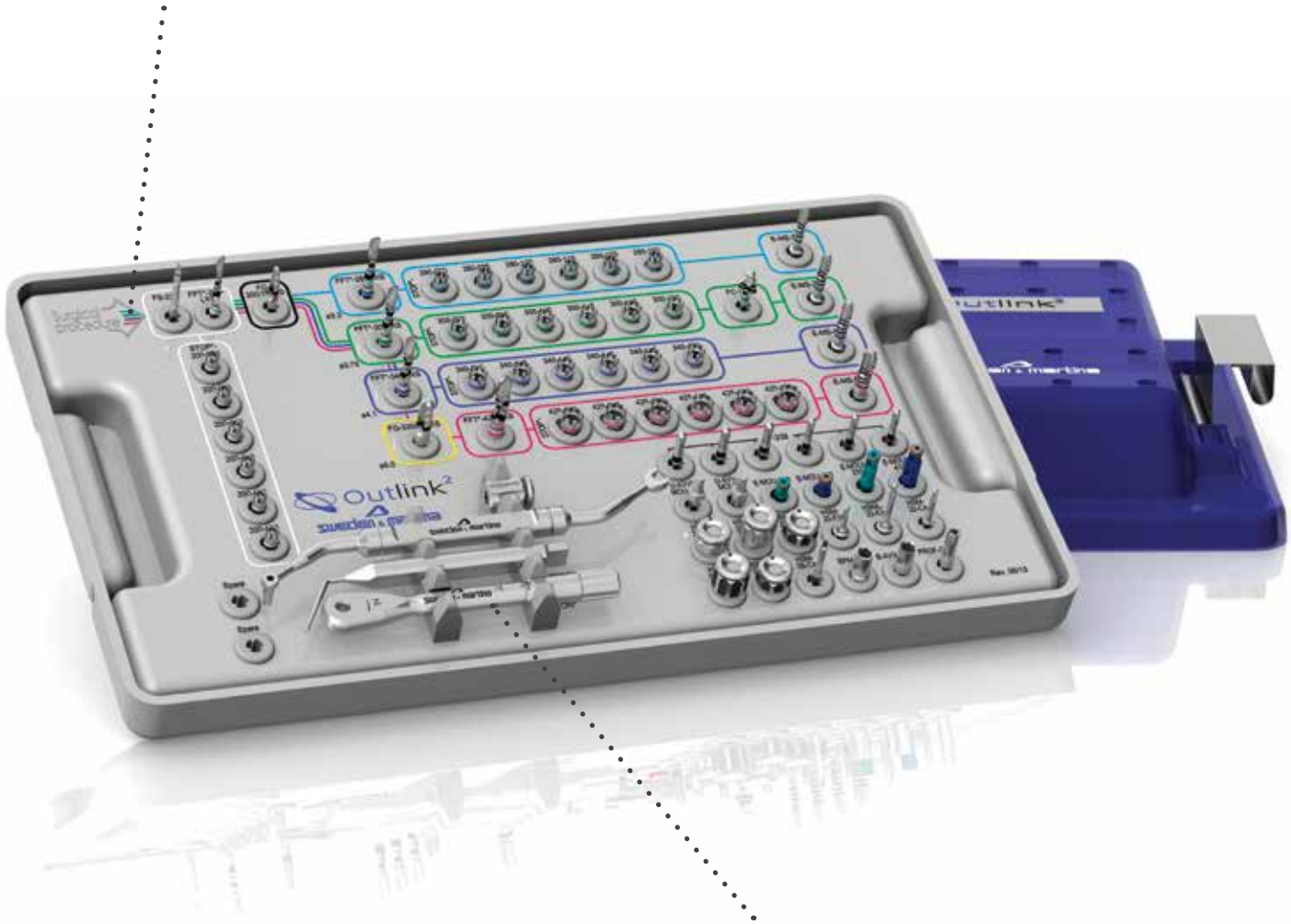
Standard implants

implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm	ø 4.10SP mm	ø 5.00 mm
h 10.00					
ZirTi TriSurface	E2-ZT-330-100 E2-3S-330-100	E2-ZT-375-100 E2-3S-375-100	E2-ZT-410-100 E2-3S-410-100	E2-ZT-410SP-100 E2-3S-410SP-100	E2-ZT-500-100 E2-3S-500-100
h 11.50					
ZirTi TriSurface	E2-ZT-330-115 E2-3S-330-115	E2-ZT-375-115 E2-3S-375-115	E2-ZT-410-115 E2-3S-410-115	E2-ZT-410SP-115 E2-3S-410SP-115	E2-ZT-500-115 E2-3S-500-115
h 13.00					
ZirTi TriSurface	E2-ZT-330-130 E2-3S-330-130	E2-ZT-375-130 E2-3S-375-130	E2-ZT-410-130 E2-3S-410-130	E2-ZT-410SP-130 E2-3S-410SP-130	E2-ZT-500-130 E2-3S-500-130
h 15.00					-
ZirTi TriSurface	E2-ZT-330-150 E2-3S-330-150	E2-ZT-375-150 E2-3S-375-150	E2-ZT-410-150 E2-3S-410-150	E2-ZT-410SP-150 E2-3S-410SP-150	
h 18.00	-	-		-	-
ZirTi TriSurface			E2-ZT-410-180 -		

Surgical kit

The Outlink² surgical kit has been designed and made to offer ease of use and immediate placing in the sequence of instruments. The instruments, all made of stainless steel, have their codes screen-printed on the tray to allow the user to identify each instrument more easily and to put it back after the cleansing and cleaning phases, with the aid of a colour code system that traces the suitable surgical procedures for the various implant diameters.
The Outlink² surgical kit is also supplied with the templates for the graphic representation of the implant measurements to allow choosing the most suitable implant diameters and lengths by means of radiographic or tomographic analyses. The kit contains stops for safe use of the drills. These stops are extremely practical because they can be manually inserted and removed from the drills in tip → shank direction. The instruments contained in the kit are all made of stainless steel specifically for surgical use. To guarantee maximum duration of the pieces, it is advisable to follow the recommended cleansing and sterilisation procedures.

The kit consists of a practical box in Radel with a surgical tray inside that is set-up to hold the instruments according to a guided procedure. The sequences of use of the instruments are indicated by coloured marks.



A practical ratchet is also included that acts as a dynamometric key for checking the closing torque of the prosthetic screws and as a surgical key for inserting the implants. The ratchet has a very small head, making it easy to use even in distal sectors.

WARNING: The surgical kit also contains a test implant (non sterile) which is not to be clinically used, it can be distinguished from the others as it is entirely anodised in blue; it is recommended to use this implant for making trials on the model before starting to use the implants for clinical use, in order to get to know the implant system and its instruments.

code	description
 ZOUTLINK2*	Surgical kit complete with all the instruments necessary for Outlink² implants
 OUT-KIT*	Radel instrument tray for Outlink² implants
 GROMMET-3	Kit with 5 spare silicon supports for surgical trays, for drills or instruments with right angle shanks
 GROMMET-4	Kit with 5 spare silicon supports for surgical trays, for instruments fitted with connection hexagon
 GROMMET-5	Kit with 5 spare silicon supports for surgical trays, for digital or handheld instruments

* The words ZOUTLINK2* and OUT-KIT* are followed by a letter and number that indicate the revision of the kit. The contents of the surgical kit can be updated and varied according to the most effective and innovative surgical techniques.

Surgical kit

PRECISION DRILL
FS-230

PILOT DRILL
FPT3-200-LXS

INTERMEDIATE DRILL
FG-200/280XS

FINAL CYLINDRICAL DRILLS
- FFT3-280-LXS
- FFT3-300-LXS
- FFT3-340-LXS
- FFT3-425-LXS

STOP FOR PILOT DRILL
STOP3-200-070
STOP3-200-085
STOP3-200-100
STOP3-200-115
STOP3-200-130
STOP3-200-150

INTERMEDIATE DRILL
FG-330/425XS

ADAPTER
AVV3-MAN-DG

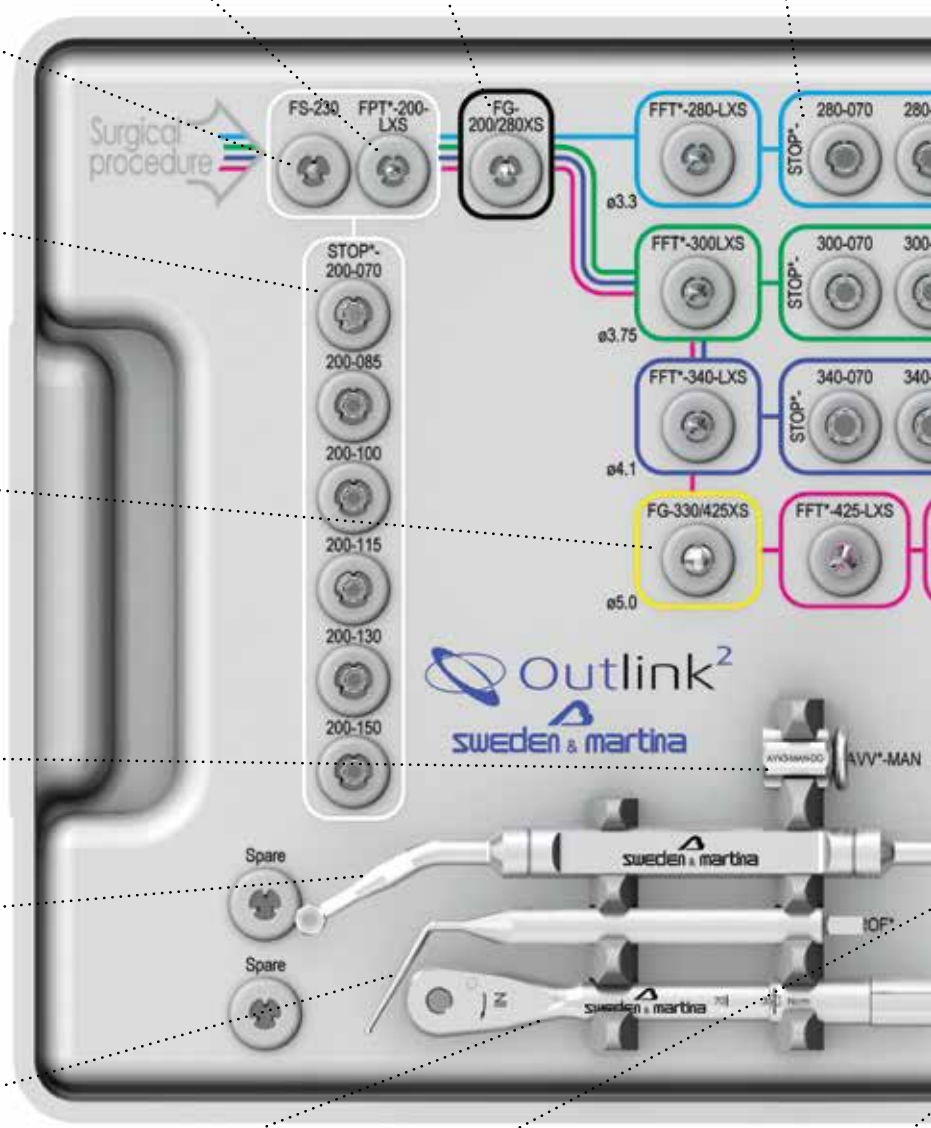
MOUNTER STOP KEY
CMD

DEPTH METER
PROF3

DYNAMOMETRIC RATCHET
CRI5

DRIVER FOR MOUNTER
U-AVV3-MOU-CA U-AVV-MOUC

HAND DRIVERS FOR CONNECTING SCREWS
HSM-20-DG HSML-20-DG HSMXS-20-DG



● STOP FOR CYLINDRICAL DRILLS
STOP3-280-070
STOP3-280-085
STOP3-280-100
STOP3-280-115
STOP3-280-130
STOP3-280-150

● STOP FOR CYLINDRICAL DRILLS
STOP3-300-070
STOP3-300-085
STOP3-300-100
STOP3-300-115
STOP3-300-130
STOP3-300-150

STANDARD BONE TAPS
● E-MS-330
● E-MS-375
● E-MS-410
● E-MS-500

COUNTERSINK DRILL
FC-XS

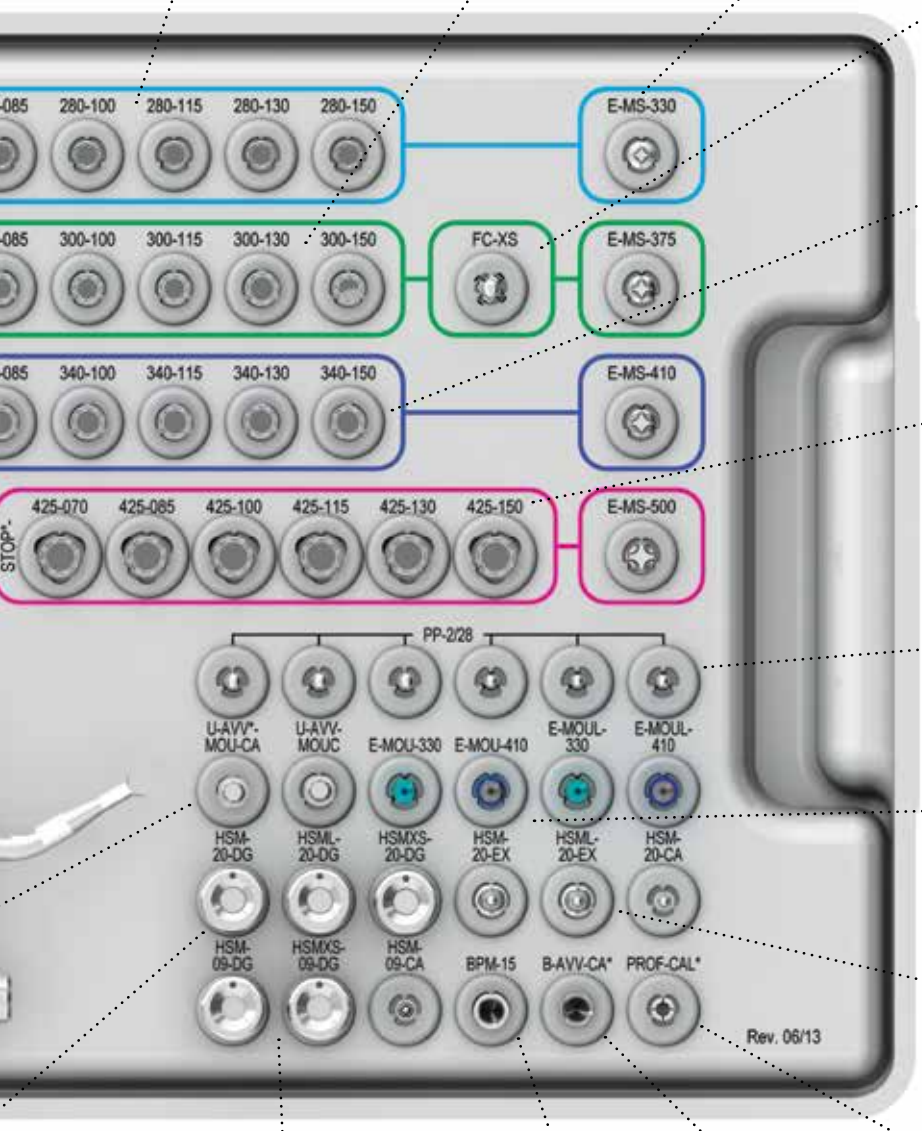
● STOP FOR CYLINDRICAL DRILLS
STOP3-340-070
STOP3-340-085
STOP3-340-100
STOP3-340-115
STOP3-340-130
STOP3-340-150

● STOP FOR CYLINDRICAL DRILLS
STOP3-425-070
STOP3-425-085
STOP3-425-100
STOP3-425-115
STOP3-425-130
STOP3-425-150

PARALLELISM PINS
PP-2/28

OPTIONAL MOUNTERS
E-MOU-330 E-MOU-410
E-MOUL-330 E-MOUL-410

DRIVERS FOR CONNECTING SCREWS
HSM-20-EX HSML-20-EX HSM-20-CA



DRIVERS FOR COVER SCREWS
HSM-09-DG HSMXS-09-DG HSM-09-CA

EXTENSION
BPM-15

ADAPTER
B-AVV-CA3

EXTENSION
PROF-CAL2

OneBox² Kit

The OneBox² surgical kit was created to meet the needs of surgeons who carry out a large number of implant operations and who therefore want to have a compact kit equipped essentially with all that is needed only for the surgical phase.
The OneBox² is a compact kit that is easy to carry, containing the surgical instruments strictly necessary for inserting Outlink² implants. It does not contain drill stops or prosthetic drivers, but it contains all the drivers in the one-piece digital version and the right angle version, which are much more practical during surgical procedures; it also includes a series of right angle bone taps.

The bone taps are present in the kit in the version with right angle attachment.

This kit contains space for an additional series of alternative drills, which the surgeon may wish to choose and use depending on his experience.

* **Please note**: to guarantee maximum duration of the surgical instruments, it is advisable to follow the recommended cleansing and sterilisation procedures.

code	description
 ZEONEBOX*	OneBox² surgical kit
 EONEBOX-KIT*	Instrument tray for OneBox²
 GROMMET-CA-1	Kit with 5 spare silicon supports for surgical trays, for drills or instruments with right angle shanks
 GROMMET-CA-2	Kit with 5 spare silicon supports for surgical trays, for instruments fitted with connection hexagon

* The words ZEONEBOX* and EONEBOX-KIT* are followed by a letter and a number that indicate the revision of the kit. The contents of the Kit can be updated and varied according to the most effective and innovative surgical techniques.

WARNING: OneBox² does not contain drill depth stops or prosthetic drivers, but it contains all the drivers in the one-piece digital version and the right angle version, which are much more practical during surgical procedures.

OneBox² Kit

PILOT DRILL
FPT3-200-LXS

INTERMEDIATE DRILL
FG-200/280XS

● FINAL DRILL
FFT3-280-LXS

● FINAL DRILL
FFT3-300-LXS

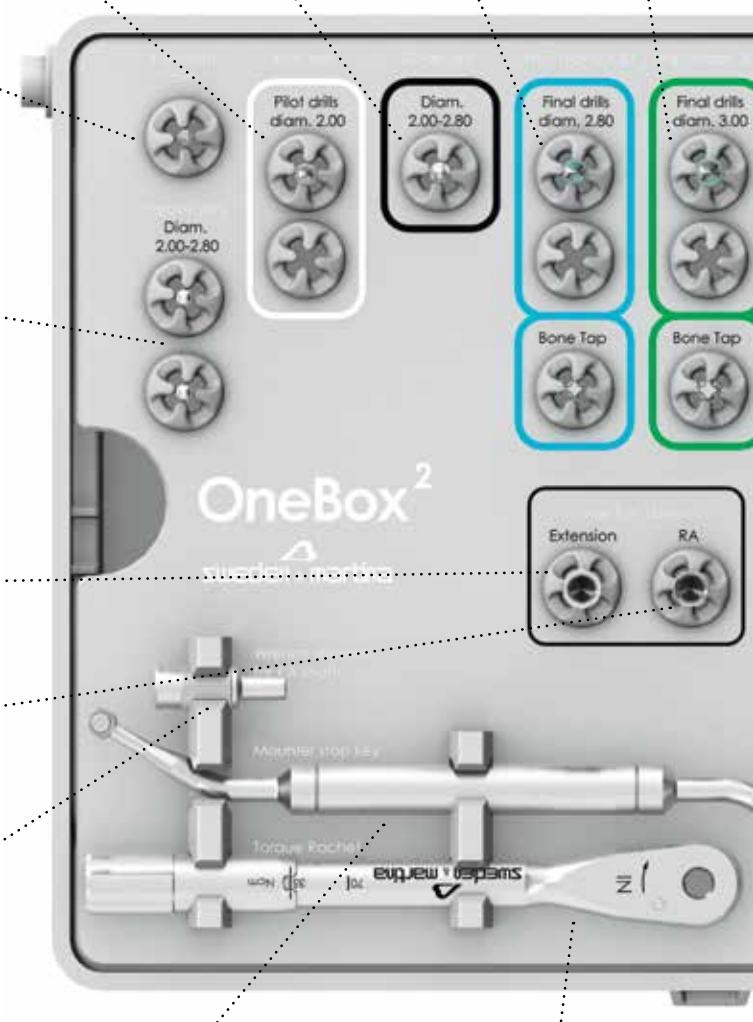
PRECISION DRILL
FS-230

PARALLELISM PIN
PP-2/28

EXTENSION
BPM-15

ADAPTER
B-AVV-CA3

KNOB
AVV2-CA-DG



MOUNTER STOP KEY
CMD

DYNAMOMETRIC RATCHET
CRI5

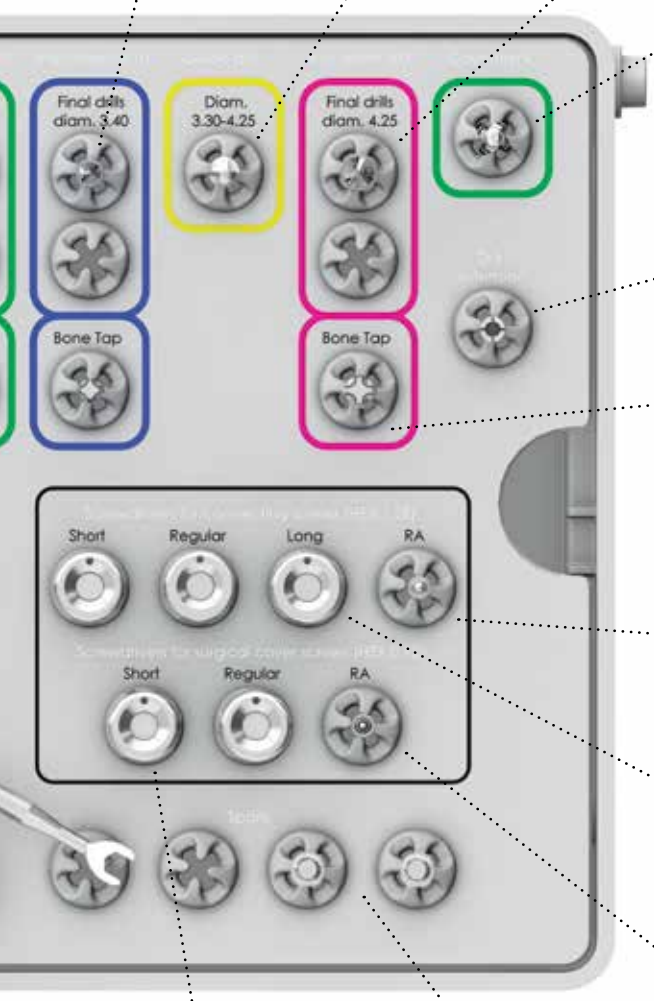
● FINAL DRILL
FFT3-340-LXS

INTERMEDIATE DRILL
FG-330/425XS

● FINAL DRILL
FFT3-425-LXS

COUNTERSINK DRILL
FC-XS

EXTENSION
PROF-CAL2



STANDARD BONE TAPS
- E-MS-330
- E-MS-375
- E-MS-410
- E-MS-500

DRIVERS FOR CONNECTING SCREWS
HSM-20-CA

HAND DRIVERS FOR CONNECTING SCREWS
HSMXS-20-DG HSM-20-DG HSML-20-DG

DRIVERS FOR COVER SCREWS
HSMXS-09-DG HSM-09-DG

DRIVER FOR MOUNTER
U-AVV3-MOU-CA U-AVV-MOUC

DRIVERS FOR COVER SCREWS
HSM-09-CA

General indications

The surgical instruments designed for use with the implant systems manufactured by Sweden & Martina are reusable medical devices intended for transient use in the oral cavity (no more than 60 minutes at a time).
The functions of the surgical instruments are to prepare sites for Sweden & Martina implants, to insert the implants in the sites, to tighten and unscrew all the connecting screws (cover screws, transgingival healing screws, screws for posts, abutments, prosthetic screws, transfer screws, etc.).
The surgical instruments manufactured by Sweden & Martina are designed for use with dental implants manufactured by Sweden & Martina. Use of surgical instruments for implant work other than those manufactured by Sweden & Martina limits the responsibility of Sweden & Martina and renders the product warranty void. Sweden & Martina declines all responsibility for use of any non-original instruments.
Sweden & Martina surgical instruments are sold in NON-STERILE packs. Before use, they must be cleaned, disinfected and sterilised according to the instructions reported below. Failure to follow these warnings may expose the patient to infection.
The materials used for manufacturing the surgical instruments manufactured by Sweden & Martina were selected based on the properties indicated for their intended use according to directive 93/42, implemented in Italy with Law 46/97, Annex I – Essential Requirements, point 7.1.
Each packaging indicates the code, description of the contents and batch number. These same details, which are also indicated on the labels inside the packs, must always be provided by the practitioner in any relevant correspondence.
All the devices are identified by an instrument code, which is laser marked onto the body of each instrument. If there is not enough space to include the full code, the elements for unequivocally identifying the device (e.g. diameter or length) are provided.
When handling the devices, both during use and during cleaning and sterilisation, it is recommended to use surgical gloves for personal protection from bacterial contaminations. Failure to follow these instructions may cause cross-infection.

Key to the codes: surgical instruments

The implant codes are so-called "mnemonic" codes, i.e. they allow easy identification of the piece. Below is a table showing how the mnemonic codes work using different types of instruments as an example.

examples	type of component and type of implant	revision/size	diameter	length
The range of instruments is fast, we indicate some examples of the main families of instruments	The letter "E" indicates the Outlink² system. The other letters indicate the product family	Indicates the length of the leg in the case of drills, or the number of revision of the accessory	Normally it is the ø of the implant for the insertion of which the instrument is to be used	This measurement is normally linked to the height of the component, or to other important measurements that characterise it, or it is a letter which defines whether a post is repositionable or not
FFT3-280-LXS	**FFT**: Final cylindrical drill	**3**: Revision 3 (in the case of drills it indicates a 14.00 mm leg)	**280**: 2.80 mm	115: 11.50 mm
STOP3-280-070	**STOP**: Stop for cylindrical drills	**3**: Revision 3	**280**: 2.80 mm	**070**: 0.70 mm
E-MS-330	**E-MS**: Bone tap for Outlink² implant	-	**330**: 3.30 mm	-
PP-2/28	**PP**: Parallelism pin for Outlink² implant	-	**2/28**: from 2.00 mm to 2.80 mm	-

Drills

All Sweden & Martina drills are made of **stainless steel** with **high resistance to corrosion and wear**. They are intended for mechanical use, i.e. they have a shank with a right angle attachment and must be used with a suitable micromotor. The extreme accuracy of design and production allows to use them completely **free from vibrations and oscillation**s. However, incorrect insertion of the instruments in the handpiece will cause instrument vibration, eccentric rotation, early wear and shaft buckling. Suitable surgical micromotors only should be used. Micromotors should be checked regularly by their manufacturers, according to the indications given by the same, to prevent potential malfunctions (e.g. axle shifts for transmission shafts, worn or faulty forceps, etc.). Failure to follow the instructions provided may cause surgical complications and consequent damage to the patient's health.

It is recommended to use the rotation speeds indicated in the procedures on page 50 to prevent the development of bone necrosis. Lever movements increase the risk of instrument breakage and should therefore be avoided. Changes in speed should be avoided in general. Never apply pressure such as to force the instrument to stop rotating. This could lead to an excessive increase in heat in the tissues being drilled, with consequent bone necrosis, and damage both the instrument and the appliance (micromotor) used. This could also lead to breakage of the instrument. Using an intermittent approach prevents overheating and wear of the working part and an undesirable increase in the temperature in the tissues being cut. Suitable coolant should be used. Inadequate irrigation can lead to bone necrosis.

Drill wear depends to a large extent on the type and density of the drilled bone: harder bone leads to greater instrument wear. For greater safety and caution, given the device's capacity for resistance to wear, drills should not be used for more than **20 work cycles** and should be replaced earlier if the instruments lose their cutting ability. These recommended 20 cycles should be considered a rough guide. Always check the instrument's residual cutting capacity after each procedure. Sweden & Martina decline responsibility for the use of blunt instruments. Never sharpen drills before use. Never use damaged, buckled or worn instruments.

Precision drill FS230

The precision drill is made of surgical stainless steel. It is used to cut the cortical bone, so it is very sharp and pointed. The design of the blades ensures efficient cutting with both the tip and the edge. It has a maximum diameter of 2.30 mm. The laser marking at 4.80 mm indicates the depth to which the drill should always be inserted to obtain a suitable guiding hole for the next drills.

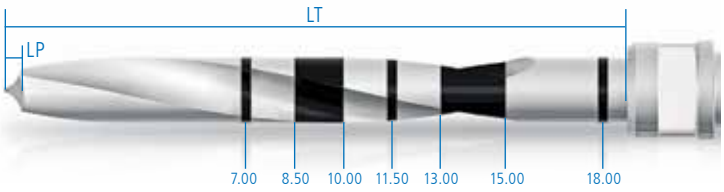
IMPORTANT WARNING

The precision drill comes with a protective silicone sheath to protect the instrument during transportation and it must be removed before first use. Since this drill is extremely sharp, special caution is required during handling.

Pilot drill FPT*-200-LXS

The pilot drill, cylindrical in shape with ø 2.00, is used to prepare the hole for lodging the implant. The drill is easy to identify, thanks to the presence of a white ring and to the code laser-etched on the drill shank. It has laser-etched depth marks and a spiral shape with two cutting edges. It must be used with abundant external irrigation.

LT: Total length of the working part, including the tip.
LP: Length of the tip. This measurement must be calculatedin addition to the length of the preparation hole.



IMPORTANT WARNING

The drills always make a hole that is longer than the implant to be inserted.
The oversizing (LP) is equal to the height of the tip of the drill that is being used.

code	ø	LP	LT
FPT*-200-LXS	2.00	0.58	19.30

**The letters FPT are followed by a number (2, 3) indicating the length of the drill shank: 2 indicates a length of 12.5 mm, 3 indicates a length of 14 mm. All the STOP2 and STOP3* are functional to any of these batches.*

All measurements are given in mm, unless indicated otherwise.

Pilot drill stops

Stops are devices to be fitted in tip → shank direction on drills suited to receive them. They make it possible to restrict the working length of a drill to a pre-set height.

height	7.00 mm	8.50 mm	10.00 mm	11.50 mm	13.00 mm	15.00 mm
stops						
	STOP*200-075	STOP*200-085	STOP*200-100	STOP*200-115	STOP*200-130	STOP*200-150

Always check that the stop is inserted at the desired height. Incomplete insertion may reduce the preparation height. Any insertion difficulties can be resolved by loosening the stop tabs slightly, using forceps. It is also recommended to check the retention exerted by the stop, as if retention is too weak the instrument will fall off the drill during operation. In the event of reduced retention capacity, simply tighten the tabs by hand or using forceps.

** The word STOP is followed by a number indicating the revision of the accessory. The stops are included only in the ZOUTLINK2 surgical kit.*

All measurements are given in mm, unless indicated otherwise.

Intermediate drills

Intermediate drills are drills with two cutting edges suitable for progressively widening the preparations in relation to the diameter of the drills to be used in succession. They have two small steps with an initial guide with a progressive diameter and final diameter, respectively equal to 2.00/2.80 and 3.30/4.25 mm. They have reference laser markings that range from a height of 8.50 to 10.00 mm. For shorter preparations, they must be used until the end stop (the guide is not a cutting edge).

code	description
 FG-200/280XS	Intermediate drill, for widening the hole to 2.00 mm, 2.40 mm and 2.80 mm
 FG-330/425XS	Intermediate drill, for widening the hole to 3.30 mm, 3.80 mm and 4.25 mm

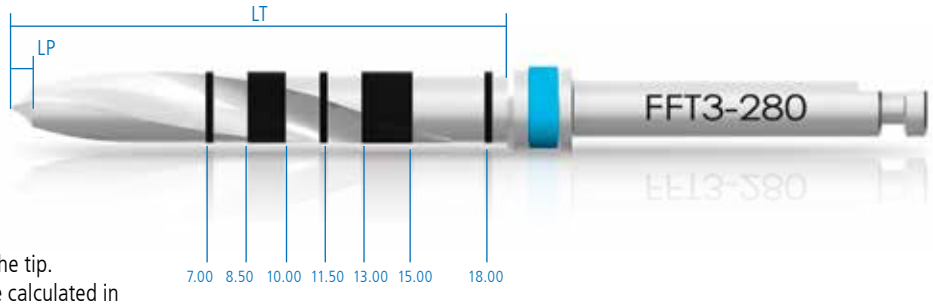
Countersink drill FC-XS

This drill is ideal for preparing the seat of the neck of ø 3.75 mm implants, the connection platform of which is ø 4.10 mm. The drill has a non-cutting guide and a green ring. Two laser markings on the working part indicate the working depth; in the case of the Outlink^2 system it is always used at the start of the first marking, to prepare the hole at the crown with ø 4.10 mm. The other markings on the drill are for preparing implants in other Sweden & Martina systems.

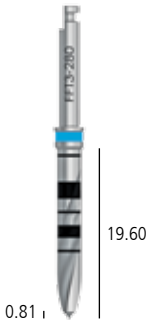
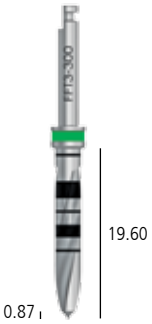
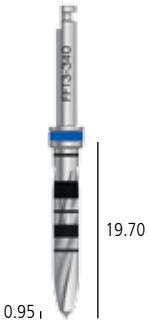
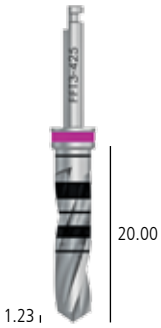
All measurements are given in mm, unless indicated otherwise.

Final cylindrical drills

Made of stainless steel with high resistance to corrosion and wear, Outlink² final drills present a number of cutting edges proportional to the hole diameter, so as to allow a continuous and homogeneous cutting movement and greater instrument stability during operation. All this enables high-precision implant preparations to be obtained, with consequent ease in inserting the implant. A drilling kit specifically for inserting Shorty implants is available. The kit includes drills, stops and complementary instruments with right angle and ratchet attachments. For details see page 66.



LT: Total length of the working part, including the tip.
LP: Length of the tip. This measurement must be calculated in addition to the length of the preparation hole.

implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm ø 4.10SP mm	ø 5.00 mm
drills				
	FFT*-280-LXS	FFT*-300-LXS	FFT*-340-LXS	FFT*-425-LXS

IMPORTANT WARNING

The drills must be used with caution in cases of low bone density and implant sites must be adequately underprepared in advance. Preferably use osteotomes.

IMPORTANT WARNING

The drills always make a hole that is longer than the implant to be inserted. The oversizing (LP) is equal to the height of the tip of the drill that is being used.

** The abbreviations FFT and STOP (next page) are followed by a number (2, 3) indicating the length of the drill shank: 2 indicates a length of 12.5 mm, 3 indicates a length of 14 mm. All the STOP2 and STOP3 are functional to any of these batches. Drills marked with a code starting with "2" (e.g. FFT2-…) have a 12.5 mm-long shank. This shank is shorter than standard and requires the use of special small-headed handpieces. Contact handpiece manufacturers for information on availability. The more compact design of these drills, when used with suitable handpieces, makes handling in distal sites easier. Drills marked with numbers other than "2" have a standard-sized shank and can be used with all handpieces.*

All measurements are given in mm, unless indicated otherwise.

Final drill stops

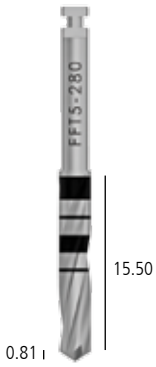
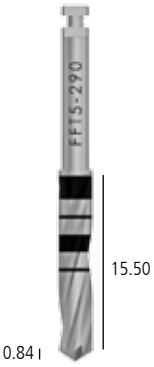
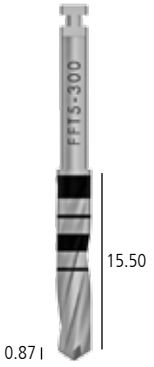
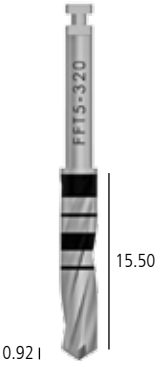
The final drills are fitted with practical stops, for limiting the working length to a predetermined height, which can be easily inserted and removed from the tip of the drill. Be careful when inserting the stops. Incomplete insertion may reduce the preparation height. Any insertion difficulties can be resolved by loosening the stop tabs slightly, using forceps. Check that the retention of the stop is adequate. If retention is too weak, the instrument will fall off the drill during use. When the stop is inserted correctly, the upper edge of the stop must be perfectly aligned with the upper margin of the relative hooking collar present on the drills. Always make sure that the selected stop is correctly aligned with the depth line that indicates the length of the implant to be inserted.

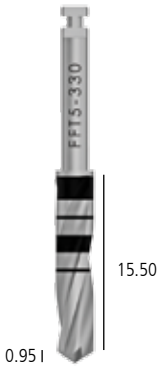
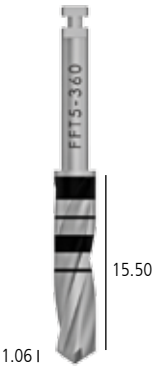
implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm ø 4.10SP mm	ø 5.00 mm
stops	 STOP*-280-070	 STOP*-300-070	 STOP*-340-070	 STOP*-500-070
	 STOP*-280-085	 STOP*-300-085	 STOP*-340-085	 STOP*-500-085
	 STOP*-280-100	 STOP*-300-100	 STOP*-340-100	 STOP*-500-100
	 STOP*-280-115	 STOP*-300-115	 STOP*-340-115	 STOP*-500-115
	 STOP*-280-130	 STOP*-300-130	 STOP*-340-130	 STOP*-500-130
	 STOP*-280-150	 STOP*-300-150	 STOP*-340-150	 STOP*-500-150

All measurements are given in mm, unless indicated otherwise.

Drills for distal sectors

As an option, shorter drills are available that are very practical in distal sectors with limited oral opening. **They are not suitable for inserting Shorty implants** because the depth lines present on the working part of the drill start at a height of 7 mm mm. They are also useful for preparations in extremely compact bone where, in the most coronal portion, you want to widen the preparation diameter by 0.20 mm with respect to the size of the standard drills to facilitate the insertion of the implants. On the other hand, in low-density bone they can be used to under-prepare the implant site so as to obtain optimum primary stability.
Attention: the series 5 universal drills do not report the colour code on the stems and do not require the use of STOPS.
The drills for distal sectors are without irrigation and are not included in any surgical kit. They cannot be used with depth stops.

ø 2.00 mm	ø 2.80 mm	ø 2.90 mm	ø 3.00 mm	ø 3.20 mm
				
FPT5-200-LXS Cylindrical drill ø 2.00 mm	FFT5-280-LXS Cylindrical drill ø 2.80 mm	FFT5-290-LXS Cylindrical drill ø 2.90 mm	FFT5-300-LXS Cylindrical drill ø 3.00 mm	FFT5-320-LXS Cylindrical drill ø 3.20 mm

ø 3.30 mm	ø 3.40 mm	ø 3.60 mm	ø 4.25 mm	ø 4.45 mm
				
FFT5-330-LXS Cylindrical drill ø 3.30 mm	FFT5-340-LXS Cylindrical drill ø 3.40 mm	FFT5-360-LXS Cylindrical drill ø 3.60 mm	FFT5-425-LXS Cylindrical drill ø 4.25 mm	FFT5-445-LXS Cylindrical drill ø 4.45 mm

All measurements are given in mm, unless indicated otherwise.

Bone profilers

The bone profilers are very useful for levelling a very irregular bone crest at the coronal level, especially in the subsequent use of P.A.D. abutments.

code	description
 E-PAD-PS410-L	Bone profiler for levelling irregular bone crest for wide P.A.D. abutment
 E-PAD-PS410-S	Bone profiler for levelling irregular bone crest for narrow P.A.D. abutment

Parallelism pin PP-2/28

The surgical kit contains six pins that can be used to check the insertion axis of the implants and the parallelism between several fixtures. One side of the pin has a diameter of 2.00 mm and the other 2.80 mm, so that it can be used after drills with these same diameters have been passed.

code	description
 PP-2/28	Parallelism pin with one side ø 2.00 and the other ø 2.80 mm

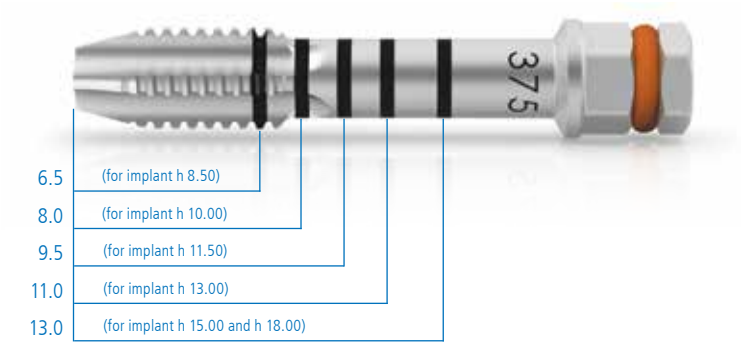
IMPORTANT WARNING

It is recommended to pass a thread through the hole in the centre of the pin to prevent it falling.

All measurements are given in mm, unless indicated otherwise.

Bone taps

Outlink² implants are self-tapping implants with excellent cutting and insertion capabilities. However the use of a bone tap is recommended in all cases where the type of bone (D1) requires it. On this point refer to the section on surgical procedures (see page 50). The absence of tapping in cases where this is recommended may lead to problems later when inserting the implant. The diameter of the reference implant is marked on all the bone taps.



IMPORTANT WARNING

The bone taps must be inserted as far as the depth mark corresponding to the length of the implant to be positioned in the bone. The markings are calculated by subtracting two millimetres from the total implant length. For example, if a 10 mm implant must be inserted, the bone tap will be inserted for a depth of 8 mm.

implant diameter	ø 3.30 mm	ø 3.75 mm	ø 4.10 mm ø 4.10SP mm	ø 5.00 mm
standard bone taps				
	E-MS-330	E-MS-375	E-MS-410	E-MS-500
right-angle bone taps				
	E-MS-330-CA	E-MS-375-CA	E-MS-410-CA	E-MS-500-CA
short bone taps				
	E-MSC-330	E-MSC-375	E-MSC-410	E-MSC-500

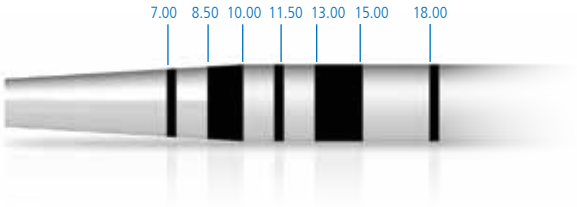
All measurements are given in mm, unless indicated otherwise.

Bone taps with a hexagonal connector are used manually with the hand knobs AVV3-MAN-DG or with the ratchet CRI5. If they are used with the ratchet, it is recommended to set the using torque at 40-50 Ncm and to increase this gradually up to the maximum value (without torque adjustment) only if strictly necessary. High torque values exert high compression on the bone, with risks of ischemia and reduced capacity of vascularisation of the tissues. In cases where it is difficult to move forward with the instrument, to decrease compression it is always advisable to proceed with 2-3 turns in rotation and 1-2 turns in counter-rotation, continuously alternating forward movement and unscrewing. The bone taps are made of stainless steel. They have a hexagon that makes them compatible with the kit instruments. In the coupling hexagon there is an o-ring that guarantees the seal of the components.
This o-ring must be checked periodically and replaced when worn or when no longer able to exert the correct friction.

A kit of 5 spare o-rings is available which can be ordered with code ORING180-088.

Osteotomes

A complete set of osteotomes has been designed for the expansion of thin crests, for mini-crest lifts and for the compaction of poorly mineralised bone, to be used as an alternative to the final drills. The osteotomes are invasive surgical instruments, manual, intended for creating holes in bone, especially in the presence of poor quality bone, and for compacting by the progressive widening of the preparations, compressing the bone against the walls. They can have a flat or concave tip depending on whether they have to push the bone or cut it, and are tapered in relation to what shape is required for the site to receive implants in a pre-ordered shape. The sequence of use must be determined according to the degree of bone density and the preparation that is to be obtained.



E-OS-020-PP
Osteotome ø 0.20
flat tip

E-OS-090-PP
Osteotome ø 0.90
flat tip

E-OS-160-PC
Osteotome ø 1.60
concave tip

E-OS-200-PC
Osteotome ø 2.00
concave tip

E-OS-240-PC
Osteotome ø 2.40
concave tip

All measurements are given in mm, unless indicated otherwise.

Mounter drivers

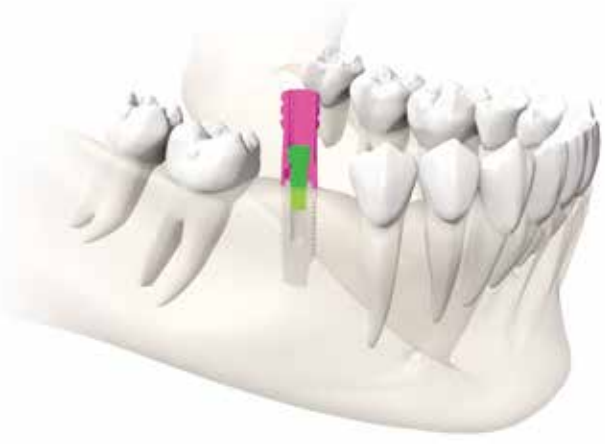
The drivers are devices that allow implants to be taken, transported and screwed into the surgical sites. They are all made of stainless steel specifically for surgical use. Outlink² implants are supplied with the mounter preassembled, presented in the pack ready to be engaged by the special driver.
The drivers supplied in the surgical kit for this purpose are the following:

U-AVV3-MOU-CA

U-AVV-MOUC

code	description
 U-AVV3-MOU-CA	Octagonal driver with right angle attachment for Outlink² implant mounter
 U-AVV3-MOUC	Manual octagonal driver for Outlink² implant mounter

The mounter drivers are able to take and transport the implant to the oral cavity because they exert friction inside the mounter itself. The friction is determined by the mechanical design of the two components. When inserting the driver, a certain vertical pressure must be exerted to ensure friction between the two parts. It is recommended to become familiar with this procedure by practising with the NON STERILE test implant supplied with the surgical kit. These drivers have been tested for functionality up to a torque of 70 Ncm. Greater inserting torques may cause mechanical problems. The mounter-driver assembly has been specially studied to avoid direct contact between hand and instrument-implant, which would lead to bacterial contamination of the implant and possible consequent infections. Refer to page 77 for the complete inserting procedure.



IMPORTANT WARNING

It is recommended to avoid lever movements during use of the driver when screwing in the implant, as this type of movement can increase the risks of breakage.

Optional mounters

In the surgical kit there are also 4 traditional type mounters (2 long and 2 short). These mounters can be used at the dentist's discretion in cases where there is a limited interocclusal space (the short ones), or where it is necessary to use split-crest procedures with a hammer of Magnetic Mallet to preserve the integrity of the post and of the connecting screw.

code	description
 E-MOU-330	Short mounter ø 3.30
 E-MOU-410	Short mounter ø 4.10
 E-MOUL-330	Long mounter ø 3.30
 E-MOUL-410	Long mounter ø 4.10

Mounter stop key CMD

This key is useful for keeping the mounter still in the implants during the operation of unscrewing the connecting screw. It is made of surgical stainless steel and has one part of the key that connects to the internal octagon of the mounter pre-assembled on the implant, the other part of the key connects to the optional mounters E-MOU-330, E-MOUL-330, E-MOU-410 and E-MOUL-410 supplied in the surgical kit.
For the mounter removal and replacement procedure, see page 80.

IMPORTANT WARNING

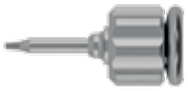
The mounter stop key CMD is supplied with a protective silicone sheath. The sole purpose of this protective sheath is to prevent the surface of the kit being damaged by the key, and it must be removed before use.

Drivers

The surgical kit contains two different types of drivers: one for using during surgical operations, the other during prosthetic sessions.

Surgical drivers

The drivers HSM...-09-... have a thinner point which is used for picking up, screwing and/or unscrewing surgical screws. The drivers HSM...-20-.... have a thicker point which is used for picking up, screwing and/or unscrewing mounter screws, transgingival healing screws and connecting screws. Both geometries (**-09** e **-20**) are available both in the hand version (HSM-....-**DG**) and for mechanical use with a right angle (HSM- .....-**CA**).

code	description
 HSMXS-20-DG	Hand driver for connecting screws, extra-short
 HSM-20-DG	Hand driver for connecting screws, short
 HSML-20-DG	Hand driver for connecting screws, long
 HSMXS-09-DG	Hand driver for cover screws, extra-short
 HSM-09-DG	Hand driver for cover screws
 HSM-20-CA	Driver for connecting screws, with right angle shank
 HSM-09-CA	Driver for surgical cover screws, with right angle shank

IMPORTANT WARNING

Lever movements should be avoided as they increase the risk of breakage. Before tightening, make sure the hex socket screw head on the driver tip is correctly inserted into the screws to be tightened. Incorrect insertion is likely to pare off the hexagonal connection of the screwdriver or the screw to be tightened. Drivers have a slightly conical profile, able to guarantee the hexagonal connection on the tip of the driver grips inside the hexagonal connection on the head of the screws, making it possible to carry the screw to the patient's mouth correctly, without dropping it.
Replace drivers regularly to reduce the risk of wear to the hex connection.

IMPORTANT WARNING

It is recommended to pass a thread through the hole on the top of the knob to prevent it falling.

SURGICAL INSTRUMENTS

Prosthetic drivers

codice	descrizione
 HSM-20-EX	Driver for connecting screws, with connector for dynamometric ratchet or digital connector, short
 HSML-20-EX	Driver for connecting screws, with connector for dynamometric ratchet or digital connector, long
 HSMXL-20-EX	Driver for connecting screws, with connector for dynamometric ratchet or digital connector, extra long
 HSM-20-CA	Driver for connecting screws, with right angle shank
 HSM-09-CA	Driver for cover screws, with right angle shank
 BASCC-EX	Driver for ball attachments, with connector for dynamometric ratchet or digital connector

IMPORTANT WARNING

Excessive torques may strip the wells of the connecting screws and pare off the corners of the screwdrivers, causing even serious intraoperative or prosthetic complications. The recommended torques for the various components are summed up in the following table:

surgical cover screws, transgingival healing screws	10 Ncm
all prosthetic screws	20-25 Ncm
all prosthetic components screwed directly onto the implant	25-30 Ncm

Key E2-CM

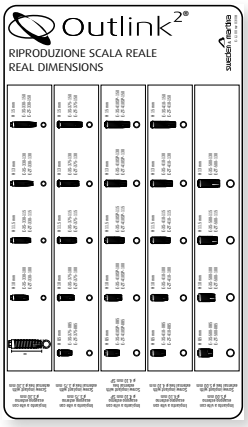
This key is useful in the case of intra-operative removal of the multifunctional mounter of Outlink² implants positioned in distal sectors or in patients with a small oral opening. The key has two fork-shaped ends which externally engage the mounter in the zone immediately below the mounter's retentive tabs. One end of the key has a diameter ranging from 3.30 mm to 4.10 mm, the other end has diameter 5.00 mm.

Adapters and extensions

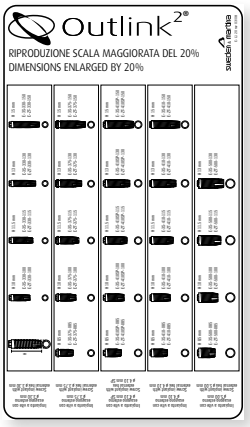
code	description
 BPM-15	Extension for drivers, bone taps, mounters and manual drivers
 PROF-CAL2	Extension for surgical drills
 B-AVV-CA3	Mechanical adapter with right angle shank for instruments with hexagonal connector
 AVV3-MAN-DG	Hand knob for bone taps, mounters, drivers and manual drivers
 AVV2-CA-DG	Hand driver for right angle instruments

X-ray templates

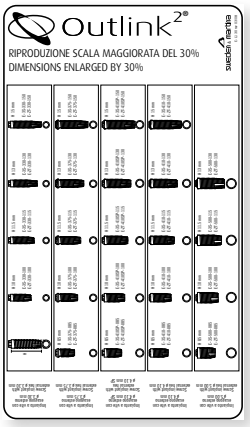
The surgical kits also contain **templates** for the graphic representation of the implant measurements to allow choosing the most suitable implant diameters and lengths by means of x-ray or tomographic methods. The templates are available in three versions: with real dimensions, with dimensions increased by 20% and with dimensions increased by 30%.



E-L100



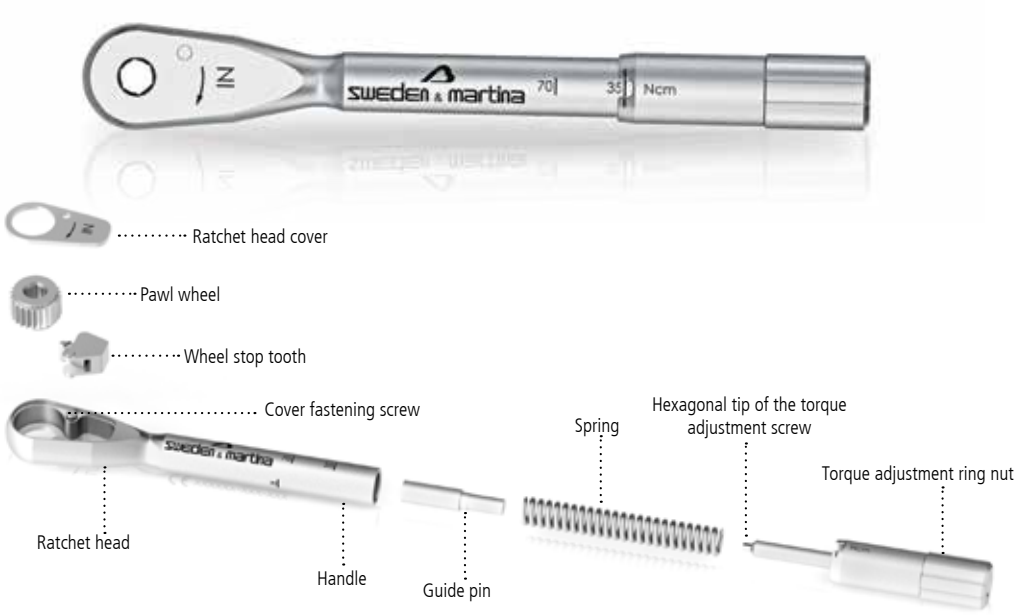
E-L120



E-L130

Dynamometric ratchet CRI5

The surgical kit of the implant system contains a special ratchet (CRI5), with its own adjustment key, for quickly screwing the torque adjustment ring nut, and with lubricant and gel for maintenance. The ratchet may be used with torque adjustment from 10 to 70 Ncm or in a blocked position without torque control. When using as a prosthetic ratchet for fastening the screws, refer to the torque values given in the table on the previous page. The ratchet key CR15 is a multi-purpose instrument that can be disassembled, and is sold unsterile.

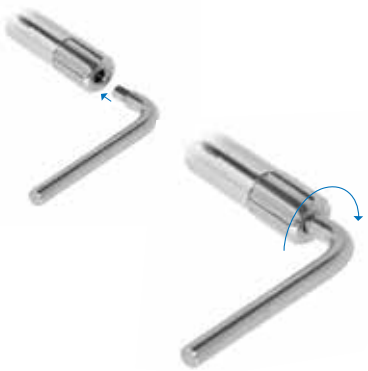


Before each use, this instrument must be cleaned and sterilised according to the instructions on the following page. Adequate maintenance, performed following in detail all the step by step instructions for the disassembly and correct reassembly of the device during cleaning operations, is essential for the correct functioning of the device and for its durability. Personnel who use this tool must be suitably trained, and they must have read the instructions in this manual prior to handling the device.
After sterilisation, the key is ready for use. A test to verify the correct assembly and functioning of the key is necessary before any surgical or prosthetic interventions. The torque is adjusted by aligning the marking of the desired torque in the circular opening of the handle. The "IN" arrow legible on the top of the head indicates the screwing position of the key. The "OUT" arrow legible on the top of the head indicates the loosening or unscrewing position. An unlimited torque position is obtained by positioning the torque adjustment device up to the line marked "R" on the handle of the ratchet body.

IMPORTANT WARNING

The torque is adjusted by screwing/unscrewing the ring nut located at the bottom of the instrument's handle. The torque must always be adjusted on the rise, starting screwing from a lower value until the desired torque is reached, or unscrewing the ring nut in a clockwise direction. To do this, if it is necessary to set a torque lower than the last one used, you must unscrew the ring nut by two turns below the value of the desired new torque, and work up to that value by rescrewing the ring nut in a clockwise direction.

The ring nut may be screwed and unscrewed by hand, but to speed up these operations the kit also contains a driver that allows it to be turned quickly. Any deterioration of the screwing, insertion and torque mechanisms must be checked by personnel responsible for the use and maintenance of this dental instrument. The pieces of this mechanism are not interchangeable; one piece from one key cannot be replaced by a piece from another key as each ratchet is calibrated INDIVIDUALLY. If a piece is lost, please return the instrument to Sweden & Martina for repair. No components for assembling the ratchet can be sold individually. Failure to follow the instructions provided may cause problems of maintenance and stability of the prosthesis.



Cleaning, disinfection, sterilisation and storage of the dynamometric ratchet CRI5

The processes described below must be performed before use and before each subsequent operation. Repetition of the processes described in this paragraph has minimal effect on the wear of the device. The failure to follow these instructions may cause cross infections. Containers to be used for washing and transport: there are no special requirements. As soon as possible after each use, the key must be placed in a container filled with a disinfecting/cleansing solution and covered with a cloth. This prevents the desiccation of the contaminating agents coming from the patient, and dissolves them, thus making cleaning easier and more effective. Completely disassemble the key as shown below:

Completely unscrew the torque adjustment screw and remove the spring inside the handle of the ratchet body. Do not separate the spring from the pin that acts as a stop.

Use the hexagon tip at the bottom of the torque adjustment screw to unscrew and completely remove the connecting screw of the cover from the side marked "OUT". Exert a light pressure in order to avoid damaging the hexagon tip.

After removing the cover, pull out the two components contained inside the ratchet head: the toothed pawl wheel and wheel stop tooth.

In case of manual cleaning, clean the outer and inner surfaces of the instrument mechanically under hot water with a soft bristled brush. Inject hot water using a needleless syringe to wash the hard-to-access holes of the head and the area around the pawl wheel and wheel stop. If necessary, proceed in the same way for the inside of the handle and of the torque adjustment device. Use a suitable neutral detergent and follow the manufacturer's user instructions. Use the brush to apply the detergent to all surfaces. Rinse with distilled water for at least four minutes. Make sure the running water passes abundantly through the passages. In case of automated ultrasound cleaning: use an ultrasound bath with a suitable detergent solution. Use neutral detergents only. Follow the manufacturer's instructions concerning concentrations and washing times. Use demineralised water to prevent the formation of stains and marks. During this cycle, avoid contact between the pieces because this causes the machined surfaces to deteriorate, and consequently, loss of precision of the torque measurement. When draining, check the recesses of the devices, holes, etc. to make sure all residues have been completely removed. If necessary, repeat the cycle or clean manually. Blood residues or other deposits reduce the efficacy of the sterilisation process, which is why it is important to clean thoroughly. During cleaning, avoid sprays or jets of liquid and adopt adequate protections. Avoid contact between this instrument and other nickel-plated instruments. The pieces must be reassembled prior to sterilisation. Dry the parts, lubricate the functional areas lightly and reassemble the key as shown in the figures below. Too much lubrication may cause the surfaces of the instrument to resurface during sterilisation. Use only the lubricant supplied.

After lubricating the parts shown in the figure, insert the two elements of the ratchet head according to the following sequence: the toothed pawl wheel and then the wheel stop tooth.

Lubricate the contact areas between the tooth of the pawl wheel and the pin of the wheel stop tooth.

Once parts 2 and 3 have been lubricated and inserted in the head of the ratchet body, position the cover and turn the ratchet body from the "OUT" side. Tighten the screw with the hexagon tip of the torque adjustment screw.

Lubricate the spring inside the ratchet handle as shown in the figure. Assemble the torque adjustment screw, making sure the instrument functions properly. Manually activate the pawl wheel.

Sterilisation: in a vacuum autoclave, proceeding as follows:
Temperature = 121 – 124°C, with autoclave cycle of at least 20 minutes and drying cycle of 15 minutes.
This procedure is important in order to preserve the precision of the instrument within a tolerance of ± 3.5Ncm. Operate the torque and insertion mechanism to check their proper functioning. Remove any traces of lubricant from the outer surface of the key. Place the device in suitable sterilisation bags. It is recommended to practise the disassembly and reassembly operations, following the instructions.

Cleaning, disinfection, sterilisation and storage of the kit and of the surgical instruments

Attention! All the surgical instruments for dental implants are sold NON-STERILE. Before use, they must be cleaned, disinfected and sterilised according to the following procedure validated by Sweden & Martina. These processes must be performed before use and before each subsequent reuse. Repetition of the processes described in this paragraph has minimal effect on the wear of these devices. Instruments should always be checked before use to ensure they are in good working order. Any instruments showing signs of wear must be immediately replaced with new devices. It is particularly important to check that the drivers grip properly inside the engagement wells on the heads of the screws to be lifted and tightened with the same. Failure to follow these instructions may cause cross-infection and intraoperative complications.

a. Cleaning
Containers to be used for washing and transport: there are no special requirements.
In case of automatic cleaning, use an ultrasound bath with a suitable detergent solution. Use neutral detergents only. Follow the manufacturer's instructions concerning concentrations and washing times. Use demineralised water to prevent the formation of stains and marks. When draining, check the recesses of the devices, holes, etc. to make sure all residues have been completely removed. If necessary, repeat the cycle or clean manually. When cleaning manually: use a suitable neutral detergent and follow the manufacturer's user instructions. Brush the products with a soft-bristled brush under plenty of running water. Use the brush to apply the detergent to all surfaces. Rinse with distilled water for at least four minutes. Make sure plenty of running water passes through any holes.
Do not exceed 120°C when performing a drying cycle in a washing and disinfection appliance.

b. Sterilisation: in a vacuum autoclave, proceeding as follows:
- Temperature = 121 – 124°C, with autoclave cycle of at least 20 minutes and drying cycle of 15 minutes.

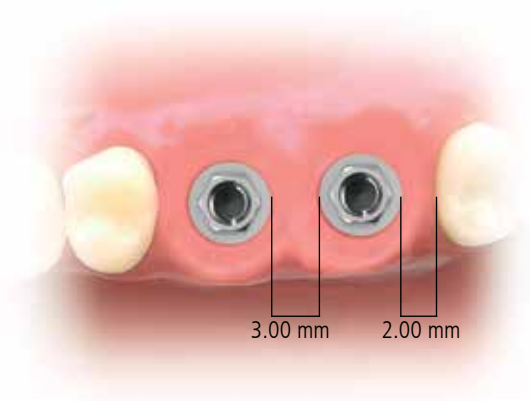
c. Storage: after sterilisation, the product must remain in the sterilisation bags. The bags should only be opened immediately prior to reuse. In normal conditions, sterilisation bags maintain the sterility of the contents, unless the wrapping is damaged. Therefore, do not use components if the bags in which they were kept are damaged, and resterilise in new bags before using them again. The storage time of products sterilised inside the bags should not exceed that recommended by the manufacturer of the bags. The product must be stored in a cool dry place, away from sunlight, water and sources of heat.

Reference standards
The surgical components are designed and manufactured in accordance with the most recent directives and harmonised standards regarding the materials used, production processes, information supplied and packaging.

Disposal procedures
If used, dispose of the surgical accessories as biological waste, according to the local regulations.

Preparation of the implant site

To obtain a three-dimensional view of the bone available, it is recommended to lift a mucoperiosteal flap.
As already mentioned previously, pre-operative clinical and radiographic exams play an important role in determining the position and direction according to which the implants will be positioned. In this stage, a surgical stent will be helpful, acting as a guide during the marking of the cortical bone with the precision drill and in the drilling phase with the 2.20 mm pilot drill. As a rule a distance of 3.00 mm should be maintained between the perimeter of the implants, and at least 2.00 mm between implants and adjacent natural teeth. The numerous experimental and clinical studies carried out indicate that it is opportune to position the implants more in a lingual or a palatal direction to obtain the best aesthetic results, because this position helps preserve the level of the hard and soft tissues at the crown of the implant. It is also essential to check that the thickness of the residual bone wall at buccal level is not less than 1.00 mm. If the thickness is smaller there is a high risk of **bone reabsorption failure** and exposure of the spires.



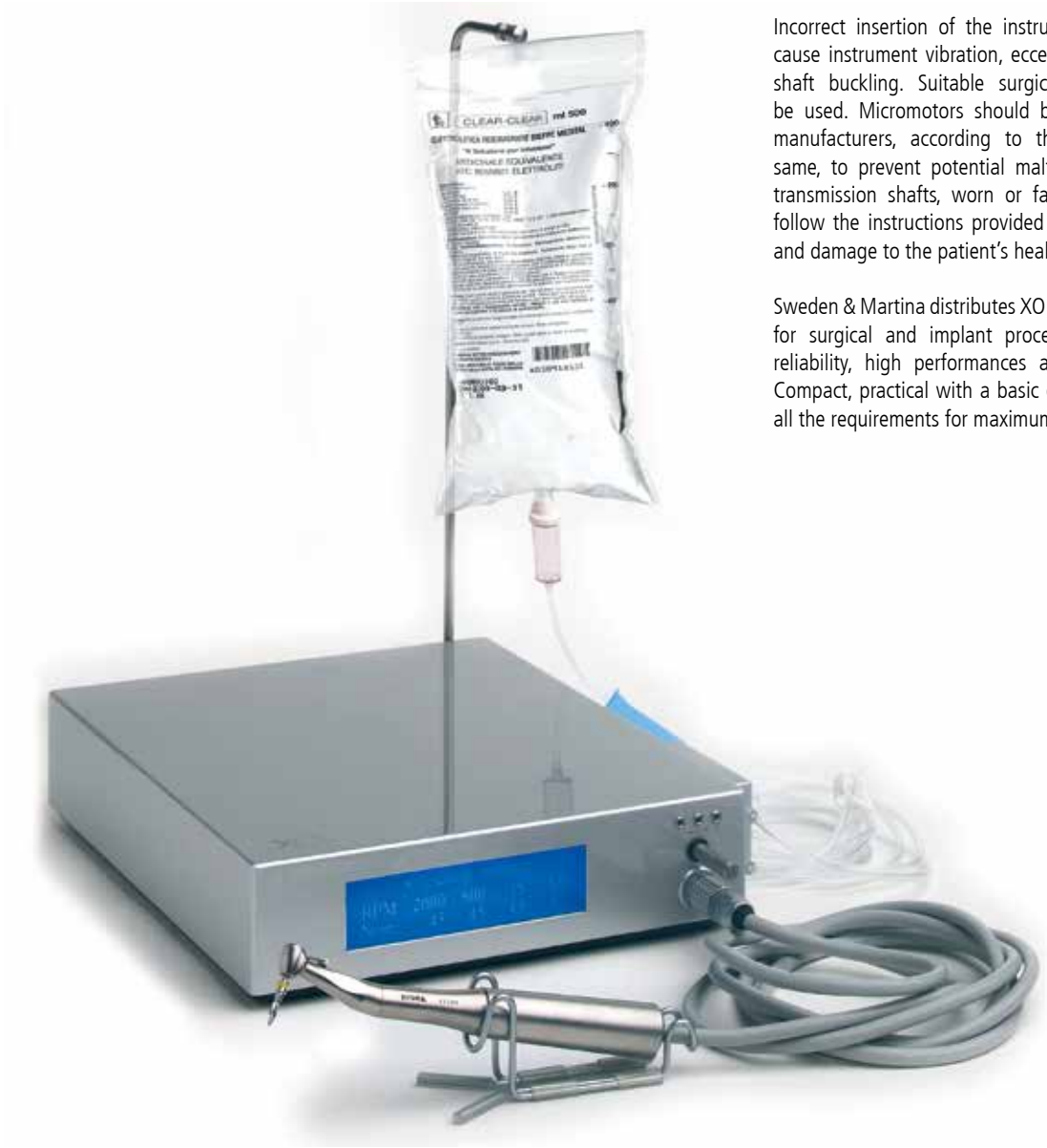
Surgical sequences

The following pages contain information on the drilling sequences for the adequate preparation of all implant types. These procedures come from clinical experience and recommendations taken from numerous studies and clinical protocols for implants of this type. Remember that the drills always prepare a hole that is longer than the implant. For the over-preparation dimensions, refer to the surgical sequences on page 50. The preparations must be non-traumatic and as gradual as possible, and must be executed quickly and precisely. No overheating of the bone should be generated.

It should also be remembered to initially set the surgical micromotor with the correct torque, reduction and rotation values depending on the operation to be performed. In particular:

- the **drills** must be used at the speed indicated in each sequence, with the maximum torque and irrigated copiously with cold sterile physiological solution, better if cooled in a refrigerator, with intermittent movements;
- the **bone taps** must only be used when indicated in each procedure.

It should always be remembered that bone types with different densities require different surgical approaches, and the indications below cannot replace the necessary training and knowledge of the doctors, nor their personal experience, which can at times lead the operator to make further considerations. The sequences that follow refer to specific bone types. In expansion techniques or in case of regenerative surgery, or when you want to increase the compaction in poor quality bone, the use of drills can be replaced with the relative osteotomes.

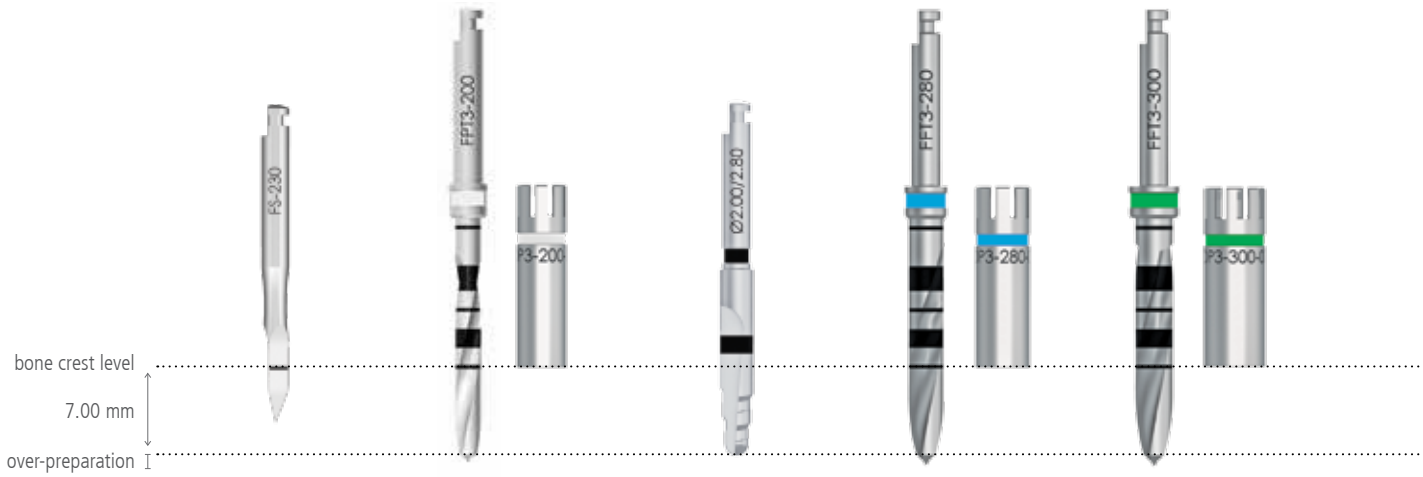


Incorrect insertion of the instruments in the handpiece will cause instrument vibration, eccentric rotation, early wear and shaft buckling. Suitable surgical micromotors only should be used. Micromotors should be checked regularly by their manufacturers, according to the indications given by the same, to prevent potential malfunctions (e.g. axle shifts for transmission shafts, worn or faulty forceps, etc.). Failure to follow the instructions provided may cause surgical problems and damage to the patient's health.

Sweden & Martina distributes XO Osseo, a brushless micromotor for surgical and implant procedures. It perfectly combines reliability, high performances and easy to use procedures. Compact, practical with a basic design, XO Osseo comes with all the requirements for maximum precision and safety.

Surgical sequence for implants with height 7.00 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



FS-230 | **FPT3-200-LXS** | **FG-200/280XS** | **FFT3-280-LXS** | **FFT3-300-LXS**

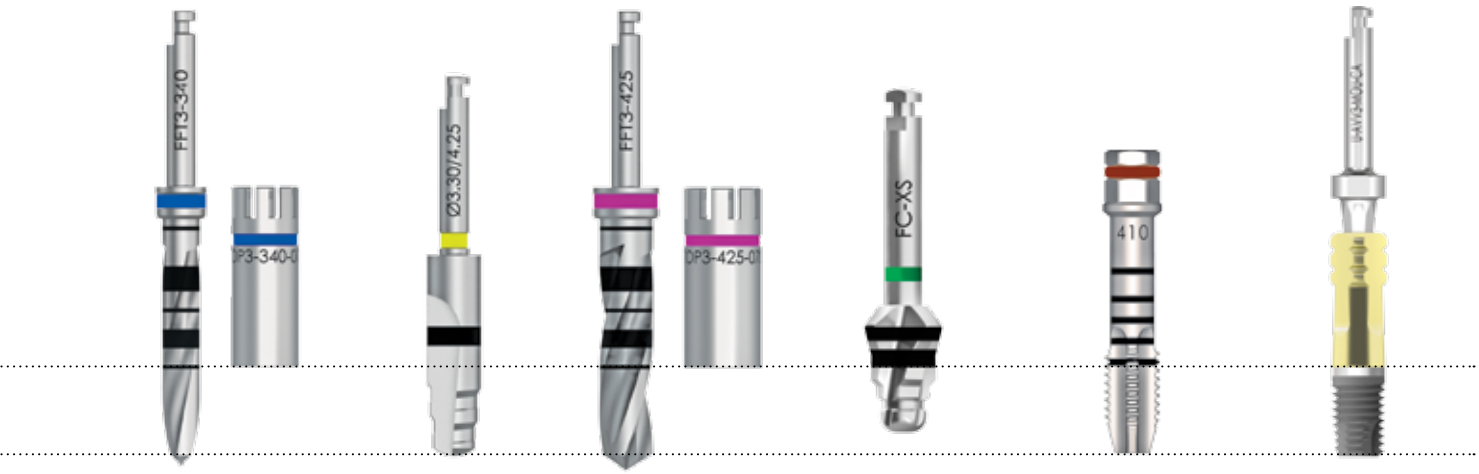
ø 4.10SP mm	E2-ZT-410SP-070 E2-3S-410SP-070		marking 7.00 mm	middle of 3rd step		
	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

ø 5.00 mm	E2-ZT-500-070 E2-3S-500-070		marking 7.00 mm	middle of 3rd step		
	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

IMPORTANT WARNING

The intermediate drills in case of h 7.00 mm implants should be used untill the middle of the 3rd step of the drills, in order to guarantee a suitable guiding hole for the 2.80 mm drill. It is recommended not to use the intermediate drills until the markings, since they are placed at 8.50 mm.

**All osteotomes are used at the reference mark of the implant to be inserted.*



FFT3-340-LXS | FG-330/425XS | FFT3-425-LXS | FC-XS | E-MS-410 | U-AVV3-MOU-CA

				50 Ncm max	50 Ncm max
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

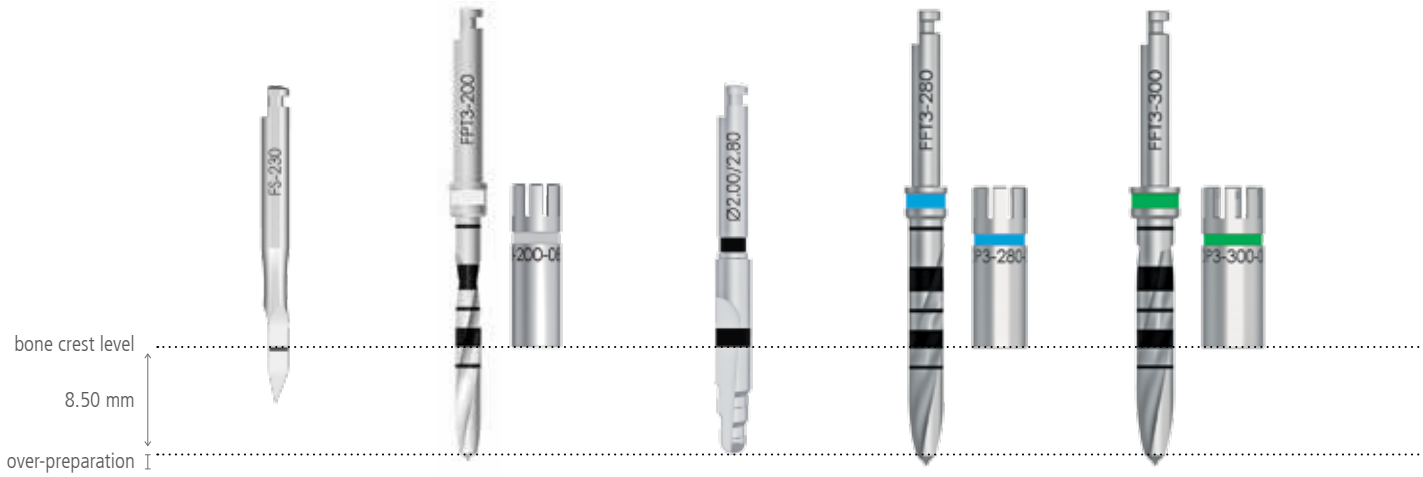
	middle of 3rd step			E-MS-500	
900 rpm	1.100 rpm	900 rpm	-	20 rpm	20 rpm
900 rpm	1.100 rpm	900 rpm	-	-	20 rpm
900 rpm	900 rpm	900 rpm	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	osteotome* E-OS-240-PC	osteotome* E-OS-240-PC	20 rpm

IMPORTANT WARNING

Implants with height 7.00 mm and 8.50 mm may be inserted with the drills in the surgical kit and the respective stops. However, if these implants are inserted at the limit of anatomical structures such as the maxillary sinus floor expansion or the mandibular nerve, it is preferable to prepare the site using the drills in the Shorty Drilling Kit, which do not over-prepare the length.

Surgical sequence for implants with height 8.50 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



FS-230 | **FPT3-200-LXS** | **FG-200/280XS** | **FFT3-280-LXS** | **FFT3-300-LXS**

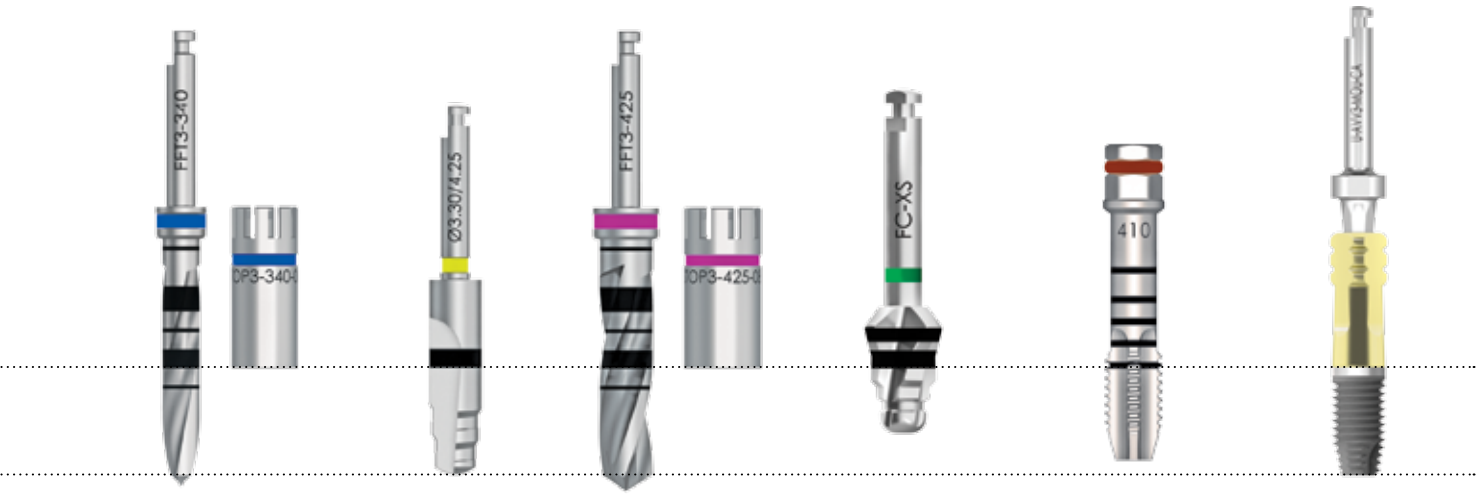
	E2-ZT-375-085 E2-3S-375-085		marking 8.50 mm	marking 8.50 mm		
ø 3.75 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

	E2-ZT-410-085 E2-3S-410-085		marking 8.50 mm	marking 8.50 mm		
ø 4.10 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

	E2-ZT-410SP-085 E2-3S-410SP-085		marking 8.50 mm	marking 8.50 mm		
ø 4.10SP mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

	E2-ZT-500-085 E2-3S-500-085		marking 8.50 mm	marking 8.50 mm		
ø 5.00 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

**All osteotomes are used at the reference mark of the implant to be inserted.*



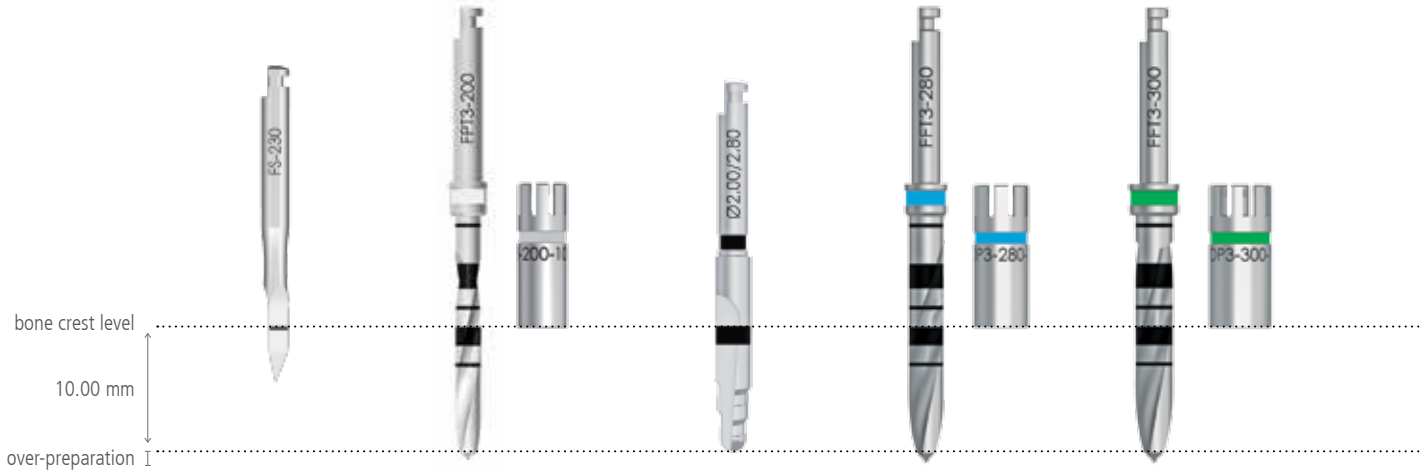
FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	FC-XS	E-MS-410	U-AVV3-MOU-CA
				E-MS-375	
				50 Ncm max	**50 Ncm max**
-	-	-	1.000 rpm	20 rpm	20 rpm
-	-	-	1.000 rpm	-	20 rpm
-	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	-	-	-	-	20 rpm
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm
				E-MS-500	
900 rpm	1.100 rpm	900 rpm	-	20 rpm	20 rpm
900 rpm	1.100 rpm	900 rpm	-	-	20 rpm
900 rpm	900 rpm	900 rpm	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	osteotome* E-OS-240-PC	osteotome* E-OS-240-PC	20 rpm

IMPORTANT WARNING

Implants with height 7.00 mm and 8.50 mm may be inserted with the drills in the surgical kit and the respective stops. However, if these implants are inserted at the limit of anatomical structures such as the maxillary sinus floor expansion or the mandibular nerve, it is preferable to prepare the site using the drills in the Shorty Drilling Kit, which do not over-prepare the length.

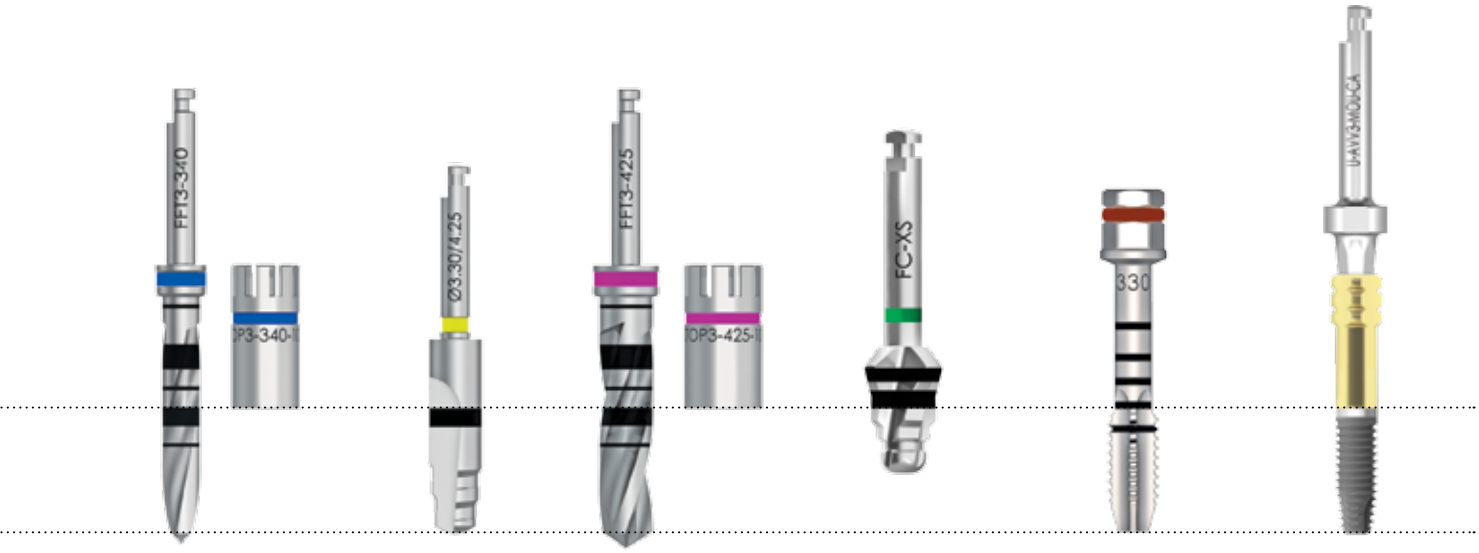
Surgical sequence for implants with height 10.00 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-280-LXS	FFT3-300-LXS
	E2-ZT-330-100 E2-3S-330-100		use up to: marca 10.00 mm	use up to: marca 10.00 mm		
ø 3.30 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	-
	BONE D4	-	-	-	-	-
	E2-ZT-375-100 E2-3S-375-100		marca 10.00 mm	marca 10.00 mm		
ø 3.75 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410-100 E2-3S-410-100		marca 10.00 mm	marca 10.00 mm		
ø 4.10 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410SP-100 E2-3S-410SP-100		marca 10.00 mm	marca 10.00 mm		
ø 4.10SP mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-500-100 E2-3S-500-100		marca 10.00 mm	marca 10.00 mm		
ø 5.00 mm	BONE D1	1.100 rpm	1.100 rpm	900 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	900 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

**All osteotomes are used at the reference mark of the implant to be inserted.*



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	FC-XS	E-MS-330	U-AVV3-MOU-CA
				50 Ncm max	50 Ncm max
-	-	-	-	20 rpm	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	-

				E-MS-375	
-	-	-	1.000 rpm	20 rpm	20 rpm
-	-	-	1.000 rpm	-	20 rpm
-	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	-	-	-	-	20 rpm

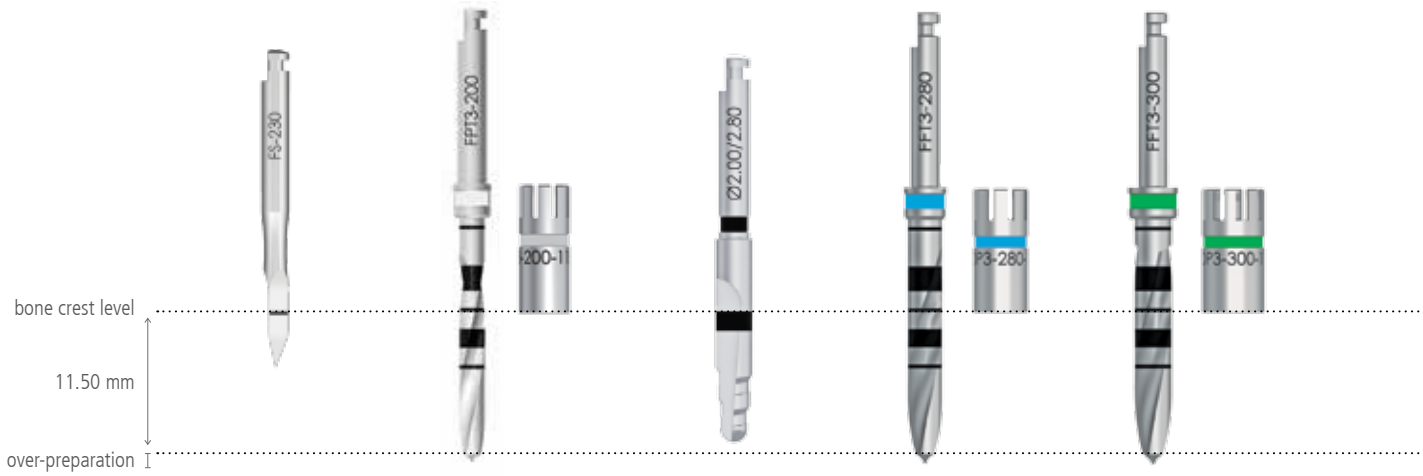
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

				E-MS-500	
900 rpm	1.100 rpm	900 rpm	-	20 rpm	20 rpm
900 rpm	1.100 rpm	900 rpm	-	-	20 rpm
900 rpm	900 rpm	900 rpm	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	osteotome* E-OS-240-PC	osteotome* E-OS-240-PC	20 rpm

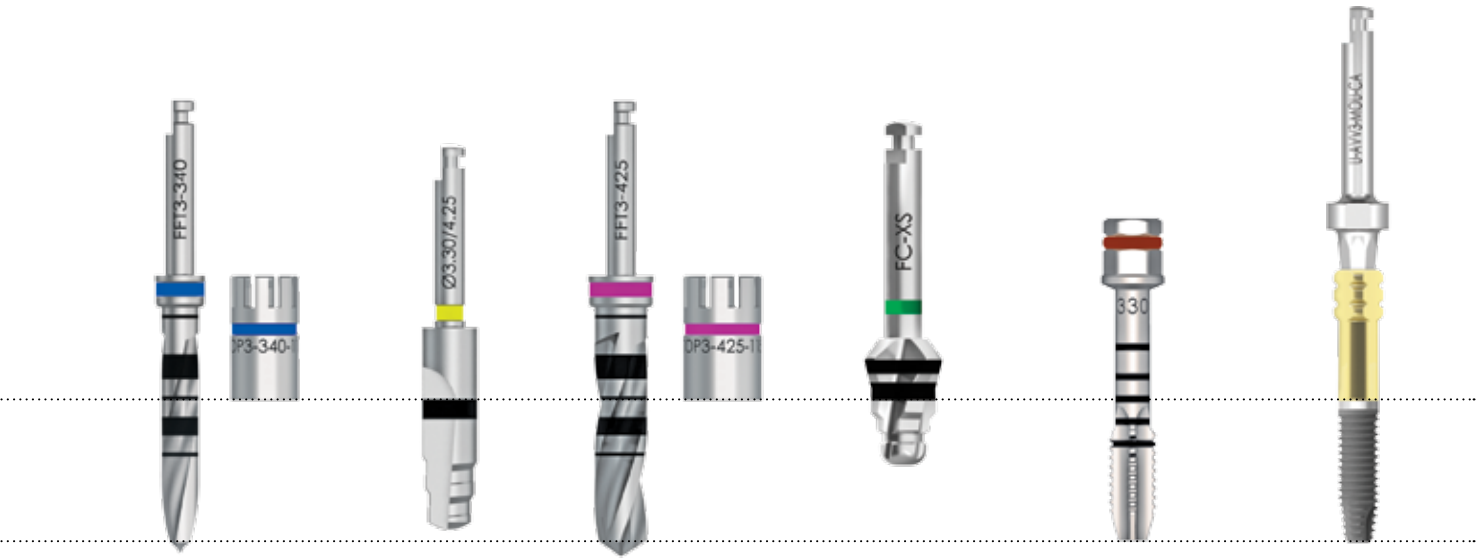
Surgical sequence for implants with height 11.50 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-280-LXS	FFT3-300-LXS
	E2-ZT-330-115 E2-3S-330-115		**use up to: marking 11.50 mm**	**use up to: marking 10.00 mm**		
ø 3.30 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	-
	BONE D4	-	-	-	-	-
	E2-ZT-375-115 E2-3S-375-115		**marking 11.50 mm**	**marking 10.00 mm**		
ø 3.75 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410-115 E2-3S-410-115		**marking 11.50 mm**	**marking 10.00 mm**		
ø 4.10 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410SP-115 E2-3S-410SP-115		**marking 11.50 mm**	**marking 10.00 mm**		
ø 4.10SP mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-500-115 E2-3S-500-115		**marking 11.50 mm**	**marking 10.00 mm**		
ø 5.00 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

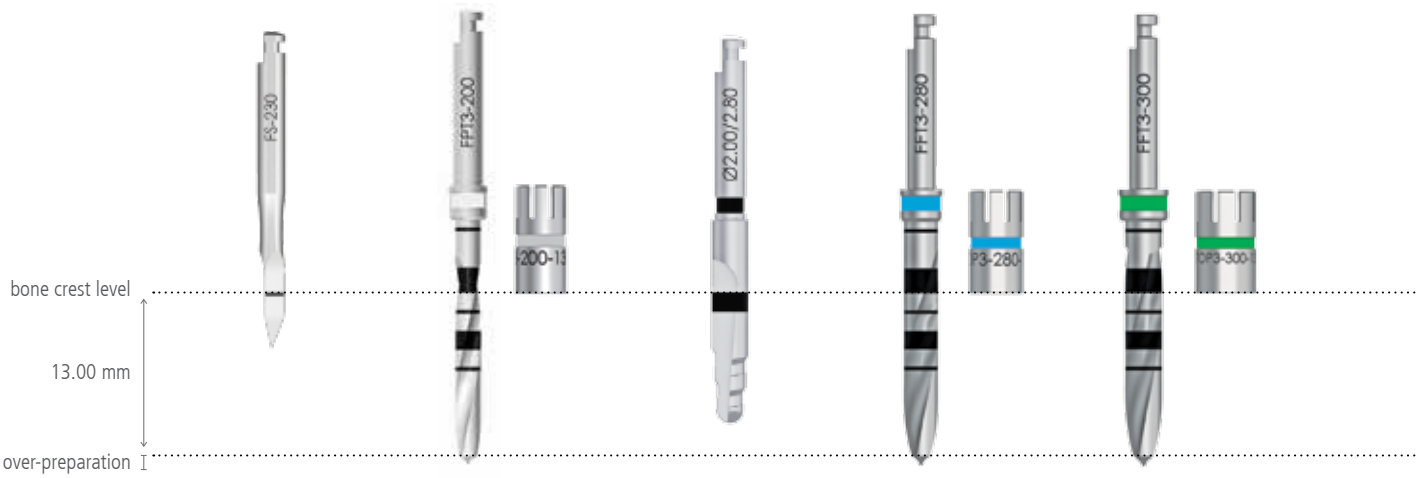
**All osteotomes are used at the reference mark of the implant to be inserted.*



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	FC-XS	E-MS-330	U-AVV3-MOU-CA
				50 Ncm max	**50 Ncm max**
-	-	-	-	20 rpm	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	-
				E-MS-375	
-	-	-	1.000 rpm	20 rpm	20 rpm
-	-	-	1.000 rpm	-	20 rpm
-	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	-	-	-	-	20 rpm
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm
				E-MS-500	
900 rpm	1.100 rpm	900 rpm	-	20 rpm	20 rpm
900 rpm	1.100 rpm	900 rpm	-	-	20 rpm
900 rpm	900 rpm	900 rpm	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	osteotome* E-OS-240-PC	osteotome* E-OS-240-PC	20 rpm

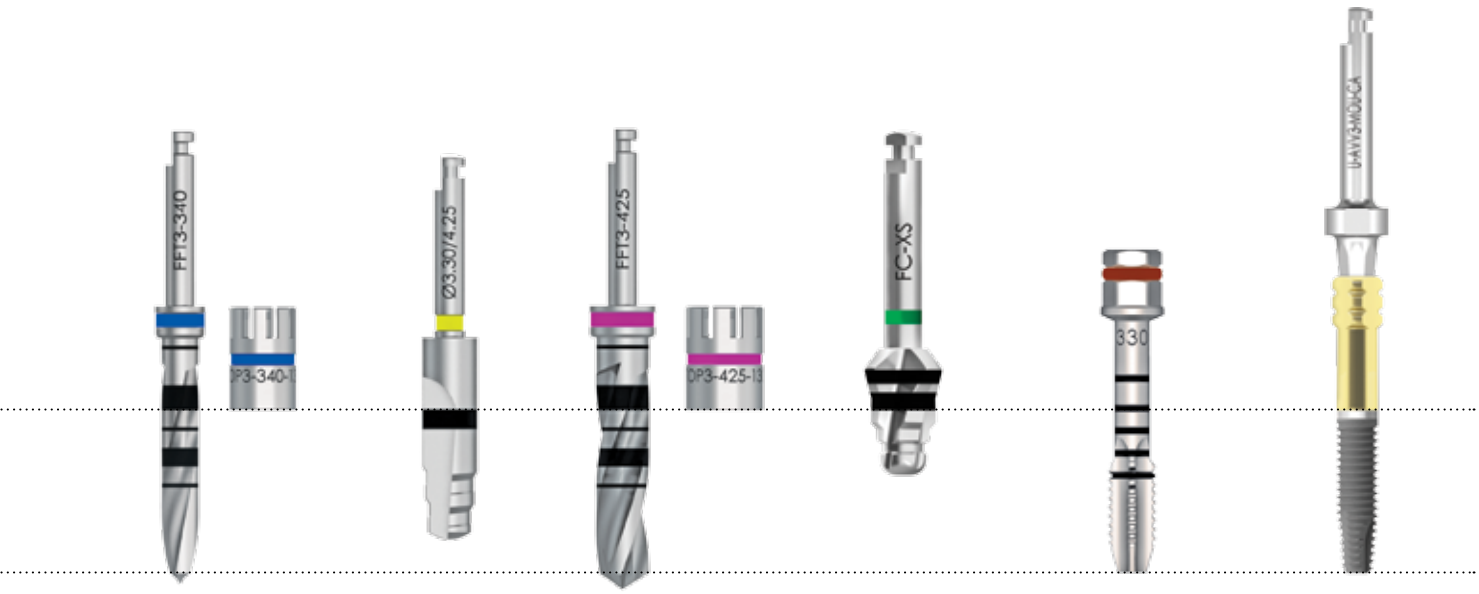
Surgical sequence for implants with height 13.00 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-280-LXS	FFT3-300-LXS
	E2-ZT-330-130 E2-3S-330-130		**use up to: marking 13.00 mm**	**use up to: marking 10.00 mm**		
ø 3.30 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	-
	BONE D4	-	-	-	-	-
	E2-ZT-375-130 E2-3S-375-130		**marking 13.00 mm**	**marking 10.00 mm**		
ø 3.75 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410-130 E2-3S-410-130		**marking 13.00 mm**	**marking 10.00 mm**		
ø 4.10 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-410SP-130 E2-3S-410SP-130		**marking 13.00 mm**	**marking 10.00 mm**		
ø 4.10SP mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC
	E2-ZT-500-130 E2-3S-500-130		**marking 13.00 mm**	**marking 10.00 mm**		
ø 5.00 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

**All osteotomes are used at the reference mark of the implant to be inserted.*



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	FC-XS	E-MS-330	U-AVV3-MOU-CA
				50 Ncm max	**50 Ncm max**
-	-	-	-	20 rpm	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	-

				E-MS-375	
-	-	-	1.000 rpm	20 rpm	20 rpm
-	-	-	1.000 rpm	-	20 rpm
-	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	-	-	-	-	20 rpm

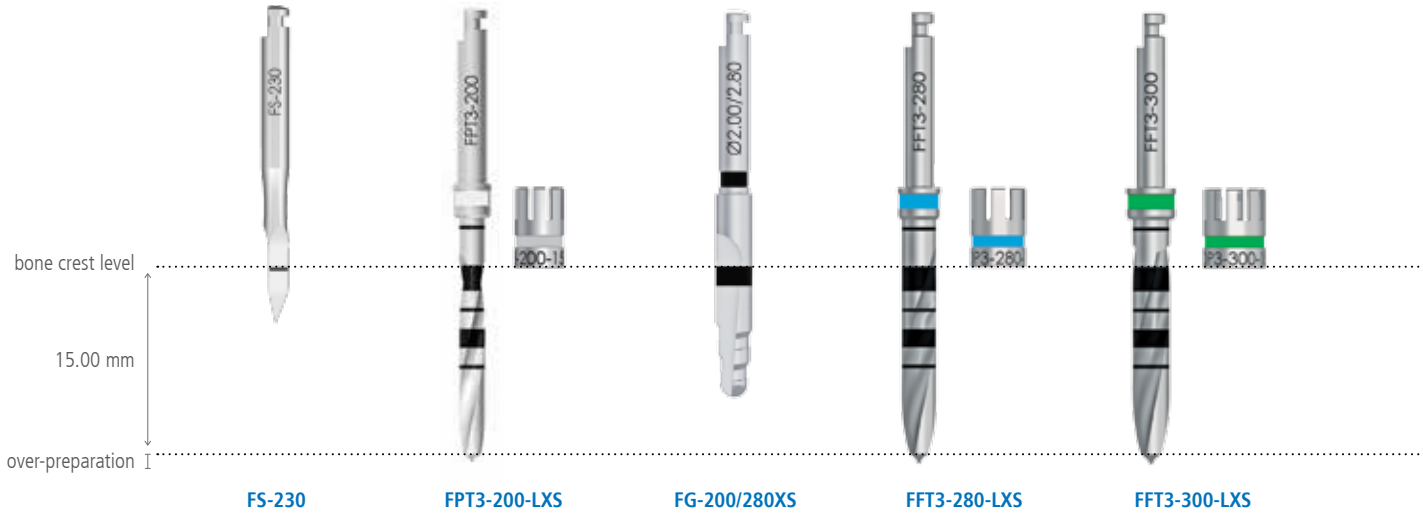
				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

				E-MS-410	
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

				E-MS-500	
900 rpm	1.100 rpm	900 rpm	-	20 rpm	20 rpm
900 rpm	1.100 rpm	900 rpm	-	-	20 rpm
900 rpm	900 rpm	900 rpm	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	osteotome* E-OS-240-PC	osteotome* E-OS-240-PC	20 rpm

Surgical sequence for implants with height 15.00 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



FS-230 | **FPT3-200-LXS** | **FG-200/280XS** | **FFT3-280-LXS** | **FFT3-300-LXS**

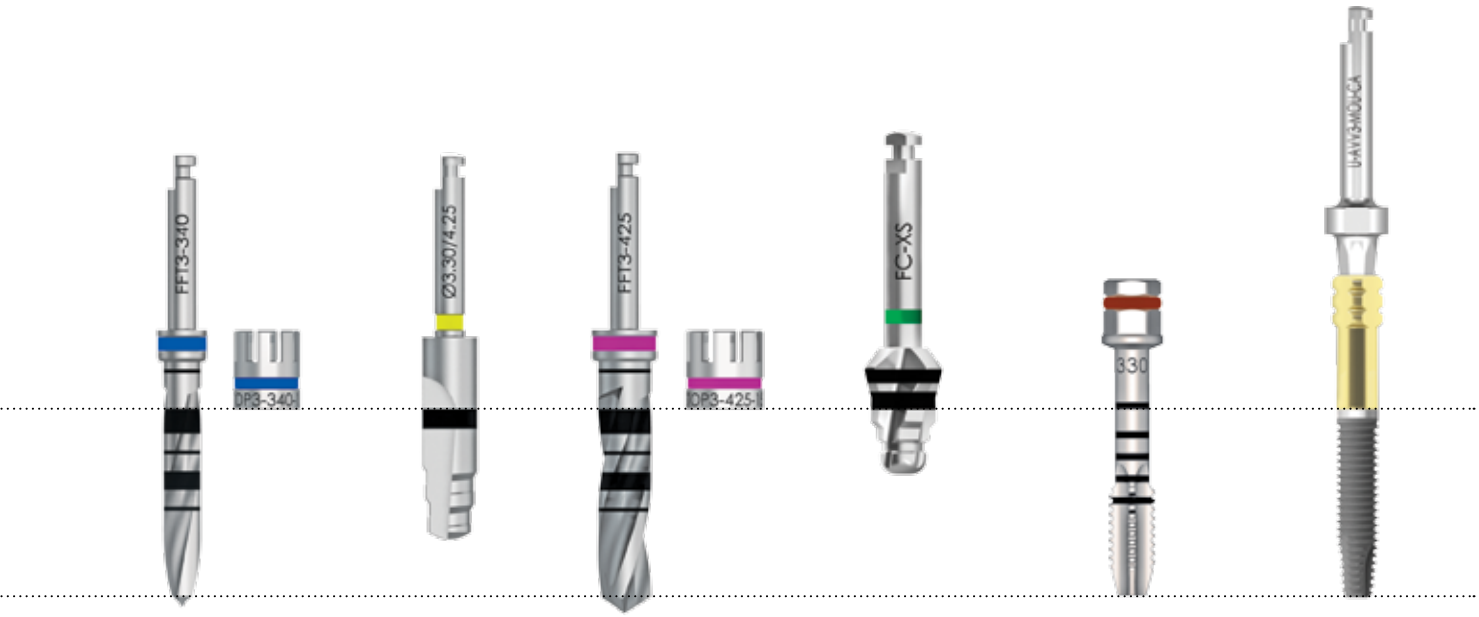
	E2-ZT-330-150 E2-3S-330-150		use up to: marking 15.00 mm	use up to: marking 10.00 mm		
ø 3.30 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm	-
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	-
	BONE D4	-	-	-	-	-

	E2-ZT-375-150 E2-3S-375-150		marking 15.00 mm	marking 10.00 mm		
ø 3.75 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	900 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

	E2-ZT-410-150 E2-3S-410-150		marking 15.00 mm	marking 10.00 mm		
ø 4.10 mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

	E2-ZT-410SP-150 E2-3S-410SP-150		marking 15.00 mm	marking 10.00 mm		
ø 4.10SP mm	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

**All osteotomes are used at the reference mark of the implant to be inserted.*



FFT3-340-LXS | **FG-330/425XS** | **FFT3-425-LXS** | **FC-XS** | **E-MS-330** | **U-AVV3-MOU-CA**

				50 Ncm max	**50 Ncm max**
-	-	-	-	20 rpm	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	20 rpm
-	-	-	-	-	-

E-MS-375

-	-	-	1.000 rpm	20 rpm	20 rpm
-	-	-	1.000 rpm	-	20 rpm
-	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	-	-	-	-	20 rpm

E-MS-410

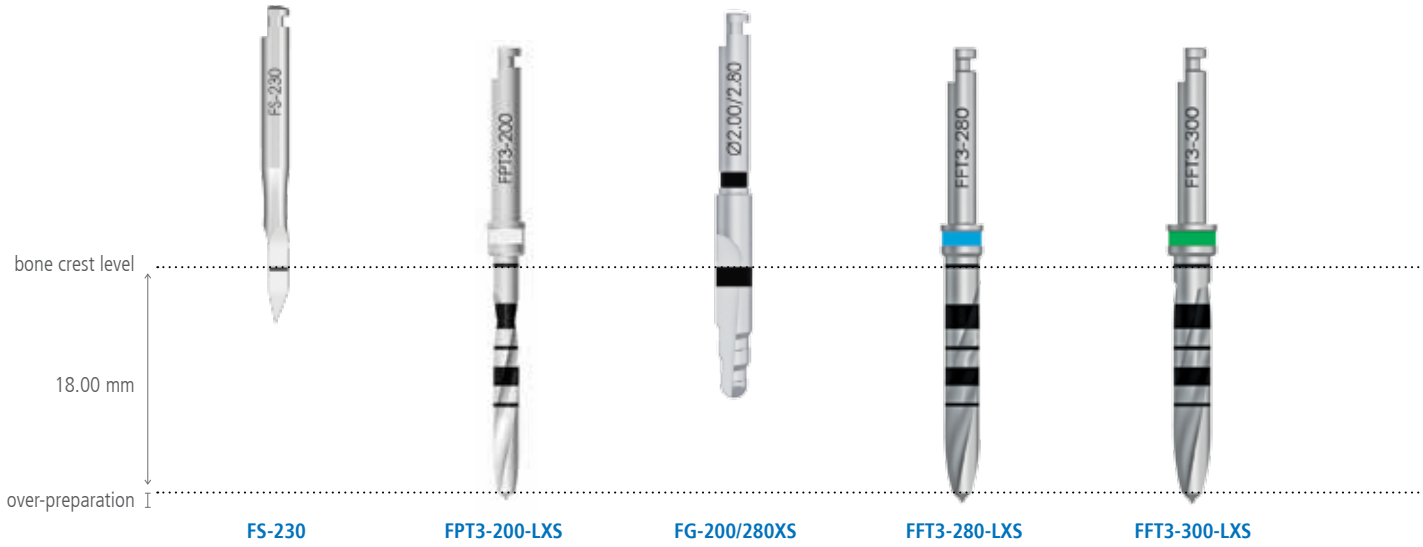
900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

E-MS-410

900 rpm	-	-	-	20 rpm	20 rpm
900 rpm	-	-	-	-	20 rpm
900 rpm	-	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	-	20 rpm

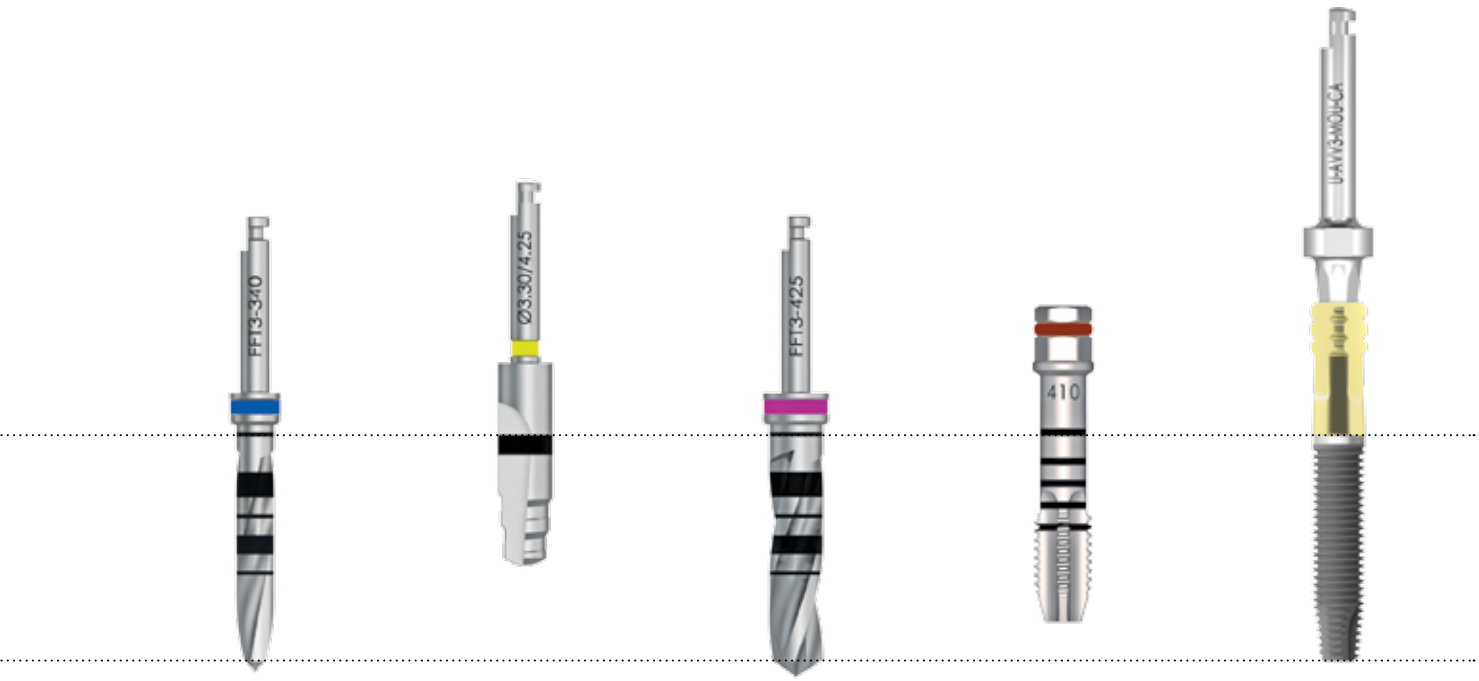
Surgical sequence for implants with height 18.00 mm

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility. Remember that the drills over-prepare the length to an extent indicated in the table on pages 32 (for the pilot drill) and 35 (for the final drills).



ø 4.10 mm	E2-ZT-410-150 E2-3S-410-150		marking 18.00 mm	marking 10.00 mm		
	BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
	BONE D3	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome* E-OS-090-PP	osteotome* E-OS-090-PP	osteotome* E-OS-160-PC

*All osteotomes are used at the reference mark of the implant to be inserted.



FFT3-340-LXS | FG-330/425XS | FFT3-425-LXS | E-MS-410 | U-AVV3-MOU-CA

			50 Ncm max	50 Ncm max
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome* E-OS-160-PC	osteotome* E-OS-200-PC	osteotome* E-OS-200-PC	-	20 rpm

IMPORTANT WARNING

The use of stops in implants with height 18.00 mm is not contemplated, since the end of the working part of the cylindrical drills already corresponds to 18.00 mm. So in this case the use of the depth stop is not necessary.

Shorty Drilling Kit

The implant site of Outlink² Shorty implants with heights of 5.00 mm, 7.00 mm and 8.50 mm can be prepared with the drills contained in the standard surgical kits. However, it should be remembered that the drills contained in these kits, like all standard drills, require an over-preparation linked to the size of the drill tip. The drill tip has a guiding, centring and penetrating function and normally characterises the instrument's ability to move forward, determining its efficiency. For this reason, even though it limits the choice of the preparation length, the drill tip is a normal aspect of traditional surgical protocols. On the other hand, the choice of a short implant is generally connected to the lack of available bone height in the implant site, so it would be desirable not to have to engage a working thickness with the tip of the drill, but instead to lodge a longer implant. For this reason, a drilling kit was created to enable preparing the sites for Shorty implants with a height of 5.00 mm, 7.00 mm and 8.50 mm and very short tip where a portion of over-preparation is not considered necessary. The kit also contains the stops for 5.00 mm and 7.00 mm preparations. The stop is not necessary for depths of 8.50 mm, because 8.50 mm is the maximum working length of the drill. The kit also contains drills and stops with ø 6.00 mm, not necessary for Outlink² implants, they are intended for other systems produced by Sweden & Martina.

The kits contain two short parallelism pins, which are very handy in distal sectors.

The colour codes of the implant diameters facilitate the choice of the instruments.

All the instruments in the Shorty Drilling Kit are also available individually as spare parts.

code	description
 ZSHORTY*	Complete drilling kit for short implants
 SHORTY-KIT*	Empty tray in Radel
 GROMMET-CA-1	Kit with 5 spare silicon supports for surgical trays, for drills or instruments with right angle shanks

* The words ZSHORTY* and SHORTY-KIT* are followed by a letter and a number that indicate the revision of the kit. The contents of the kit can be updated and varied according to the most effective and innovative surgical techniques.

IMPORTANT WARNING

The Shorty Drilling Kit is a kit of **only** drills, which also contains two parallelism pins. However, it is not a complete kit; to insert Shorty implants the instruments in the standard surgical kit are required (ratchet, drivers, etc.).

Drilling Kit Shorty

● SHORTY STOP
STOPS-340-050 STOPS-340-060 STOPS-340-070

● SHORTY STOP
STOPS-300-050 STOPS-300-060 STOPS-300-070

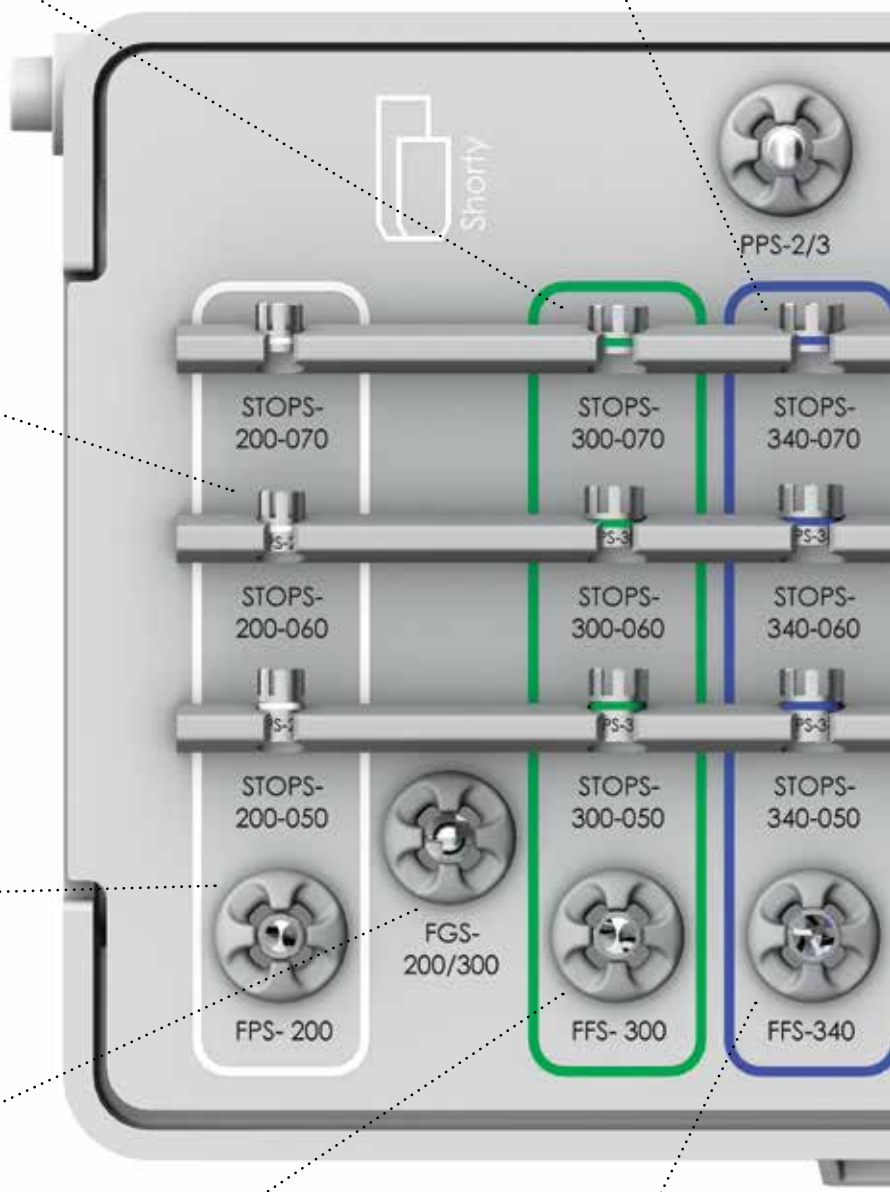
STOP FOR SHORTY PILOT DRILL
STOPS-200-050 STOPS-200-060 STOPS-200-070

SHORTY PILOT DRILL
FPS-200

INTERMEDIATE DRILL
FGS-200/300

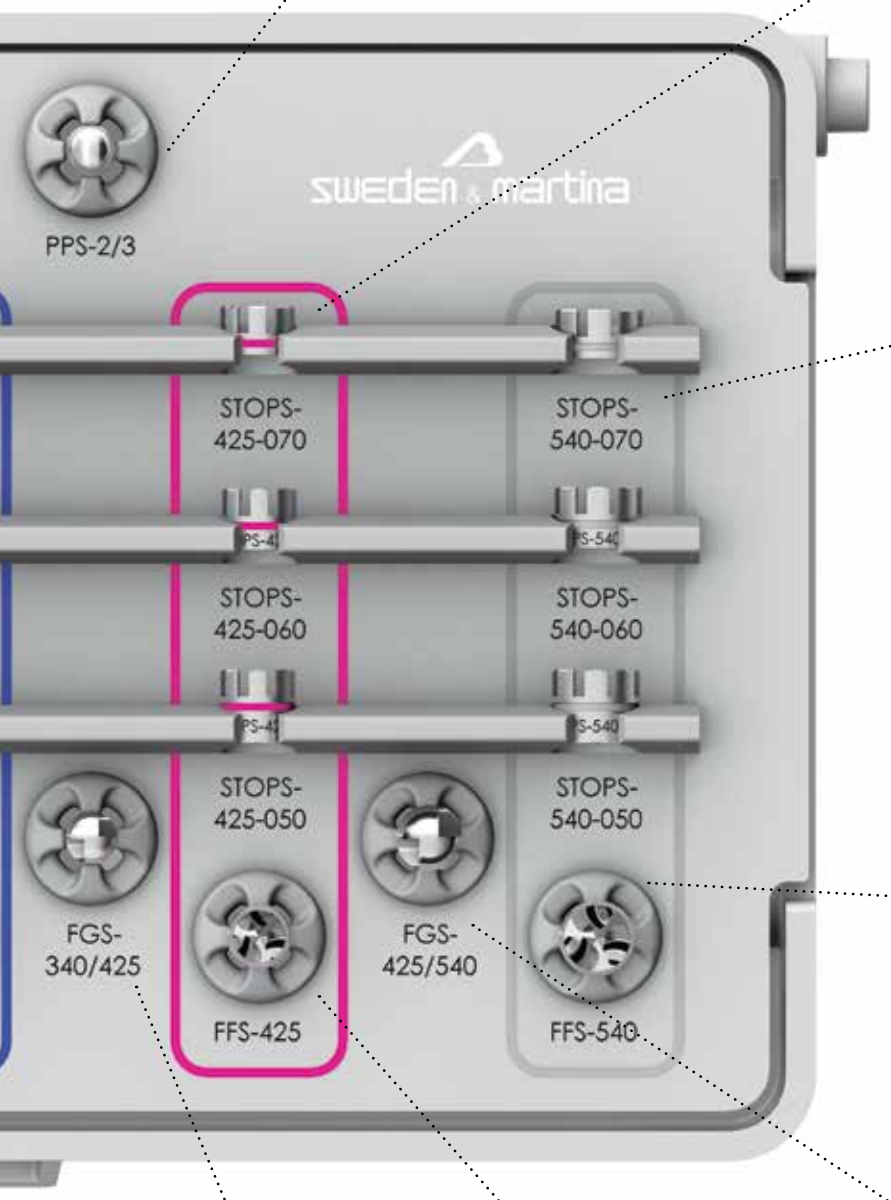
● SHORTY DRILL
FFS-300

● SHORTY DRILL
FFS-340



PARALLELISM PIN
PPS-2/3

● SHORTY STOP
STOPS-425-050 STOPS-425-060 STOPS-425-070



● SHORTY STOP
STOPS-540-050 STOPS-540-060 STOPS-540-070

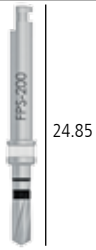
● SHORTY DRILL
FFS-540

INTERMEDIATE DRILL
FGS-425/540

INTERMEDIATE DRILL
FGS-340/425

● SHORTY DRILL
FFS-425

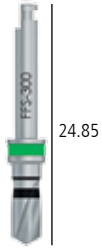
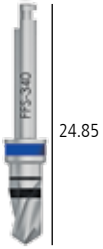
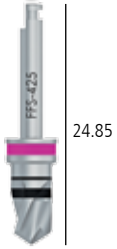
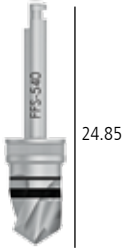
Instruments contained in the Shorty Drilling Kit

Shorty pilot drill	Shorty pilot drill stops		
			
FPS-200 Shorty pilot drill	STOPS-200-050 5.00 mm stop for Shorty pilot drill	STOPS-200-060 6.00 mm stop for Shorty pilot drill	STOPS-200-070 7.00 mm stop for Shorty pilot drill

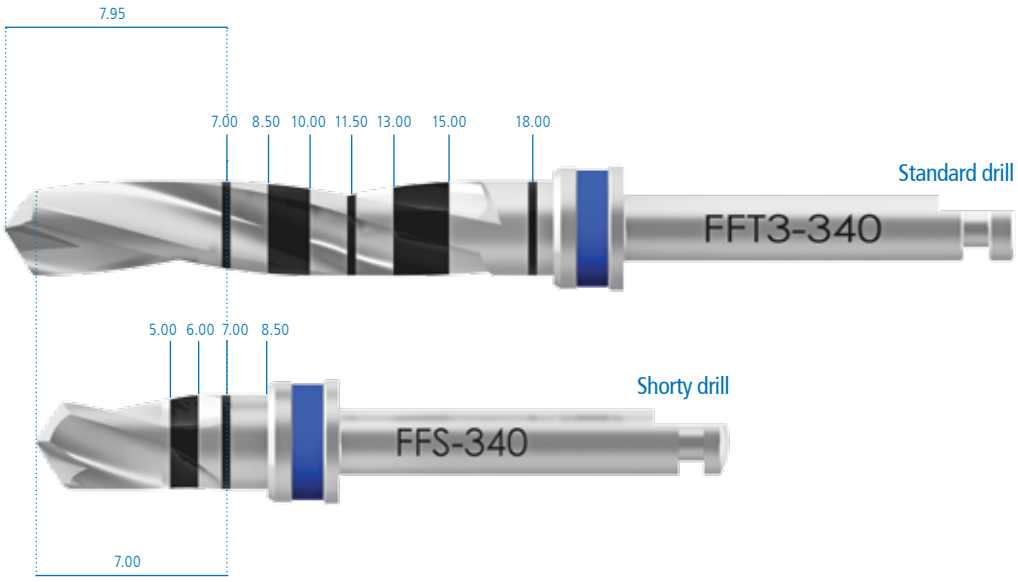
code	description	diameter
 FGS-200/300	Shorty intermediate drill	2.00/2.50/3.00
 FGS-340/425	Shorty intermediate drill	3.40/3.80/4.25
 FGS-425/540*	Shorty intermediate drill	4.25/4.80/5.40
 PPS-2/3	Parallelism pin for short drills with depth lines at 5.00, 6.00 and 7.00	2.00/3.00

* Dedicated intermediate drill for other Sweden & Martina implant systems.

All measurements are given in mm, unless indicated otherwise.

	ø 3.75 mm	ø 4.10 mm ø 4.10SP mm	ø 5.00 mm	ø 6.00 mm
drills				
	FFS-300	FFS-340	FFS-425	FFS-540*
stops				
	STOPS-300-050	STOPS-340-050	STOPS-425-050	STOPS-540-050*
				
	STOPS-300-060	STOPS-340-060	STOPS-425-060	STOPS-540-060*
				
	STOPS-300-070	STOPS-340-070	STOPS-425-070	STOPS-540-070*

* Drills and stops with diameter 5.40 mm for other Sweden & Martina implant systems are also available in the Drilling Kit.



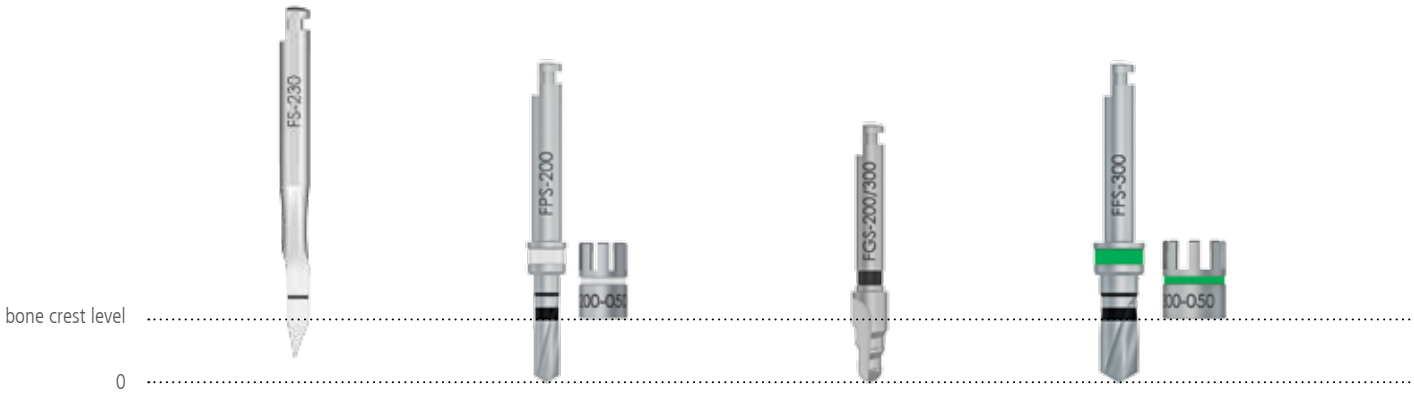
Please note: remember that the drills in the Drilling Kit do not over-prepare the surgical site. The working lengths include the portion related to the conical tip of the drill.

All measurements are given in mm, unless indicated otherwise.

PROCEDURE CHIRURGICHE

Surgical sequence for Shorty implants with height 5.00 mm (Shorty drills)

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility.



FS-230 | **FPS-200** | **FGS-200/300** | **FFS-300**

E2-ZT-410SP-050
-

ø 4.10SP mm				
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

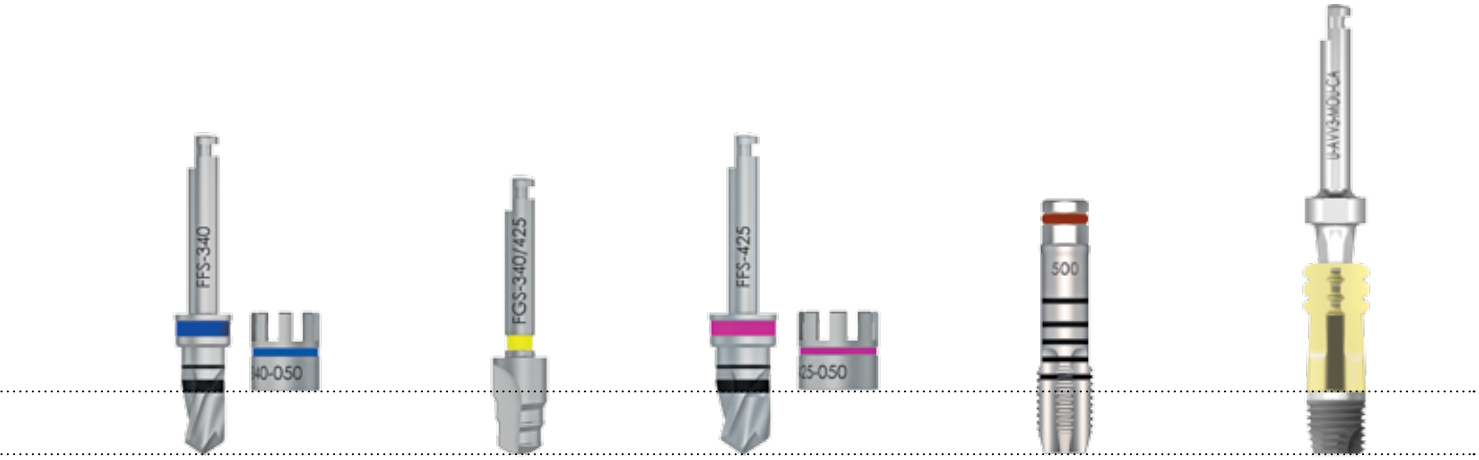
E2-ZT-500-050
-

ø 5.00 mm				
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

IMPORTANT WARNING

The precision drill is very cutting. For h 5.00 mm implants, it is recommended not to use this drill until the marking (placed at 4.80 mm), but to use it only for cutting the cortical.

**The use of short implants in D3 and D4 bone is recommended only as part of a suitable bone regeneration therapy, in order to ensure optimum osseointegration after an adequate healing period.*



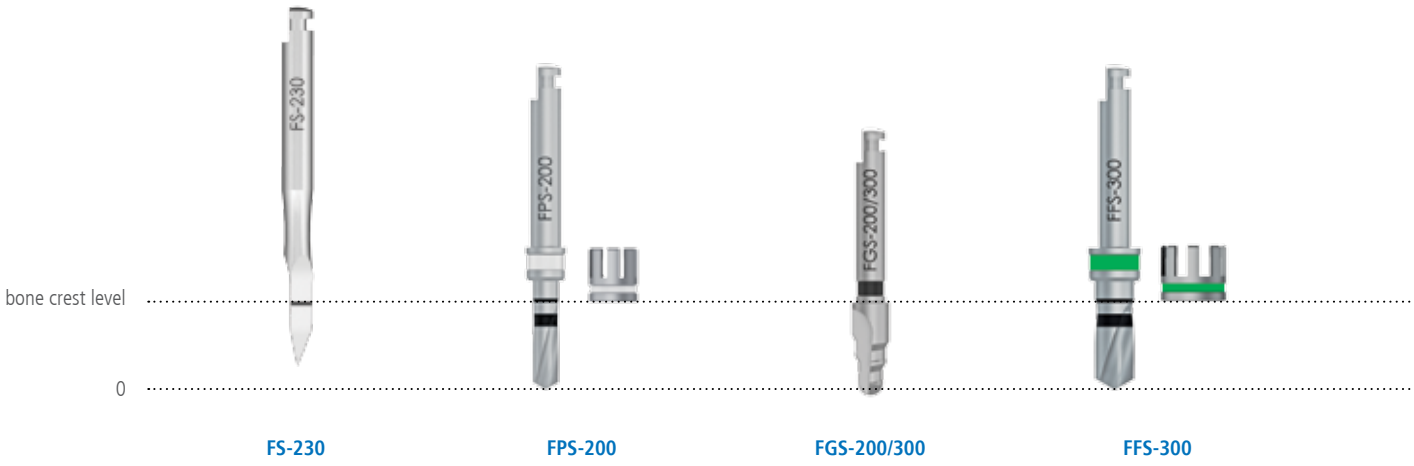
FFS-340	FG-330/425XS	FFS-425	E-MS-500	U-AVV3-MOU-CA

			E-MS-410 50 Ncm max	 50 Ncm max
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
*	*	*	-	*
*	*	*	-	*

			E-MS-500	
1.100 rpm	1.100 rpm	900 rpm	20 rpm	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
*	*	*	-	*
*	*	*	-	*

Surgical sequence for Shorty implants with height 7.00 mm (Shorty drills)

The use of the stop is at the dentist's discretion. However, its use is recommended, especially in cases of poor intra-operative visibility.



FS-230 **FPS-200** **FGS-200/300** **FFS-300**

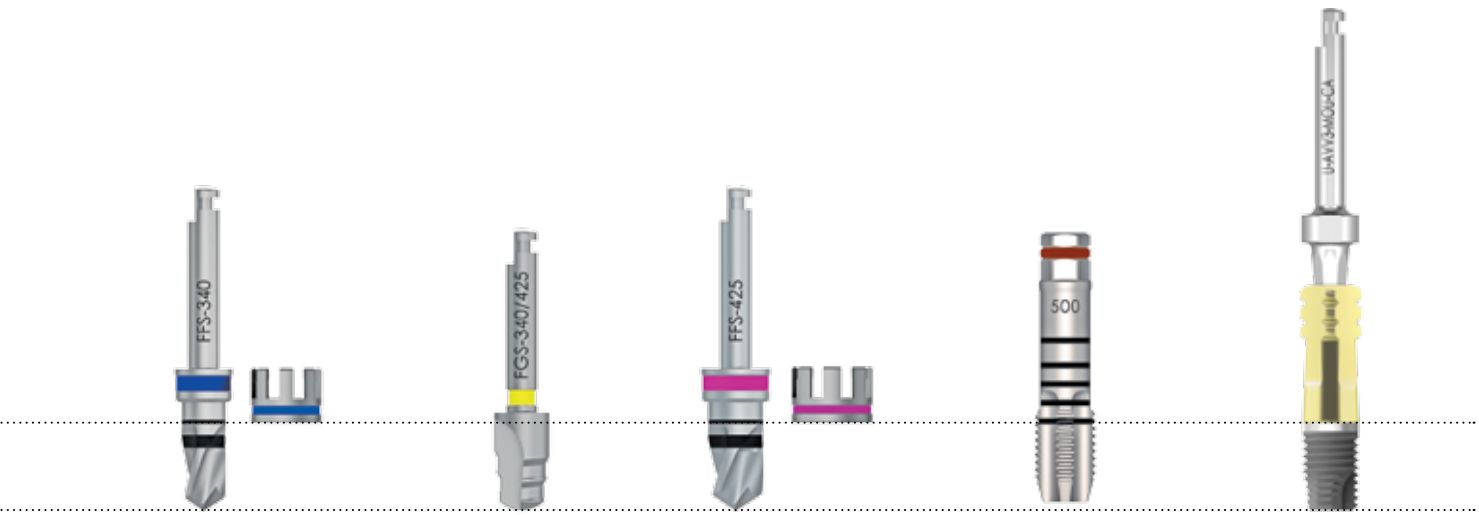
E2-ZT-410SP-070
-

ø 4.10SP mm				
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

E2-ZT-500-070
-

ø 5.00 mm				
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

**The use of short implants in D3 and D4 bone is recommended only as part of a suitable bone regeneration therapy, in order to ensure optimum osseointegration after an adequate healing period.*



FFS-340	FG-330/425XS	FFS-425	E-MS-500	U-AVV3-MOU-CA
			E-MS-410 50 Ncm max	50 Ncm max
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
*	*	*	-	*
*	*	*	-	*

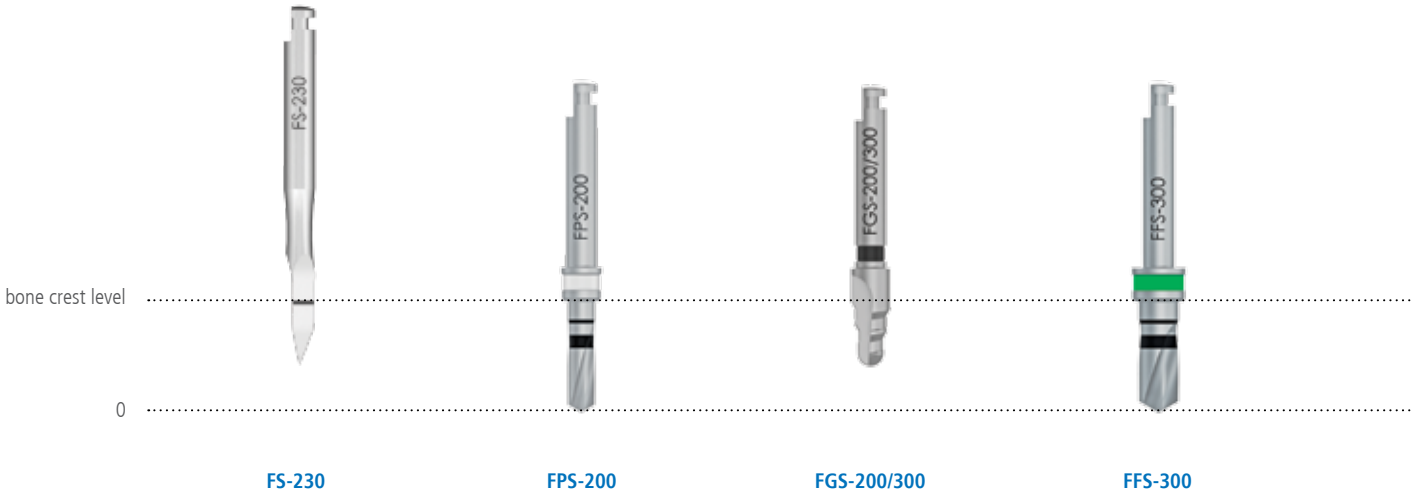
			E-MS-500	
1.100 rpm	1.100 rpm	900 rpm	20 rpm	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
*	*	*	-	*
*	*	*	-	*

IMPORTANT WARNING

Implants with height 7.00 mm and 8.50 mm may be inserted with the drills in the surgical kit and the respective stops. However, if these implants are inserted at the limit of anatomical structures such as the maxillary sinus floor expansion or the mandibular nerve, it is preferable to prepare the site using the drills in the Shorty Drilling Kit, which do not over-prepare the length.

Surgical sequence for Shorty implants with height 8.50 mm (Shorty drills)

The use of stops in implants with height 8.50 mm is not contemplated, since 8.50 corresponds to the maximum working length of the drills.



FS-230 | **FPS-200** | **FGS-200/300** | **FFS-300**

E2-ZT-375-085
E2-3S-375-085

ø 3.75 mm					
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

E2-ZT-410-085
E2-3S-410-085

ø 4.10 mm					
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

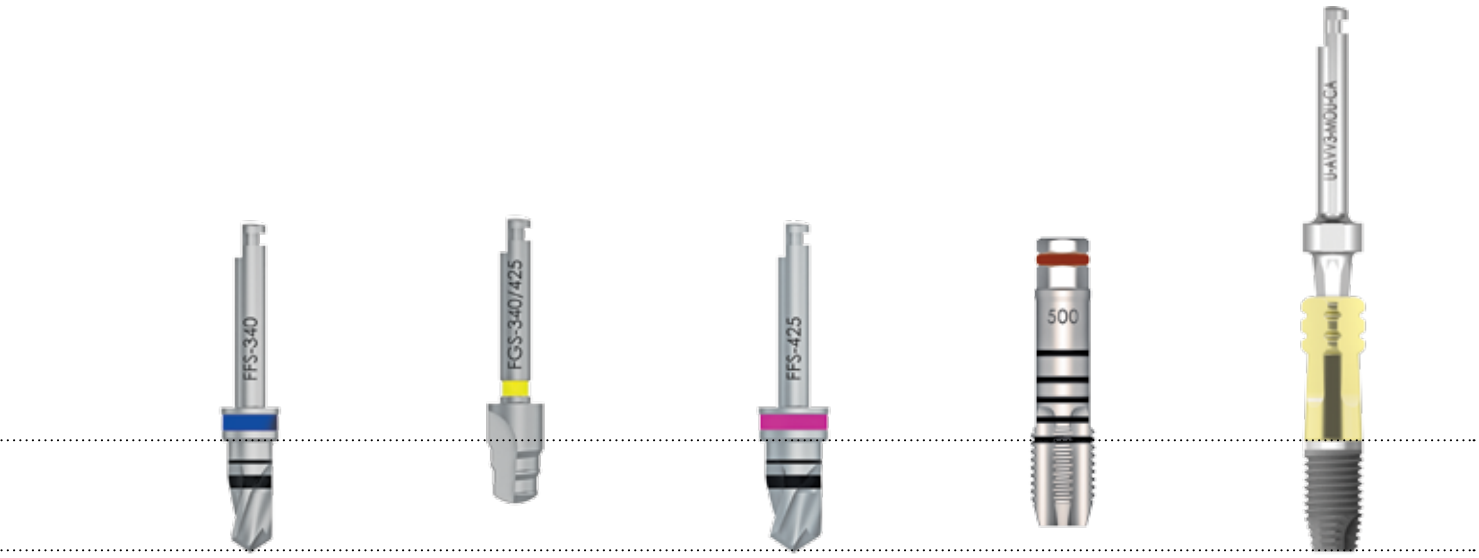
E2-ZT-410SP-085
E2-3S-410SP-085

ø 4.10SP mm					
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

E2-ZT-500-085
E2-3S-500-085

ø 5.00 mm					
BONE D1	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D2	1.100 rpm	1.100 rpm	1.100 rpm	1.100 rpm
BONE D3	*	*	*	*
BONE D4	*	*	*	*

**The use of short implants in D3 and D4 bone is recommended only as part of a suitable bone regeneration therapy, in order to ensure optimum osseointegration after an adequate healing period.*



FFS-340	FG-330/425XS	FFS-425	E-MS-500	U-AVV3-MOU-CA
			E-MS-375 **50 Ncm max**	**50 Ncm max**
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
*	*	*	-	*
*	*	*	-	*

			E-MS-410	
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
*	*	*	-	*
*	*	*	-	*

			E-MS-410	
900 rpm	-	-	20 rpm	20 rpm
900 rpm	-	-	-	20 rpm
*	*	*	-	*
*	*	*	-	*

			E-MS-500	
1.100 rpm	1.100 rpm	900 rpm	20 rpm	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
*	*	*	-	*
*	*	*	-	*

IMPORTANT WARNING

Implants with height 7.00 mm and 8.50 mm may be inserted with the drills in the surgical kit and the respective stops. However, if these implants are inserted at the limit of anatomical structures such as the maxillary sinus floor expansion or the mandibular nerve, it is preferable to prepare the site using the drills in the Shorty Drilling Kit, which do not over-prepare the length.

Implant insertion

(1) Use the patient label found inside the pack for the patient's medical file and apply it on the Dental Card: this will make it easier to record the patient's treatment plan and will keep a trace of the batch used.

(2) Then open the blister and place the vial contained in it on a sterile surface (i.e. on a disposable towel or sterile cloth) next to the operating field.

(3) Immediately before inserting it into the oral cavity, remove the blue cap of the vial, making sure not to remove the transparent cap containing the surgical cover screw. The implant holding cylinder inside the vial and the surgical cover screw are coloured according to a colour code that allows the rapid identification of the implant diameter. Take the fixture out of the vial with the special instrument, without touching its surface. This precaution allows you to avoid contaminating the fixture surface, a very important aspect for preserving the most suitable conditions to favour the osseointegration process. The Outlink² mounter pre-assembled on all the fixtures of the system can be used for insertion with a right angle and can also be used to take the impression and, subsequently, to create the temporary post.

Standard procedure

When the vial is opened the mounter is presented ready to be engaged. The implant may be picked up using the driver U-AVV3-MOU-CA and then screwed mechanically in place with the aid of a suitable surgical micromotor with torque control set at a screwing speed of 20 rpm and max torque 70 Ncm. At the moment this value is the maximum that can be reached by the micromotors on the market.
The right angle driver has been tested up to 70 Ncm and has not presented any deformations or failures. Micromotors with torque control must be set regularly with a suitable calibrated tool.

As an alternative to the use of the right angle driver, the implant can be picked up using the hand driver U-AVV-MOUC. If necessary, the special extension BPM-15 can be used. The hand knob AVV3-MAN-DG or the ratchet CRI5 can be used for screwing.
The U-AVV-MOUC has four facets arranged symmetrically along the outside perimeter. The facets are aligned with four sides alternated by the internal octagon of the mounter. This allows the implant to be positioned facing the desired direction. If necessary, the same instruments can be used for easily removing the implant.

IMPORTANT WARNING

The manual mounter-driver assembly U-AVV-MOUC has been tested without suffering any damage up to a torque of 130 Ncm.
However, should the implant have difficulty in going down into the surgical site, it is recommended to:

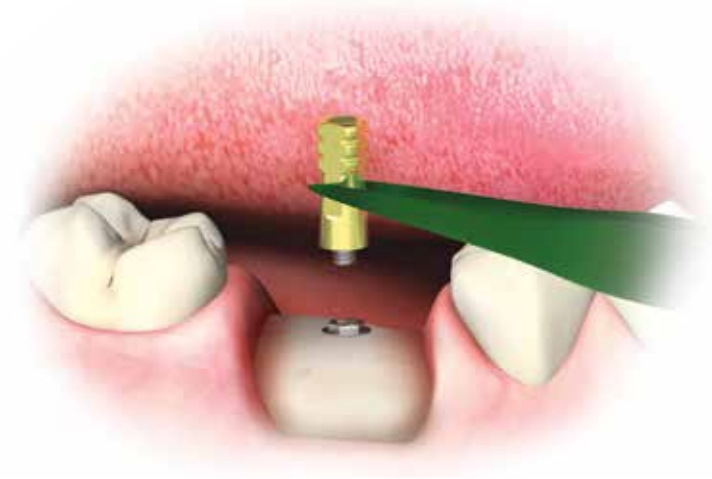
- unscrew and screw for 2 turns, several times;
- tap or retap;
- slightly oversize the coronal part of the preparation.

Any intra-operative removal of the mounter

Once the implant has been inserted, depending on the treatment plan, in the case of immediate loading you can proceed with taking the impression and subsequent production of the temporary post directly on the mounter.

Contrarily, in the case of deferred loading you can remove the mounter by unscrewing the screw that secures it to the fixture. To remove the mounter use the special key CMD, engaging its octagonal end in the mounter, in order to stabilise the mounter and avoid possible movements.

Use the special long digital screwdriver HSML-20-DG inserting it directly inside the key CMD to unscrew the connecting screw.



Since the dimensions of the head of the screw are larger than the connection of the key CMD, once you have finished unscrewing, remove the driver and the mounter stop key, and only then proceed to remove the mounter and the screw using forceps.

The mounter is very precise in the connection with the hexagon of the implant, so much so that it can be securely fastened to it during the insertion phase. As a result of this extreme precision, a slight counter-clockwise movement with the key CMD may be needed to facilitate removal, using forceps to pick up the mounter. Take the cover screw from its place in the blue cap of the vial and screw it onto the implant, manually or at any rate with a torque no greater than 10 Ncm. Then suture the flaps as usual.

Intra-operative removal of the mounter in distal sectors

If the implant is inserted in distal sectors, or if the patient has a particularly limited oral opening, the standard procedure for intra-operative removal of the mounter might be difficult due to the height of the instrument used. To simplify the removal procedure in this type of situation it is advised to use the key E2-CM which engages on the outside of the mounter, thus reducing its height in comparison with the use of the CMD.
At the end of the key E2-CM there is a forked connection which inserts in the zone immediately below the mounter's retentive tabs, thanks to the two repositioning faces on the upper part of the mounter. Then unscrew the connecting screw with the short driver HSM-20-DG, and remove the mounter with forceps.

IMPORTANT WARNING

Take care not to insert the key E2-CM in the lower part of the mounter, where there are two prosthetic repositioning marks, because these are slightly narrower than the ones at the top and so the key would tend to rotate.

Phase after inserting the implant

It is essential to respect the healing times recommended in implant surgery and to check periodically the state of evolution of osseointegration, even with x-rays. The preliminary healing times at implant loading are influenced by numerous factors:

- the quality of the receiving bone;
- the length of the implant used;
- the number of implants to be splinted together;
- the positioning of the implants in a line or along an arch.

In cases where all or many of the so-called factors are positive, a premature or immediate loading can be assumed (see paragraph on METHOD OF USE on page 7).

Second surgical phase

In the second surgical phase, therefore, the closing screws of the implants are exposed and any hard tissues in excess are removed, after which the implants are unscrewed. If the right angle driver is used, the surgical micromotor must be set with the following parameters: 20 rpm and torque 10 Ncm. Once the transgingival healing screws have been positioned, the margins of the flaps are secured, the soft tissue is adapted to the profile of the transgingival healing screw and sutured around it. It is recommended to secure the healing screws manually or at any rate with a torque no greater than 10 Ncm.
The soft tissues can be conditioned with an individualised temporary post instead of transgingival healing screws.

In the case of deferred loading, if a submerged double-phase surgical technique is chosen, to minimise discomfort determined by the observance of the biological times for osseointegration, temporary mobile prostheses must be used carefully, unloading them amply. Implant protocols with two surgical phases require a healing period to pass for the biological processes that lead to osseointegration before the second surgical procedure can be performed to replace the surgical cover screws with the transgingival healing screws.

Procedure in the case of pre-operative removal and replacement of the mounter

In some cases it may be necessary or preferable to remove the multifunction mounter before inserting the implant and to replace it with a different type of mounter, that is with the short or long ones for only surgical use contained in the kit; for example in the following cases:

- immediate loading with temporary posts other than the mounter;
- split-crest techniques with insertion using a hammer or Magnetic Mallet, to preserve the integrity of the post and of the connecting screw;
- patient with limited oral opening (with consequent need to use the short mounter);
- distal positions in which it is inconvenient to unscrew in the mouth.

It may also be necessary to remove the mounter when using a guided surgical technique that requires special mounters.
In these cases a procedure is contemplated which allows the mounter to be unscrewed and removed directly in the vial, after which it can be replaced:

(1) Once the vial containing the implant has been opened, use the octagonal end of the key CMD to engage the mounter. In this way the implant-mounter assembly will be stabilised and the connecting screw can be unscrewed easily.

(2) Use the digital screwdriver HSML-20-DG inserting it directly inside the octagon of the key CMD, then unscrew the connecting screw. Once the screw has been loosened, the key CMD must be removed in order to take out the screw and remove the mounter.
(It is recommended to hold the mounter still with forceps while extracting the key CMD after use.)

(3) After finishing unscrewing, use forceps to lift the mounter. The connection of the implant will now be exposed.

(4) Take the optional mounter and position it next to the implant connection. (In the case of guided surgery, the mounters used must be the specific ones for this type of surgery.)

(5) Stabilise the mounter with the forked end of the key CMD, then screw the mounter onto the implant with the driver HSML-20-DG.

(6) Lift the implant-mounter assembly by the coupling B-AVV-CA3 or the driver BPM-15 and the ratchet, then insert the implant in the site.

Please note: The forked end of the mounter stop key CMD can be used only with the long optional mounters (E-MOUL-330, E-MOUL-410). If you want to use the short optional mounters (E-MOU-330, E-MOU-410), the height of the vial does not allow the mounter to engage correctly with the CMD: in this case it is recommended to stabilise the implant-mounter assembly with forceps, then tighten the screw, being sure to exert adequate pressure with the driver HSML-20-DG.

Any intra-operative removal of the implants

Should it be necessary to remove an implant that is already inserted, proceed with the aid of the mounter as follows: If the mounter has already been removed, accurately clean any blood and residue produced during insertion from the well of the implant and reposition the mounter, securing it to the implant with the respective screw. The special right angle driver (HSML-20-CA) will be used for screwing, setting the surgical micromotor with the following parameters: 20 rpm and torque 10 Ncm; alternatively one-piece digital drivers may be used. Remember to keep the mounter blocked with the special key CMD to avoid the implant being screwed further into the bone, thus making it even more difficult to remove. The mounter connected correctly to the implant appears with the top internal octagon ready to be engaged using the special right angle instrument (U-AVV3-MOU-CA).
The implant can be unscrewed (the instrument must turn counter-clockwise) and removed from the site with the aid of a suitable surgical micromotor with torque control set at an unscrewing speed of 20 rpm and max torque: alternatively the implant can be unscrewed and removed using the special manual driver (U-AVV-MOUC) joined to the hand driver (AVV3-MAN-DG) or with the ratchet (CRI5) used in the torque control position or in the blocked position, making sure that the laser-etched arrow on the ratchet head indicates the counter-clockwise direction. Lift the removed implant using sterile forceps.

Maintenance of the prosthesis

Some implant restoration-related complications are reported in the literature. These complications may lead to a loss of osseointegration and implant failure. Correct maintenance by the patient, good home dental care and regular sessions with a professional hygienist increase the device's service life. Complications such as the pull-out of screws that fasten the restoration to the implants or bone reabsorption causing the loss of the mucosal resting surface in patients with removable restorations can be easily prevented with regular check-ups. If post or prosthetic connecting screws are needed, these operations must be performed by the practitioner using suitable devices with torque tightening control. The calibration of these devices should be checked regularly. In the event of complications of this kind, patients should contact their practitioner as soon as possible, so that the restoration can be repaired and functionality restored.
A delay in contacting the doctor may lead to the fracture of the connecting screw or of the prosthesis, in the first case, and to implant failure in the second case, which could impair the rehabilitative result. Practitioners must make this clear to their patients.
Complications can be of a biological nature (loss of integration) or mechanical nature (fracture of a component due to overloading). If there are no complications, duration depends on the devices and the whole restoration system depends on mechanical resistance in relation to the fatigue accumulated by the device.

Responsibility for defective products and warranty terms

Optimal patient care and attention to their needs are necessary conditions for the success of implantation procedures and, therefore, patients must be carefully selected and informed of the associated risks and obligations connected with the treatment and encouraged to cooperate with the odontologist in the interests of the success of the same treatment. The patient must, therefore, maintain good hygiene, which should be confirmed during check-up appointments, guaranteed and recorded and the practitioners instructions and orders shall be observed. The warranty only covers manufacturing defects as long as the faulty piece is identified by the article code and batch number and returned within the validity period of the warranty. The warranty terms are available on the website www.sweden-martina.com

Disposal

If removed from the oral cavity due to biological or mechanical failure, the implant fixtures must be disposed of as biological waste. The surgical instruments are made of small components, mostly metal. They may be disposed of as such. If dirty, they must be disposed of as biological waste. In general, the local regulations apply.

Material composition

The materials used for manufacturing Outlink^2 implants were selected based on the properties indicated for their intended use according to directive 93/42, implemented in Italy with Law 46/97, Annex I – Essential Requirements, point 7.1.

Implants

The implants are made of Gr. 4 commercially pure titanium and conform to the harmonised standards. Although very rare, titanium allergy is possible. Patients should therefore always be asked whether they have allergies of this type. The characteristics of the Gr. 4 titanium used are listed below.

TITANIUM GR. 4 (cold worked)*	Maximum allowed values (%)	Tolerance
Chemical composition:		
Nitrogen	0.05	+/- 0.02
Carbon	0.08	+/- 0.02
Hydrogen	0.015	+/- 0.002
Iron	0.50	+/- 0.01 (%<0.25) +/- 0.15 (%>0.25)
Oxygen	0.40	+/- 0.02 (%<0.20) +/- 0.03 (%>0.20)
Titanium	remainder	-

Mechanical properties*	
Tensile stress:	680 MPa (N/mm²)
Yield strength (0.2%):	520 MPa (N/mm²)
Elongation at yield:	15 %
Section reduction:	25 %

** This technical information complies with the express specifications of the regulations in force for the use of Gr. 4 titanium in implantology:*
- *ASTM F67-06: Standard Specification for unalloyed titanium, for surgical implant applications.*
- *ISO 5832-2:1999: Implant for surgery – Metallic materials – Part 2: Unalloyed titanium.*

NOTE: the use of bars obtained from cold processing, for the production of Sweden & Martina Spa implants, allows the exploitation of the mechanical characteristics of tensile strength and yield strength about 15% higher than those that can be obtained with a hot process (respectively 550 MPa and 483 MPa).

Surgical instruments

Depending on the type of component, the surgical instruments are made of:
- Gr. 5 titanium
- 1.4197 steel
- 1.4542 steel
- 1.4305 (AISI 630) steel
- 1.4108 (AISI 303) steel
- 1.4108 steel
- 1.4112 steel

Remember to ask patients whether they are allergic to any of the raw materials.

Identification of the manufacturer

The manufacturer of Outlink² implants and of the respective surgical instruments is:

Sweden & Martina
Via Veneto 10
35020 Due Carrare (Padova) – Italia
Tel. +39 049.9124300 - Fax + 39 049.9124290
e-mail: info@sweden-martina.com www.sweden-martina.com

In accordance with Directive 93/42/EEC implemented in Italy with L.D. 46/97 of 26/03/97, Annex IX, Sweden & Martina identifies the risk class of these products as shown in table 01. Even though the dental implants and respective surgical instruments can be used in all patients who have the suitable therapeutic indications, they must only be used by professional dentists or surgeons with the necessary qualifications and training.

Table 01- Risk classes

device	pack	directive 93/42	rule	risk class
Implant fixtures for dental use, belonging to the Outlink² implant system	Single-use and sterile package, fixture complete with surgical cover screw.	Implantable devices intended for long-term use (over 30 days).	8	IIb
Surgical cover screws.	Sold in packages complete with the respective fixtures or sold individually (single-use and sterile packages)	Implantable devices intended for long-term use (over 30 days).	8	IIb
Mounter for Outlink² fixtures. Also acts as transfer and post.	Sold complete with the relative connecting screws, pre-assembled on the respective fixtures in single-use and sterile packages. Also sold individually, complete with the relative connecting screws.	When used as mounter and transfer, they are invasive medical devices for use even over 30 days (temporary post function).	8	IIb
Surgical drills (precision, conical, cylindrical, for distal use, countersinks, bone profilers) and Drill extensions, Drill stops, Bone taps, Drivers, auxiliary mounters and drivers/screwdrivers.	Sold in NON sterile packages.	Reusable invasive medical devices of the surgical kind for temporary use (for less than 60 minutes at a time).	6	IIa

GENERAL

device	pack	directive 93/42	rule	risk class
Surgical Kits	Sold in NON sterile packages.	Reusable medical devices	6	IIa
Osteotomes/Bone Expanders, Drivers/ Screwdrivers, Bone taps, Drivers, Hex drivers, Hand knobs, Depth gauges, Parallelism pins, Mounter stop keys and Stents	Sold in NON sterile packages.	Reusable surgical instruments for temporary use (for less than 60 minutes at a time), not intended to be connected to an active medical device.	6	I
Radel instrument trays and x-ray templates.	Sold in NON sterile packages.	Non invasive medical devices	1	I

Key to symbols used on the implant packs:

symbol	description
	Caution, please see instruction leaflet
	Batch number
	Code
	Sterilised with ionising radiation (only implants and spare surgical cover screws)
	Non-sterile product (only prosthetic components and surgical instruments)
	Expiry date after which the product must not be used (only implants)
	Single use product, do not reuse
	Manufacturer
	Consult the instruction leaflet
	Do not use the product if the packaging is damaged
	CE conformity marking, class 1 products
	CE conformity marking, class 2a and 2b products
Rx Only	American federal law restricts this device to sale by or on the order of a dental surgeon

THE LATEST REVISION DATE OF THIS MANUAL IS SEPTEMBER 2013

The devices in this user manual are designed and manufactured in accordance with the most recent directives and harmonised standards regarding the materials used, production processes, sterilisation, information supplied and packaging.

BIBLIOGRAPHY SINCE 2009 CONCERNING SWEDEN & MARTINA IMPLANTS

- Segura Andrés G., Martìnez Lage J. F., Ferreiroa A., Faus Lòpez J., Agustìn Panadero R.; Rehabilitación protésica en un maxilar atrófico a consecuencia de un trauma facial; Gaceta Dental, 2013; 244:112-118
- Canullo L., Micarelli C., Clementini M.; Hard tissue response to argon plasma cleaning treatment on titanium abutments: 2-year follow-up RCT; European Journal of Oral Implantology, 6 (Suppl. Spring), 2013: S21-S22
- Rossi F., Lang N. P., De Santis E., Morelli F., Favero G., Botticelli D.; Bone-healing pattern at the surface of titanium implants: an experimental study in the dog; Clinical Oral Implant Research, Early View, First Published online on 2013, January 4th; DOI: 10.1902/jop.2010.100428
- Clementini M., Canullo L., Micarelli C.; Fibroblast growth on titanium disks treated by argon plasma: an in vitro triple-blinded study; European Journal of Oral Implantology, 6 (Suppl. Spring), 2013: S29-S30
- Canullo L., Micarelli C., Iannello G.; Microscopical and chemical surface characterization of the gingival portion and connection of an internal hexagon abutment before and after different technical stages of preparation; Clinical Oral Implant Research, 2013, 24: 606-611; DOI: 10.1111/j.1600-0501.2012.02499.x
- Canullo L., Heinemann F., Gedrange T., Biffar R., Kunert-Keil C.; Histological evaluation at different times after augmentation of extraction sites grafted with a magnesium-enriched hydro xypatite: double-blinded randomized controlled trial; Clinical Oral Implant Research, Early View, First Published online on 2013,January 4th; DOI: 10.1111/clr.12035
  Canullo L., Micarelli C., Clementini M., Carinci F.; Cleaning procedures on customized abutments: microscopical, microbiological and chemical analysis; Clinical Oral Implant Research, 2012; 23 Suppl 7: 55-56; DOI: 10.1111/clr.12019, 2012, 23(s7_128)
- Canullo L., Micarelli C., Lembo-Fazio L., Iannello G., Clementini M.; Microscopical and microbiologic characterization of customized titanium abutments after different cleaning procedures; Clinical Oral Implant Research, Early View, First Published online on 2012, December 5th, DOI: 10.1111/clr.12089
- Wennstrom J. L., Derks I.; Is there a need for keratinized mucosa around implants to maintain health and tissue stability?; Clinical Oral Implant Research, 2012; 23 Suppl 6: 136-146; DOI: 10.1111/j.1600-0501.2012.0254.x
- Sisti A., Canullo L., Mottola M. P., Covani U., Barone A., Botticelli D.; Clinical evaluation of a ridge augmentation procedure for the severely resorbed alveolar socket: multicenter randomized controlled trial, preliminary results; Clinical Oral Implant Research, 2012; 23: 526–535; DOI: 10.1111/j.1600-0501.2011.02386.x
- Sailer I., Muhlemann S., Zwahlen M., Hämmerle C. H. F., Schneider D.; Cemented and screw-retained implant reconstructions: a systematic review of the survival and complication rates; Clinical Oral Implant Research, 2012; 23 Suppl 6: 163-201; DOI: 10.1111/j.1600-0501.2012.02538.x
- Barone A., Orlando B., Cingano L., Marconcini S., Derchi G., Covani U.; A randomized clinical trial to evaluate and compare implants placed in augmented vs. non-augmented extraction sockets A 3-year evaluation; Journal of Periodontology, 2012; 83: 836-846; DOI: 10.1902/jop.2011.110205
- Sisti A., Canullo L., Mottola M. P., Iannello G.; Crestal minimally invasive sinus lift on severely resorbed maxillary crest: prospective study; Biomedizinische Technik/Biomedical Engineering, 2012, 57, ISSN (Online) 1862-278X, ISSN (Print) 0013-5585; DOI: 10.1515/bmt-2011-0038
- Crespi C., Capparè P., Gherlone E.; Sinus floor elevation by osteotome: hand mallet versus electric mallet. A prospective clinical study; The International Journal of Oral & Maxillofacial Implants, 2012; 27: 1144-50; DOI: 10.1111/j.1708-8208.2012.00485.x
- Al-Nsour M., Chan H. L., Wang H. L.; Effect of the platform-switching technique on preservation of peri implant marginal bone: a systematic review; International Journal of Oral and Maxillofacial Implants, 2012; 27: 138-145
- Annibali S., Bignozzi I., Cristalli M. P., Graziani F., La Monaca G., Polimeni A.; Peri-implant marginal bone level: a systematic rewiew and meta-analysis of studies comparing platform switching versus conventionally restored implants; Journal of Clinical Periodontology, 2012; 39: 1097-1113; DOI: 10.1111/j.1600-051X.2012.01930.x
- Csonka M.; Switching Platform chirurgico e protesico; Italian Dental Journal, 2012; 08: 24
- Lang N. P., Pun L., Lau K. Y., Li K. Y., Wong M. C.; A systematic review on survival and success rates of implants placed immediately into fresh extraction sockets after at least 1; Clinical Oral Implants Research, 2012; 23 (Suppl 5): 39-66; DOI: 10.1111/j.1600-0501.2011.02372.x
- Ortega Martinez J., Pérez Pascual T., Mereque Bueno S., Hernàndez Alfaro F., Ferrés Padrò E.; Immediate Implants following tooth extraction - A systematic review; Medicina Oral Patología Oral y Cirugía Bucal, 2012; 17: 251-261; DOI: 10.4317/medoral.17469
- Vignoletti F., Morante Mudarra S., Lorenzo Vignau R., Oteo Pérez A., Rodrigo Gómez D.; "Implantes immediatos en alveolos posextracción. Factores críticos en la cicatrizaci ón de los tejidos duros y blandos"; Maxillaris, Ciencia y Actualidad Profesional e Industrial del Sector Dental, 2012, XV, 155: 110-126
- Bruschi G., Crespi R., Capparé P., Gherlone E.; Clinical study of flap design to increase the keratinized gingiva around implants. 4-year, follow-up; Journal of Oral Implantology,Early View, First published online in 2012, November; DOI: 10.1563/AAID-JOI-D-11-00236.1
- Canullo L., Gotz W.; Peri-implant hard tissue response to glow-discharged abutments: Prospective study. Preliminary radiological results; Annals of Anatomy, 2012; 194: 174-478; DOI: org/10.1016/j.aanat.2012.03.006
- Canullo L., Micarelli C., Clementini M.; Effect of titanium abutment plasma cleaning on peri-implant bone level changes: randomized contolled trial, preliminary results; Poster, Winner, Prize Martignoni, AIOP Congress Bologna, 22-24 Novembre 2012
- Bastieri A.; espansione ossea controllata con Drill Bone Expander (D.B.e.): variabili e polifunzionalità; Numeri Uno 15, 2013, 10-12
- Scavia S.; Studio prospettico sul mantenimento del volume osseo verticale in impianti inseriti con tecnica M.I.S.E.; Numeri Uno 14, 2012, 14-15
- Crespi R., Bruschi G. B.; Vantaggi chirurgici nell'uso del Magnetic Mallet; Numeri Uno 13, 2012, 16-18.
- Csonka M.; Postestrattivo a carico immediato con Tecnica Simple e Platform Switching; Numeri Uno 12, 2012, 8-9
- Minenna F., De Leo L.; Riabilitazione implanto protesica con tecnica One Stage e protesi avvitata in materiale composito; Numeri Uno, 12;2012, 12-13
- Micarelli C., Canullo L., Baldissara A., Clementini M.; Abutment screw removal torque values before and after plasma cleaning; Clinical Oral Implant Research, 2012; 23 Suppl 7: 72; DOI: 10.1111/clr.12019, 2012, 23(s7_162)
- Micarelli C., Canullo L., Baldissara P., Clementini M.; Abutment screw reverse torque values before and after plasma cleaning; International Journal of Prosthodontics, Accepted and Overview Published online, on 2012, September, 12th
- Peñarrocha Diago M., Pellicer Chover H., Peñarrocha Oltra D.; Rehabilitación con prótesis fija de arco completo maxilary mandibular sobre implantes postextracción. A propósito de un caso; Numeri Uno 11, 2012, 15-17
- Galli C., Piemontese M., Meikle S. T., Santin M., Macaluso G. M., Passeri G.; Biomimetic coating with phosphoserine-tethered poly(epsilon-lysine) dendrons on titanium surfaces enhances Wnt and osteoblastic differentiation; Clinical Oral Implant Research, Early View, First Published online on 2012, December 5th; DOI: 10.1111/j.1600-0501.2011.02227.x
- Bengazi F., Lang N. P., Canciani E., Viganò P., Urbizo Velez J., Botticelli D.; Osseointegration of implants with dendrimers surface characteristics installed conventionally or with Piezosurgery®. A comparative study in the dog; Clinical Oral Implant Research, Early View, First Published online on 2012, December 12th; DOI: 10.1111/clr.12082
- Schweikert M., Baffone G., Botticelli D., Favero G., Lavia P. P., Lang N. P.; Influence of buccal bony crest width on marginal dimensions of peri-implant tissues after implant installation in dogs; Clinical Oral Implant Research, 2012; 23 Suppl 7: 77-78; DOI: 10.1111/clr.12019, 2012, 23(s7_171)
- Baffone G. M., Botticelli D., Pereira F. P., Favero G., Schweikert M., Lang N. P.; Influence of buccal bony crest width on marginal dimensions of peri-implant hard and soft tissues after implant installation. An experimental study in dogs; Clinical Oral Implants Research, 2013; 24: 250-254; DOI: 10.1111/j.1600-0501.2012.02512.x
- Crespi R., Capparé P., Gherlone E.; A comparison of manual and electrical mallet in maxillary bone condensing for immediately loaded implants: a randomized study; Clinical Implant Dentistry and Related Research, Early View, First Published online on 2012, August, 15th, DOI: 10.1111/j.1708-8208.2012.00485.x
- Calvo-Guirado J. L., Boquete-Castro A., Negri B., Delgado Ruiz R., Gomez-Moreno G., Iezzi G.; Crestal bone reactions to immediate implants placed at different levels in relation to crestal bone. A pilot study in foxhound dogs; Clinical Oral Implant Research, Early View, First Published online on 2013, January 25th; DOI: 10.1111/clr.12110
- Scala A., Lang N. P., Schweikert M. T., de Oliveira J. A., Rangel- Garcia I. Jr, Botticelli D.; Sequential healing of open extraction sockets. An experimental study in monkeys; Clinical Oral Implant Research, Early View, First Published online on 2013, April 1st;; DOI: 10.1111/clr.12148
- Rossi F., Lang N. P., Favero G., Pantani F., Tschon M., Botticelli D.; Bone healing pattern at the surface of titanium implants: an experimental study in the dog; Clinical Oral Implant Research, 2012; 23 Suppl 7: 76-77; DOI: 10.1111/clr.12019, 2012, 23(s7_171)
- Sivolella S., Bressan E., Salata L. A., Urrutia Z. A., Lang N. P., Botticelli D.; Osteogenesis at implants without primary bone contact - An experimental study in dogs; Clinical Oral Implant Research, 2012; 23: 542-549, DOI: 10.1111/j.1600-0501.2012.02423.x
- Sivolella S., Bressan E., Salata L. A., Quiñones M. E., Urrutia Z. A., Lang N. P., Botticelli D.; Deproteinized bovine bone mineral particles and osseointegration of implants without primary bone contact: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2013, April 8th; DOI: 10.1111/clr.12154
- Caneva M., Botticelli D., Viganò P., Morelli F., Rea M., Lang N. P.; Connective tissue grafts in conjunction with implants installed immediately into extraction sockets. An experimental study in dogs; Clinical Oral Implant Research, 2013; 24: 50-56; DOI: 10.1111/j.1600-0501.2012.02450.x
- De Santis E., Lang N. P., Cesaretti G., Mainetti T., Beolchini M., Botticelli D.; Healing outcomes at implants installed in sites augmented with particulate autologous bone and xenografts. An experimental study in dogs; Clinical Oral Implants Research, 2013; 24: 77-86; DOI: 10.1111/j.1600-0501.2012.02456.x
- Negri M., Lumetti S., Manfredi E., Galli C., Chiacci G., Macaluso G. M.; Marginal bone remodelling of Sweden&Martina Premium implants: 2-years clinical results; Clinical Oral Implant Research, 2012; 23 Suppl 7: 98; DOI: 10.1111/clr.12019, 2012, 23(s7_218)
- Cosyn J., Hooghe N., De Bruyn H.; A systematic review on the frequency of advanced recession following single Immediate Implant treatment; Journal of Clinical Periodontology, 2012 Jun; 39: 582-589; DOI: 10.1111/j.1600-051X.2012.01888.x
- Covani U., Chiappe G., Bosco M., Orlando B., Quaranta A., Barone A.; A 10-year evaluation of implants placed in fresh extraction sockets: a prospective cohort study; Journal of Periodontology, 2012; 83: 1226-1234; DOI: 10.1902/jop.2012.110583
- Covani U., Ricci M., D'Ambrosio N., Quaranta A., Barone A.; Changes in soft tissues around immediate full-arch rehabilitations: a prospective study; Clinical Oral Implant Research, Early View, First Published online on 2012, January, 6th; DOI: 10.1111/j.1600-0501.2011.02394.x
- Crespi R., Capparè P., Gherlone E., Romanos G.; Immediate provisionalization of dental implants placed in fresh extraction sockets using a flapless technique; The International Journal of Periodontics & Restorative Dentistry, 2012; 32: 29-37
- Morelli F.; Rigenerazione ossea orizzontale e verticale peri-implantare con mesh in Titanio ed osso autologo; Numeri Uno 11; 2011, 7-9
- Crespi R., Capparè P., Gherlone E.; Electrical mallet provides essential advantages in maxillary bone condensing. A prospective clinical study; Clinical Implant Dentistry and Related Research, Early View, First Published online on 2012, January, 11th, DOI: 10.1111/j.1708-8208.2011.00432.x

BIBLIOGRAPHY SINCE 2009 CONCERNING SWEDEN & MARTINA IMPLANTS

- Galli C., Macaluso G.M., Elezi E., Ravanetti F., Cacchioli A., Gualini G., Passeri G.; The Effects of Er:YAG Laser Treatment on Titanium Surface Profile and Osteoblastic Cell Activity: An In Vitro Study; Journal of Periodontology, 82 (8): 1169-1177, 2011; DOI: 10.1902/jop.2010.100428
- Ramaglia L., Postiglione L., Di Spigna G., Capece G., Salzano S., Rossi G.; Sandblasted-acid-etched titanium surface influences in vitro the biological behavior of SaOS-2 human osteoblast-like cells; Dental Material Journal, 30: 183-192, 2011; DOI:10.4012/dmj.2010-107
- Scala A., Botticelli D., Faeda R.S., Rangel I.G. Jr., de Oliveira J.A., Lang N.P.; Lack of influence of the Schneiderian membrane in forming new bone apical to implants simultaneously installed with sinus floor elevation: an experimental study in monkeys; Clinical Oral Implant Research, Early View, First Published online on 2011, June 13th; DOI: 10.1111/j.1600-0501.2011.02227.x
- Rossi F., Botticelli D., Pantani F., Pereira F.P., Salata L.A., Lang N.P.; Bone healing pattern in surgically created circumferential defects around submerged implants: an experimental study in dog; Clinical Oral Implant Research, Early View, First Published online on 2011, March 28th; DOI: 10.1111/j.1600-0501.2011.02170.x
- Caneva M., Botticelli D., Pantani F., Baffone G.M., Rangel I.G. Jr., Lang N.P.; Deproteinized bovine bone mineral in marginal defects at implants installed immediately into extraction sockets: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, May 5th; DOI: 10.1111/j.1600-0501.2011.02202.x
- De Santis E., Botticelli D., Pantani F., Pereira F.P., Beolchini M., Lang N.P.; Bone regeneration at implants placed into extraction sockets of maxillary incisors in dogs; Clinical Oral Implant Research 22, 2011; 430-437; DOI: 10.1111/j.1600-0501.2010.02122.x
- De Santis E., Lang N.P., Scala A., Viganò P., Salata L.A., Botticelli D.; Healing outcomes at implants installed in grafted sites: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, October 3rd; DOI: 10.1111/j.1600-0501.2011.02326.x
- Caneva M., Botticelli D., Morelli F., Cesaretti G., Beolchini M., Lang N.P.; Alveolar process preservation at implants installed immediately into extraction sockets using deproteinized bovine bone mineral - an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, October 21st; DOI: 10.1111/j.1600-0501.2011.02332.x
- Caneva M., Botticelli D., Rossi F., Carvalho Cardoso L., Pantani F., Lang N.P.; Influence of implants with different sizes and configurations installed immediately into extraction sockets on peri-implant hard and soft tissues: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, September 29th; DOI: 10.1111/j.1600-0501.2011.02310.x
- Vignoletti F., De Sanctis M., Sanz M.; Impianti immediati post-estrattivi: fattori critici per la guarigione dei tessuti; Il Dentista Moderno, 9:94-114, 2011
- Farronato D., Santoro G., Canullo L., Botticelli D., Maiorana C., Lang N.P.; Establishment of the epithelial attachment and connective tissue adaptation to implants installed under the concept of "platform switching": a histologic study in minipigs; Clinical Oral Implant Research, Early View, First Published online on 2011, April 15th; DOI: 10.1111/j.1600-0501.2011.02196.x
- Baffone G.M., Botticelli D., Pantani F., Cardoso L.C., Schweikert M.T., Lang N.P.; Influence of various implant platform configurations on peri-implant tissue dimensions: an experimental study in dog; Clinical Oral Implant Research 22, 2011; 438-444; DOI: 10.1111/j.1600-0501.2010.02146.x
- Canullo L., Pellegrini G., Allievi C., Trombelli L., Annibali S., Dellavia C.; Soft tissues around long-term platform switching implant restorations: a histological human evaluation. Preliminary results; Journal of Clinical Periodontology, 2011; 38: 86-94; DOI: 10.1111/j.1600-051X.2010.01641.x
- Canullo L., Iannello G., Netuschil L., Jepsen S.; Platform switching and matrix metalloproteinase-8 levels in peri-implant sulcular fluid; Clinical Oral Implant Research, Early View, First Published online on 2011, March 28th; DOI: 10.1111/j.1600-0501.2011.02175.x
- Della Via C., Canullo L., Allievi C., Lang N.P., Pellegrini C.; Soft tissue surrounding switched platform implants: an immunohistochemical evaluation; Clinical Oral Implant Research, Early View, First Published online on 2011, September 29th; DOI: 10.1111/j.1600-0501.2011.02301.x
- Baffone G.M., Botticelli D., Canullo L., Scala A., Beolchini M., Lang N.P.; Effect of mismatching abutments on implants with wider platforms - an experimental study in dogs; Clinical Oral Implant Research, Early View First Published online on 2011, November 2nd; DOI: 10.1111/j.1600-0501.2011.02320.x
- Canullo L., Pace F., Coelho P., Sciubba E., Vozza I.; The Influence of Platform Switching on the Biomechanical Aspects of the Implant-Abutment System. A Three Dimensional Finite Element Study; Med Oral Patol Oral Cir Bucal. 2011 Sep 1;16 (6):e852-6; DOI:10.4317/medoral.17243
- Canullo L., Iannello G., Götz W.; The influence of individual bone patterns on peri-implant bone loss: preliminary report from a 3-year randomized clinical and histologic trial in patients treated with implants restored with matching-diameter abutments or the platform-switching concept; International Journal of Oral and Maxillofacial Implants, 2011 May-Jun;26(3):618-30
- Serrano-Sánchez P., Calvo-Guirado J.L., Manzanera-Pastor E., Lorrio-Castro C., Bretones-López P., Pérez-Llanes J.A.; The influence of platform switching in dental implants. A literature review; Medicina Oral Patología Oral Cirugía Bucal. 2011 May 1;16 (3):e400-5; DOI: 10.4317/medoral.16.e400
- Bruschi G.B., Crespi R., Capparè P., Bravi F., Bruschi E., Gherlone E.; Localized Management of Sinus Floor Technique for Implant Placement in Fresh Molar Sockets; Clinical Implant Dentistry and Related Research, 2011 May 20. [Epub ahead of print]; DOI: 10.1111/j.1708-8208.2011.00348.x
- Sisti A., Canullo L., Mottola M.P., Iannello G.; A case series on crestal sinus elevation with rotary instruments; European Journal of Oral Implantology. 2011 Summer;4(2):145-52
- Garcia-Fajardo Palacios C.; Sinus Lift. Ottimizzazione dei risultati; NumeriUno 10(06), 2011, 04-07
- Canullo L.; RIGENERAZIONE DI UN SITO POST-ESTRATTIVO con grave deficit osseo vestibolare con idrossiapatite arrichita di magnesio. CASE REPORT CON FOLLOW UP DEL RESTAURO IMPLANTO-PROTESICO A 2 ANNI; Odontoiatria - Rivista degli Amici di Brugg, 2: 166-167, 2011
- Becattelli A., Biscaro L., Ferlin P., Soattin M.; Riabilitazione implanto-protesica di entrambe le arcate mediante Toronto Bridge su impianti tiltati a carico immediato; NumeriUno 10(06) 2011, 10-12
- Marano G., Tomarelli F.; Carico implantare immediato e condizionamento dei tessuti molli con provvisorio in ceramica; NumeriUno 10 (06) 2011, 18-21
- Avvanzo P., Fabrocini L., Avvanzo A., Ciavarella D., Lo Muzio L., De Maio R.; Use of intra-oral welding to stabilize dental implants in augmented sites for immediate provisionalization: a case report; Journal of Oral Implantology, 2010 Oct 8. [Epub ahead of print]; DOI: 10.1563/AAID-JOI-D-10-00047
- Dominci A.D.; Solidarizzazione elettronica su impianti a carico immediato: un caso clinico in chirurgia flapless; Dental Cadmos, 79(8):545-550, 2011; DOI: 1 0.10161j.cadmos.2011.03.002
- De Paolis G., Quaranta A., Zappia S., Vozza I., Quaranta M.; Valutazione clinica e microbiologica di impianti a connessione conometrica rispetto a impianti a connessione esagonale: caso clinico; Dental Cadmos, 79(7):443-454, 2011; DOI: 10.1016/j.cadmos.2010.1 2.010
- Canullo L., Bignozzi I., Cocchetto R., Cristalli M.P., Iannello G.; Immediate positioning of a definitive abutment versus repeated abutment replacements in post-extractive implants: 3-year follow-up of a randomised multicentre clinical trial; European Journal of Oral Implantology, 2010 Winter;3(4):285-96
- Csonka M.; Carico Immediato di una Cresta Mandibolare Edentula con Tecnica SIMPLE; Italian Dental Journal, 2011
- Canullo L., Baffone G.M., Botticelli D., Pantani F., Beolchini M., Lang N.P; Effect of wider implant/abutment mismatching: an histological study in dogs; Clinical Oral Implant Research, 22(9), 2011:910; DOI: 10.1111/j.1600-0501.2011.02271.x
- Rossi F., Botticelli D., Salata L.; Bone healing in animal surgically created circumferential defects around submerged implants; Clinical Oral Implant Research, 22(9), 2011: 937; DOI: 10.1111/j.1600-0501.2011.02271.x
- Ricci M., Funel N., Orazio V., Bobbio A., Barone A., Covani U.; Analysis of osteoblastic gene dynamics in the early human mesenchymal cell response to an implant support: an in vitro study; Clinical Oral Implant Research, 22(9), 2011: 1071; DOI: 10.1111/j.1600-0501.2011.02271.x
- Canullo L., Gotz W.; Cell growth on titanium disks treated by plasma of Argon: experimental study; Clinical Oral Implant Research, 22(9), 2011: 1082-3; DOI: 10.1111/j.1600-0501.2011.02271.x
- Bruschi G. B., Crespi R.; TECNICHE DI ESPANSIONE OSSEA IN CHIRURGIA IMPLANTARE; Quintessenza Edizioni S.r.l., 2011, Milano (Anteprima)
- Avellino W., Milan U., Delle Rose D.; SOLUZIONI CLINICHE E TECNICHE PER LA REALIZZAZIONE DI UN PROVVISORIO FULL-ARCH SU IMPIANTI CON FUNZIONE IMMEDIATA; NumeriUno, 7: 11-13, 2010
- Branchi R., Vangi D., Virga A., Guertin G., Fazi G.; RESISTANCE TO WEAR OF FOUR MATRICES WITH BALL ATTACHMENTS FOR IMPLANT OVERDENTURES: A FATIGUE STUDY; Journal of Prosthodontics, 19(8):614-619, 2010
- Bruschi G.B., Crespi R., Capparè P., Gherlone E.; TRANSCRESTAL SINUS FLOOR ELEVATION: A RETROSPECTIVE STUDY OF 46 PATIENTS UP TO 16 YEARS; Clinical Implant Dentistry and Related Research, 2010 Oct 26
- Caneva M., Salata L.A., Scombatti de Souza S., Baffone G., Lang N.P., Botticelli D.; INFLUENCE OF IMPLANT POSITIONING IN EXTRACTION SOCKETS ON OSSEOINTEGRATION: HISTOMORPHOMETRIC ANALYSES IN DOGS; Clinical Oral Implant Research 21; 43-49, 2010
- Caneva M., Salata L.A., Scombatti de Souza S., Bressan E., Botticelli D., Lang N.P.; HARD TISSUE FORMATION ADJACENT TO IMPLANTS OF VARIOUS SIZE AND CONFIGURATION IMMEDIATELY PLACED INTO EXTRACTION SOCKETS: AN EXPERIMENTAL STUDY IN DOGS; Clinical Oral Implant Research, 21(9):885-90, 2010
- Caneva M., Botticelli D., Stellini E., Souza S.L., Salata L.A., Lang N.P.; MAGNESIUM-ENRICHED HYDROXYAPATITE AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, Early View, first published online 2010 Dec 9
- Caneva M., Botticelli D., Salata L.A., Scombatti de Souza S., Carvalho Cardoso L., Lang N.P.; COLLAGEN MEMBRANES AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, 21(9):891-7, 2010
- Caneva M., Botticelli D., Salata L.A., Scombatti de Souza S.L., Bressan E., Lang N.P.; FLAP VS. "FLAPLESS" SURGICAL APPROACH AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, 21 (12):1314-1319, 2010
- Canullo L., Quaranta A., Teles R.P.; THE MICROBIOTA ASSOCIATED WITH IMPLANTS RESTORED WITH PLATFORM SWITCHING: A PRELIMINARY REPORT; Journal of Periodontology, 81:403-411, 2010
- Canullo L., Rossi Fedele G., Iannello G., Jepsen S.; PLATFORM SWITCHING AND MARGINAL BONE-LEVEL ALTERATIONS: THE RESULTS OF A RANDOMIZEDCONTROLLED TRIAL; Clinical Oral Implant Research, 21:115-121, 2010
- Canullo L., Bignozzi I., Cocchetto R.; "ONE ABUTMENT-ONE TIME": OPTIMIZING PLATFORM-SWITCHING CONCEPT. THREE-YEAR CONTROLLED PROSPECTIVE STUDY; Clinical Oral Implant Research, 21 (10): 1085, 2010
- Canullo L.; CASO CLINICO: AGENESIA DELL'INCISIVO LATERALE SUPERIORE DESTRO; Italian Dental Journal, 4: 16, 2010
- Canullo. L., Cocchetto R., Loi I.; PERI-IMPLANT TISSUES REMODELING: SCIENTIFIC BACKGROUND & CLINICAL IMPLICATIONS; Quintessenza Edizioni S.r.l., 2010, Milano (Anteprima)

BIBLIOGRAPHY SINCE 2009 CONCERNING SWEDEN & MARTINA IMPLANTS

- Canullo L., Sisti A.; EARLY IMPLANT LOADING AFTER VERTICAL RIDGE AUGMENTATION (VRA) USING E-PTFE TITANIUMREINFORCED MEMBRANE AND NANOSTRUCTURED HYDROXYAPATITE: 2-YEAR PROSPECTIVE STUDY; European Journal Oral Implantology, 3(1):59-69, 2010
- Canullo L., Patacchia O., Sisti A., Heinemann F.; IMPLANT RESTORATION 3 MONTHS AFTER ONE STAGE SINUS LIFT SURGERY IN SEVERELY RESORBED MAXILLAE: 2-YEAR RESULTS ON A MULTICENTER PROSPECTIVE CLINICAL STUDY; Clinical Implant Dentistry and Related Research, Early view - Published online in ahead of printing, 21-10-2010
- Cicciù M., Risitano G., Maiorana C., Herford A., Oteri G., Cicciù D.; "TORONTO" SCREWED MANDIBULAR OVERDENTURE ON DENTAL IMPLANTS: FEM AND VON MISES ANALYSIS OF STRESS DISTRIBUTION; The Journal of Implants and Advanced Dentistry, 2(9): 41-58, 2010
- Covani U., Marconcini S., Santini S., Cornelini R., Barone A.; IMMEDIATE RESTORATION OF SINGLE IMPLANTS PLACED IMMEDIATELY AFTER IMPLANT REMOVAL. A CASE REPORT; International Journal of Periodontics & Restorative Dentistry, 30:639-645, 2010
- Crespi R., Capparè P., Gherlone E.; OSTEOTOME SINUS FLOOR ELEVATION AND SIMULTANEOUS IMPLANT PLACEMENT IN GRAFTED BIOMATERIAL SOCKETS: 3 YEARS OF FOLLOW-UP; Journal of Periodontology, 81:344-349, 2010
- Crespi R., Capparè P., Gherlone E.; A 4-YEAR EVALUATION OF THE PERI-IMPLANT PARAMETERS OF IMMEDIATE LOADED IMPLANTS PLACED IN FRESH EXTRACTION SOCKETS; Journal of Periodontology, 81 (11):1629-1634, 2010

- Crespi R., Capparè P., Gherlone E.; IMMEDIATE LOADING OF DENTAL IMPLANTS PLACED IN PERIODONTALLY INFECTED AND NON INFECTED SITES IN HUMANS: A FOUR YEARS FOLLOW-UP CLINICAL STUDY; Journal of Periodontology, 81 (8):1140-1146, 2010
- Crespi R., Capparè P. and Gherlone E.; FRESH-SOCKET IMPLANTS IN PERIAPICAL INFECTED SITES IN HUMANS; Journal of Periodontology, 81:378-383, 2010
- Galli C., Passeri G., Piemontese M., Lumetti S., Manfredi E., Carra M.C., Macaluso G.M.; PHOSPHOSERINE-POLY (LYSINE) COATINGS PROMOTE OSTEOBLASTIC DIFFERENTIATION AND WNT SIGNALING ON TITANIUM SUBSTRATES; Clinical Oral Implant Research, 21(10): 1172, 2010
- Mantoan G.; LE CORONE PROVVISORIE IMMEDIATE SU IMPIANTI GLOBAL (METODICA CLINICA); NumeriUno, 7: 17-18, 2010
- Momen A. A., Hadeel M. I., Ahmad H. A.; PLATFORM SWITCHING FOR MARGINAL BONE PRESERVATION AROUND DENTAL IMPLANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS; Journal of Periodontology, 81 (10):1350-1366, 2010
- Pantani F., Botticelli D., Rangel Garcia I. Jr., Salata L.A., Jayme Borges G., Lang N. P.; INFLUENCE OF LATERAL PRESSURE TO THE IMPLANT BED ON OSSEOINTEGRATION: AN EXPERIMENTAL STUDY IN DOGS; Clinical Oral Implant Research, 21(11): 1264-70, 2010
- Passeri G., Cacchioli A., Ravanetti F., Galli C., Elezi E., Macaluso G.M.; ADHESION PATTERN AND GROWTH OF PRIMARY HUMAN OSTEOBLASTIC CELLS ON FIVE COMMERCIALLY AVAILABLE TITANIUM SURFACES; Clinical Oral Implant Research 21: 756-765, 2010
- Raddi F.; ANALISI COMPARATIVA TEST DI RESISTENZA A FATICA SPERIMENTALI E VIRTUALI; Relazione interna, Sweden & Martina, 2010
- Scala A., Botticelli D., Oliveira J.A., Okamoto R., Garcia Rangel I. Jr., Lang N.P.; EARLY HEALING AFTER ELEVATION OF THE MAXILLARY SINUS FLOOR APPLYING A LATERAL ACCESS - A HISTOLOGICAL STUDY IN MONKEYS; Clinical Oral Implant Research, 21 (12): 1320-6, 2010
- Silvasan M.H.; TIMING OF DENTAL IMPLANT LOADING - A LITERATURE REVIEW; Implants - Oemus, 11 (3): 06-16, 2010
- Sbordone L, Levin L, Guidetti F, Sbordone C, Glikman A, Schwartz-Arad D.; APICAL AND MARGINAL BONE ALTERATIONS AROUND IMPLANTS IN MAXILLARY SINUS AUGMENTATION GRAFTED WITH AUTOGENOUS BONE OR BOVINE BONE MATERIAL AND SIMULTANEOUS OR DELAYED DENTAL IMPLANT POSITIONING; Clinical Oral Implants Research. , 2010 Nov 19. [Epub ahead of print]
- Ballini D., Attini M., Giunta S., Mezzanotte E.; MINI IMPIANTI: UN CASE REPORT; NumeriUno, 5: 18-20, 2009
- Biscaro L., Becattelli A., Soattin M.; RIABILITAZIONE IMPLANTO-PROTESICA DELLE DUE ARCATE CON CARICO IMMEDIATO: PROTOCOLLO DI LAVORO CON L'UTILIZZO DELLA TECNICA DEL MODELLO UNICO E DELLA SISTEMATICA PAD; NumeriUno, 8, 04-05, 2009
- Briguglio F., Briguglio E., Sidoti Pinto G.A., Lapi M., Zappia D., Briguglio R.; VALUTAZIONE CLINICA COMPARATIVA SULL'UTILIZZO DI UN COPOLIMERO DELL'ACIDO POLIGLICOLICO E POLILATTICO NEL SINUS LIFT; Implantologia.1:9-14, 2009
- Bruschi G. B., Bravi F., Di Felice A.; RIABILITAZIONE PROTESICA SU DENTI E IMPIANTI MEDIANTE TECNICHE CHIRURGICHE DI ESPANSIONE CRESTALE E SOLLEVAMENTO DEL SENO E CHIRURGIA PROTESICAMENTE GUIDATA; NumeriUno, 5: 8-14, 2009
- Calesini G., Micarelli C., Coppe S., Scipioni A.; EDENTOLOUS SITE ENHANCEMENT: A REGENERATIVE APPROACH TO THE MANAGEMENT OF EDENTULOUS AREAS. PART 2- PERI-IMPLANT TISSUES; International Journal of Periodontics & Restorative Dentistry, 29(1):49-57, 2009
- Canullo L., Iurlaro G., Iannello G.; DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL STUDY ON POSTEXTRACTION IMMEDIATELY RESTORED IMPLANTS USING THE SWITCHING PLATFORM CONCEPT: SOFT TISSUE RESPONSE. PRELIMINARY REPORT; Clinical Oral Implant Research, 20 (4):414-420, 2009
- Canullo L., Goglia G., Iurlaro G., and Iannello G.; SHORT-TERM BONE LEVEL OBSERVATIONS ASSOCIATED WITH PLATFORM SWITCHING IN IMMEDIATELY PLACED AND RESTORED SINGLE MAXILLARY IMPLANTS: A PRELIMINARY REPORT; International Journal of Prosthodontics, 22 (3):277-282, 2009
- Canullo L., Iannello G., Jepsen S.; MATRIX-METALLOPROTEINASES AND BONE LOSS AT IMPLANTS RESTORED ACCORDING TO THE PLATFORM SWITCHING CONCEPT: A RANDOMIZED CONTROLLED TRIAL ON THE INFLUENCE OF DIFFERENT MISMATCHING; Clinical Oral Implant Research, 20(9):873-874, 2009
- Canullo L., Vozza I., Caricato F., Dellavia C.; MAXILLARY SINUS FLOOR AUGMENTATION USING A NANO-CRYSTALLINE HYDROXYAPATITE SILICA GEL. A PROSPECTIVE STUDY - HYSTOLOGICAL RESULTS AFTER 3 MONTHS OF HEALING; Implants 2, 24-27, 2009
- Cardelli P., Montani M., Gallio M., Biancolini M., Brutti C., Barlattani A.; ABUTMENTS ANGOLATI E TENSIONI PERIMPLANTARI: ANALISI F.E.M.; Oral Implantology, 1:7-14, 2009
- Carinci F., Guidi R., Franco M., Viscioni A., Rigo L., De Santis B., Tropina E.; IMPLANTS INSERTED IN FRESH-FROZEN BONE: A RETROSPECTIVE ANALYSIS OF 88 IMPLANTS LOADED 4 MONTHS AFTER INSERTION; Quintessence International, 40(5): 413-419, 2009
- Carusi G., Sisti A., Mottola M.P., Matera G., Veruggio P., Gelmi L., Bailo A.; TECNICA DI RIALZO DI SENO MINIMAMENTE INVASIVA NEL TRATTAMENTO IMPLANTARE DEL MASCELLARE EDENTULO; Dental Cadmos, 77(10): 31-40, 2009
- Ceccherini A., De Angelis L., Silvestrelli S.; CHIRURGIA SOFTWARE ASSISTITA CON LA TECNICA MODEL GUIDE: PROGETTO 3D - POSA DELL'IMPIANTO GUIDATA; TeamWork, 11(6), 63:75, 2009
- Cicciù M., Risitano G., Maiorana C., Franceschini G.; PARAMETRIC ANALYSIS OF THE STRENGTH IN THE "TORONTO" OSSEOUS-PROSTHESIS SYSTEM; Minerva Stomatologica, 58(1-2):9-23, 2009
- Covani U.; I VANTAGGI DELL'IMPIANTO PREMIUM/KOHNO NELLA CHIRURGIA SOSTITUIVA DELL'ARCATA DENTARIA; Atti del Congresso, X Congresso Nazionale di Implantoprotesi Integrata Premium Day 2009, 18-20 giugno 2009, Abano Terme, pp. 14-15
- Crespi R., Capparè P., Gherlone E.; RADIOGRAPHIC EVALUATION OF MARGINAL BONE LEVELS AROUND PLATFORM-SWITCHED AND NON -PLATFORM-SWITCHED IMPLANTS USED IN AN IMMEDIATE LOADING PROTOCOL; The International Journal of Oral and Maxillofacial Implants, 24:920-926, 2009
- Crespi R., Capparè P., Gherlone E.; DENTAL IMPLANTS PLACED IN EXTRACTION SITES GRAFTED WITH DIFFERENT BONE SUBSTITUTES: RADIOGRAPHIC EVALUATION AT 24 MONTHS; Journal of Periodontology, 80 (10):1616-1621, 2009
- Figliuzzi M.; LA TECNICA FLAPLESS: INDICAZIONI E LIMITI; NumeriUno, 3 (12-3); 2009, 04-07
- Lenzi C.; LA RIGENERAZIONE DEI DIFETTI OSSEI NEI SITI POSTESTRATTIVI MEDIANTE OSSO BOVINO DEPROTEINIZZATO. VALUTAZIONE DELLE DIFFERENTI TECNICHE CHIRURGICHE; Implantologia, 1: 51-59, 2009
- Maiorana C., Cicciú M., Andreoni D., Beretta M.; CARICO IMMEDIATO DI DENTE SINGOLO: CASO CLINICO E REVISIONE DELLA LETTERATURA; Journal of Osseointegration, 2(1): 1-10, 2009
- Maiorana C., Cicciú M., Beretta M., Andreoni D.; RISULTATI DEL TRATTAMENTO CON CARICO FUNZIONALE PRECOCE SU PROTESI TORONTO DOPO IL POSIZIONAMENTO DI IMPIANTI IN SITI POSTESTRATTIVI; Journal of Osseointegration, 2(1): 95-100, 2009
- Mazzella M., Prota V., Mazzella A.; IL PONTIC A CONFORMAZIONE OVOIDALE IN PROTESI IMPIANTARE; NumeriUno, 6: 6-7, 2009
- Monguzzi R., Pozzi E., Franceschini F. G.; PROTESI IN ZIRCONIO SU IMPIANTI ED ELEMENTI NATURALI; NumeriUno, 6, 04-05, 2009
- Paniz G.; L'UTILIZZO DELLA TECNOLOGIA CAD-CAM ECHO PER IL TRATTAMENTO PROTESICO DI TIPO CEMENTATO DELLE EDENTULIE SINGOLE IN ZONA ESTETICA; NumeriUno, 4 (4-6):04-05, 2009
- Quaranta A., Maida C., Scrascia A., Campus G., Quaranta A.; ER:YAG LASER APPLICATION ON TITANIUM IMPLANT SURFACES CONTAMINATED BY PORPHYROMONAS GINGIVALIS: AN HISTOMORPHOMETRIC EVALUATION; Minerva Stomatologica, 58:317-30, 2009
- Ricci M., Tonelli P., Barone A., Covani U.; RUOLO DEL PLATFORM SWITCHING NEL MANTENIMENTO DELL'OSSO PERIMPLANTARE; Dental Cadmos, 77(9): 31-39, 2009
- Severi G.; CARICO PRECOCE DI IMPIANTI DENTALI CHE SOSTENGONO UNA PROTESI FISSA NELLA MANDIBOLA POSTERIORE EDENTULA; NumeriUno, 4: 6-8, 2009

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