Surgical manual

PRAMA

sweden & martina
IMPLANTOLOGY

Prama

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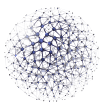

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Clinical indications for resorting to implantoprosthetic therapies

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, anticonvulsant 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 periimplant 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.

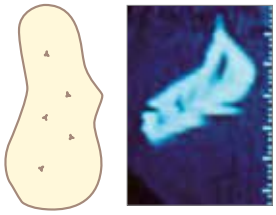
Side and secondary effects

Situations that may occur after surgical procedures include temporary local swelling, oedema, haematoma, temporary sensitivity alterations, temporary masticatory limitations, post-surgical micro-hemorrhages 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.

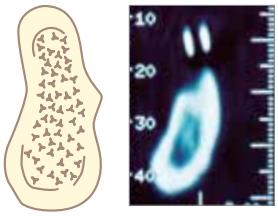
Before proceeding, it is important to perform a careful pre-operative analysis of the patient's medical history to verify his or her suitability for the implant treatment. It is also recommended to collect and file all the clinical, radiological and radiographic records. After making models of the two 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.

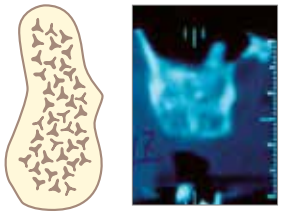
In addition to an oral examination, both clinical and with x-rays, it is recommended to take a T.C. scan of the interested area; once the x-rays and scans have been obtained, the specialist can identify the most suitable implant with the help of convenient transparent radiographic guides.
The pre-operative 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 Carl Misch) is the following:



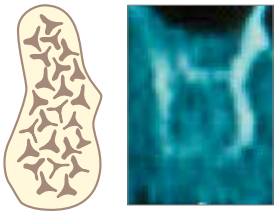
BONE D1: all cortical bone.



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.

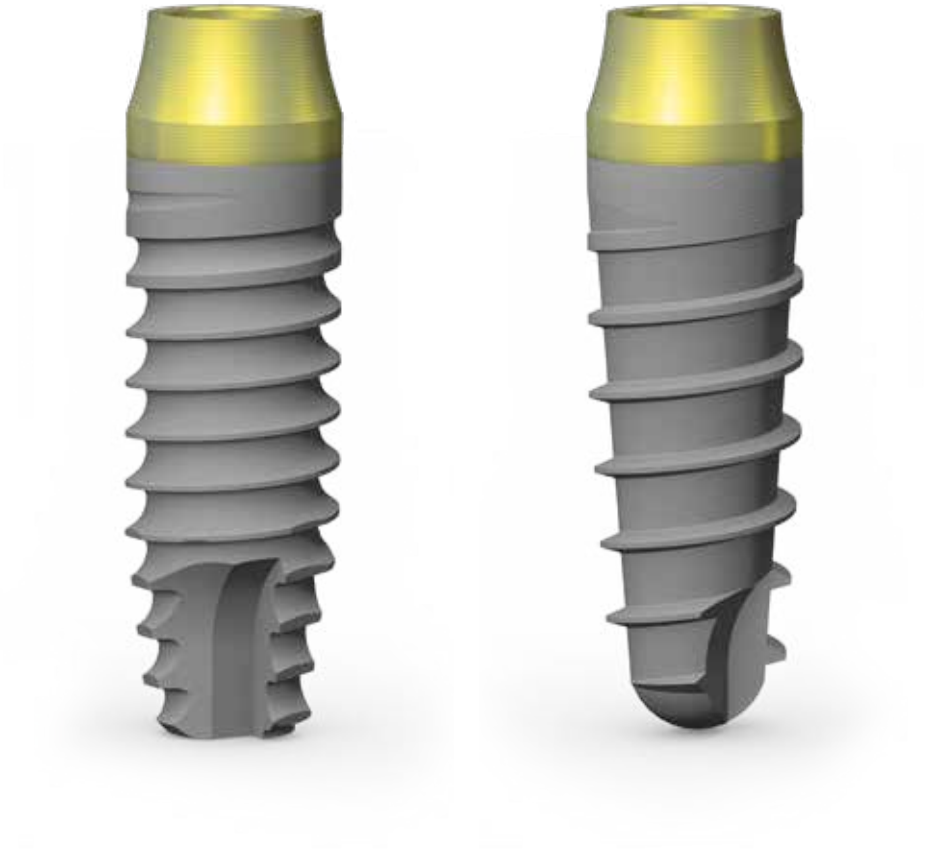
Dentalscan images by kind permission of Dr. Marco Csonka - Catania - Italy

General indications

Prama implant fixtures mesh 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. In implant-prosthetic rehabilitation with Prama 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. The implants have a cylindrical shape (Prama) and conical shape (Prama RF), they are screw shaped with an external thread and have a hexagonal internal connection for connecting the prosthetic components. Prama 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 weeks between extraction and insertion of the implant fixture).

All the fixtures are sold with the respective closing cover screws (also called, surgical cover 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.



Method of use

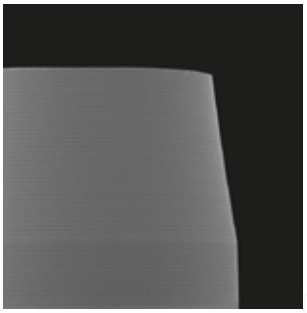
The method to be used is the one stage, surgical technique: insertion of the implant, closure of the connection with a healing abutments, surgical cover screw. Alternatively, in the presence of suitable therapeutic indications, it can be loaded immediately with an appropriate temporary or permanent dental 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, 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 drills 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).

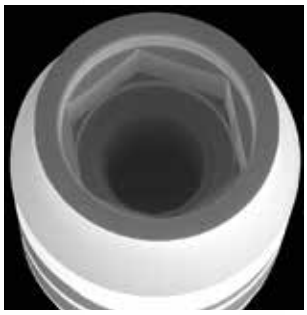
Prama implants have been tested in a wide range of clinical situations:
- standard operating procedures involving the double or single surgical phase;
- immediate and early loading;
- post-extraction situations, even combined with immediate loading.

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.
In the case of temporary single crowns with immediate loading, it is recommended to avoid a direct occlusion with the antagonist; in the case of multiple solutions the temporary prosthesis has to be splinted in a single structure.
The clinical indication for choosing the Prama 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 Prama implants. The implants passed the test. Fatigue tests are conducted according to the standards and evaluated further with finite element calculations.

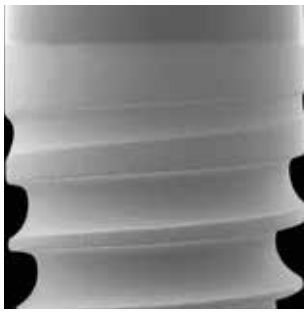
Prama implants



The convergent neck of the Prama implants is characterized by a first cylindrical section 0.80 mm high, followed by a section with hyperbolic geometry. The connection diameter is of 3.40 mm in all the available implant diameters.



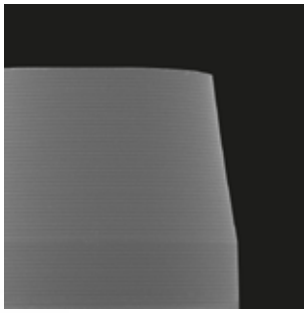
The Prama implant is characterized by the Collex connection, with internal hexagon and collar for the prosthetic support which gives resilience and stability to the prosthesis and acts as a guide and connection for the Easy Insert drivers.



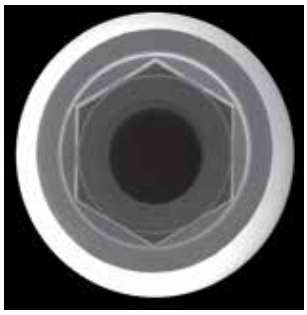
The spire of the Prama implant has an asymmetric profile and its thread has a pitch of 1.00 mm and a depth of 0.40 mm.

The apex of Prama implants has three incisions that increase its penetration capacity and guarantee a good self- threading capacity, improve the primary stability and offers three zones to decompress the clot.

Prama RF implants



The neck of the Prama RF implants has the same characteristics of the Prama one: the convergent section has with hyperbolic geometry and is followed by a cylindrical section 0.80 mm high.



The Prama RF implants, as well as the Prama ones, are characterized by the Collex connection, with internal hexagon and a collar for the prosthetic support.

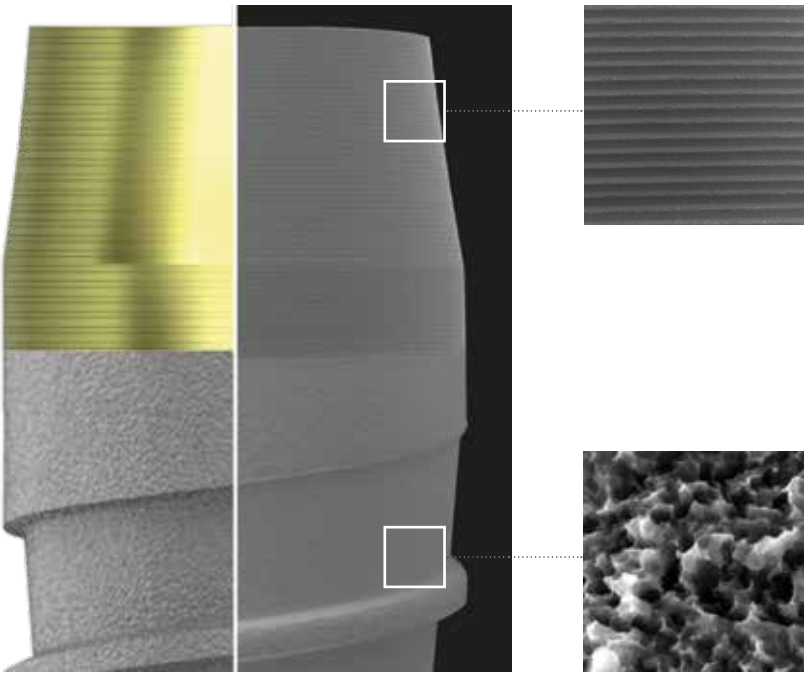
The thread of the Prama RF implants is characterized by a triangular profile, a pitch of 1.50 mm and a depth of 0.40 mm.

The apex of Prama RF implants has two incisions that increase its penetration capacity and non-rotational property.
The hemispherical apex makes Prama RF implants ideal in sinus lift procedures.

Surface

Prama and Prama RF implants have a ZirTi endosseous body (Zirconium Sand-Blasted Acid Etched Titanium), treated with sand-blasting with zirconium oxide and etching with mineral acids. The convergent neck is characterized by a Gold UTM surface (Ultrathin Threaded Microsurface), submitted to a particular controlled passivation process which gives to it to a golden yellow colour.

ZirTi Surface - Gold UTM



Graphic reproduction

SEM photo

The UTM neck allows a perfect control of the connection diameter and prevents the plaque accumulation on the connection with the post; moreover, the particular roughness given by the machined neck allows a great adherence of the connection fibres. The colour which characterizes the convergent section allows a natural mimetic of the metal under the soft tissues and under the new materials used in the implantoprosthesis, whose mimetic is due to the translucence and to the transparence.

The ZirTi body is treated with appropriate subtraction techniques, which give the surface the characteristic micromorphology which can remarkably increase the bone-implant contact surface and guarantee a great primary stability.

The validity of the surfaces is documented in numerous **experimental studies**:

Rossi F., Botticelli D., Pantani F., Priscila Pereira F., Salata L.A., Lang N.P.
Bone healing pattern in surgically created circumferential defects around submerged implants: an experimental study in dog
Clin. Oral Impl. Res 23, 2012; 41–48. doi: 10.1111/j.1600-0501.2011.02170.x

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
Clin. Oral Impl. Res. 23, 2012, 542–549 doi: 10.1111/j.1600-0501.2012.02423.x

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
Clin. Oral Impl. Res. 00, 2013, 1–8 doi: 10.1111/clr.12097

Baffone G., Lang N.P, Pantani F., Favero G., Ferri M., Botticelli D.
Hard and soft tissue changes around implants installed in regular-sized and reduced alveolar bony ridges. An experimental study in dogs
Clin. Oral Impl. Res. 00, 2013, 1–6 doi: 10.1111/clr.12306

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 **LA-ZT-425-115** as an example:

type of implant	endosseous morphology	surface	diameter	length
L	**A**	**ZT**	**425**	**115**
L: Prama implant	**A**: cylindrical body **S**: RF tapered body	**ZT**: ZirTi surface	**380**: 3.80 mm **425**: 4.25 mm **500**: 5.00 mm It is the diameter of the implant in its wider point	**060**: 6.00 mm **085**: 8.50 mm **100**: 10.00 mm **115**: 11.50 mm **130**: 13.00 mm **150**: 15.00 mm Nominal length which expresses the **endosseous** length of the implant

All measurements are given in mm, unless indicated otherwise.

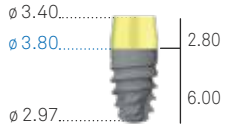
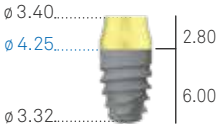
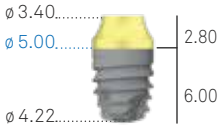
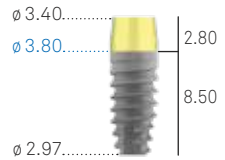
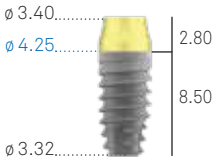
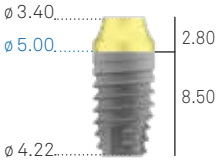
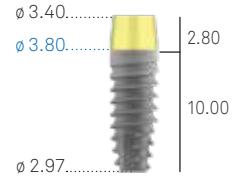
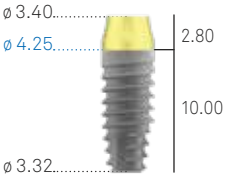
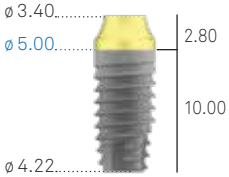
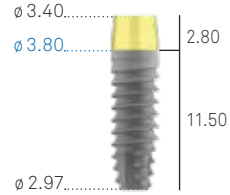
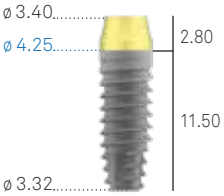
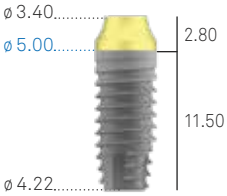
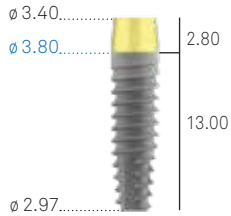
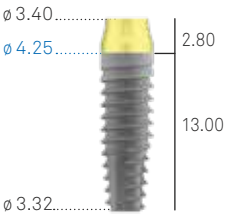
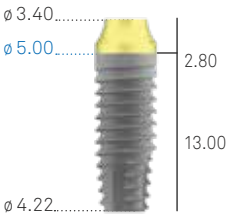
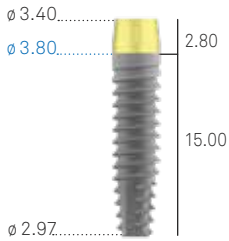
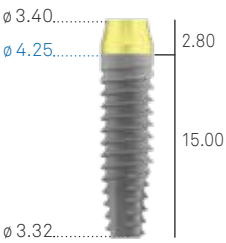
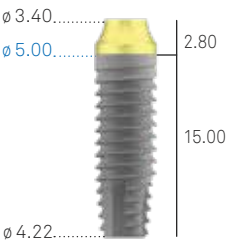
Colour codes

A colour code system has been defined in the Prama implant system for identifying the endosseous diameter of the implant (see tables at pages 12 and 13).
The colour code identifies:

- the transfers for the impression taking and the laboratory analogs;
- the final drills;
- the sequence on the surgical tray.

ø implant	3.80	4.25	5.00
colour code on the pack			

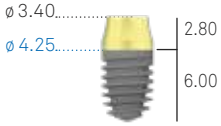
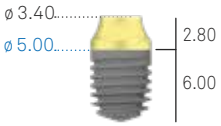
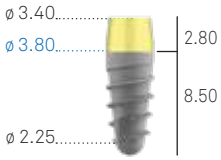
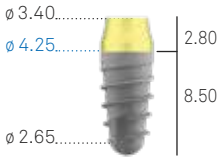
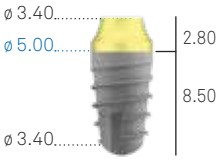
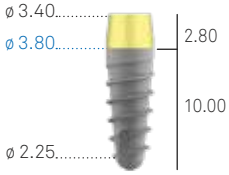
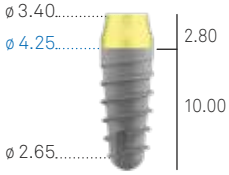
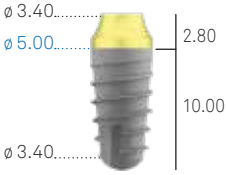
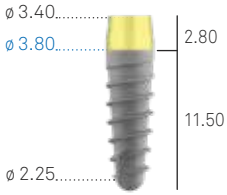
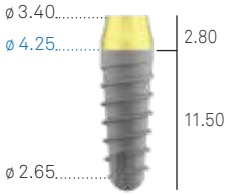
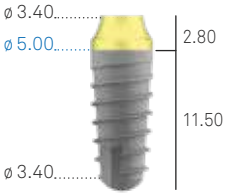
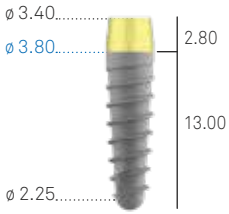
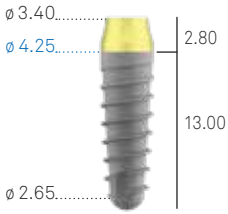
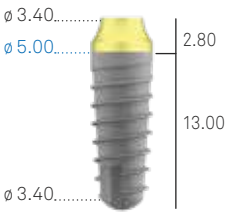
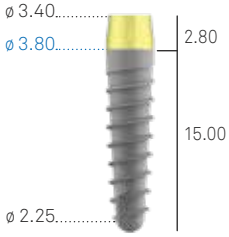
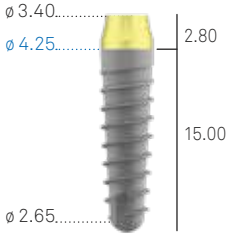
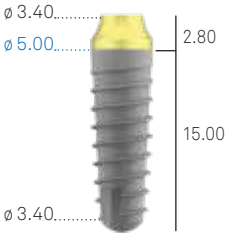
Prama

	3.80	4.25	5.00
6.00	**LA-ZT-380-060** 	**LA-ZT-425-060** 	**LA-ZT-500-060** 
8.50	**LA-ZT-380-085** 	**LA-ZT-425-085** 	**LA-ZT-500-085** 
10.00	**LA-ZT-380-100** 	**LA-ZT-425-100** 	**LA-ZT-500-100** 
11.50	**LA-ZT-380-115** 	**LA-ZT-425-115** 	**LA-ZT-500-115** 
13.00	**LA-ZT-380-130** 	**LA-ZT-425-130** 	**LA-ZT-500-130** 
15.00	**LA-ZT-380-150** 	**LA-ZT-425-150** 	**LA-ZT-500-150** 
vite chirurgica di chiusura	**L-VT-340** 	**L-VT-340** 	**L-VT-340** 

Please note: Nominal length which expresses the endosseous length of the implant. The total length of the implant is 2.80 mm greater than the nominal one, due to the presence of the convergent neck. Each implant is sold with its own surgical cover screw in titanium Gr. 4. The surgical cover screws are also available on sale individually in a sterile pack and must be tightened to 8-10 Ncm.

See technical characteristics of Gr. 4 titanium on page 12.

Prama RF

	3.80	4.25	5.00
6.00	-	**LS-ZT-425-060** 	**LS-ZT-500-060** 
8.50	**LS-ZT-380-085** 	**LS-ZT-425-085** 	**LS-ZT-500-085** 
10.00	**LS-ZT-380-100** 	**LS-ZT-425-100** 	**LS-ZT-500-100** 
11.50	**LS-ZT-380-115** 	**LS-ZT-425-115** 	**LS-ZT-500-115** 
13.00	**LS-ZT-380-130** 	**LS-ZT-425-130** 	**LS-ZT-500-130** 
15.00	**LS-ZT-380-150** 	**LS-ZT-425-150** 	**LS-ZT-500-150** 
vite chirurgica di chiusura	**L-VT-340** 	**L-VT-340** 	**L-VT-340** 

Please note: lNominal length which expresses the endosseous length of the implant. The total length of the implant is 2.80 mm greater than the nominal one, due to the presence of the convergent neck.
Each implant is sold with its own surgical cover screw in titanium Gr. 4. The surgical cover screws are also available on sale individually in a sterile pack and must be tightened to 8-10 Ncm.

See technical characteristics of Gr. 4 titanium on page *13*.

Surgical kit

The Prama surgical kit includes all the instruments needed to insert both the standard Prama implants, with cylindrical endosseous morphology, and the Prama RF implants, with tapered body. Prama short implants of cylindrical morphology and height 6.00 mm must be inserted with Drilling Kit Shorty, while Prama short implants of conical morphology and height 6.00 mm must be inserted with Drilling Kit Syra Short (see the following pages). Each type of preparation has the related dedicated drills, whose use sequence is given by coloured marks for the various implant diameters. For the Prama RF there are in the kit also the titanium replies which allow to evaluate the congruity of the receiving site compared to the implant. Together with the kit also templates are supplied, with the graphical representation of the implants, both in real dimension and enlarged of 20% and 30% in order to allow the choice of the implants in their most appropriate dimensions by means of radiographic or tomographic analysis.

The compact dimensions of the kit make it very practical in everyday use and in transport

A practical ratchet is also included that acts as a dynamometric key for the 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

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

description	code
Complete grommetless surgical kit of the instruments necessary for Prama and Prama RF implants	**ZPRAMA-INT** 
Radel instrument grommetless tray for Prama and Prama RF instruments	**L-TRAY-INT** 

Important 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.

1 **Precision drill**
FS-230

2 **Pilot drill**
FPT3-200-LXS ○

3 **Intermediate drills**
FG-200/280XS ●
FG-330/425XS ●

4 **Stop for conical drills**
SH-STOP4-FK380 ●
SH-STOP4-FK425 ●
SH-STOP4-FK500 ●

5 **Conical drills**
SH-FK380-085 ●
SH-FK380-100 ●
SH-FK380-115 ●
SH-FK380-130 ●
SH-FK380-150 ●

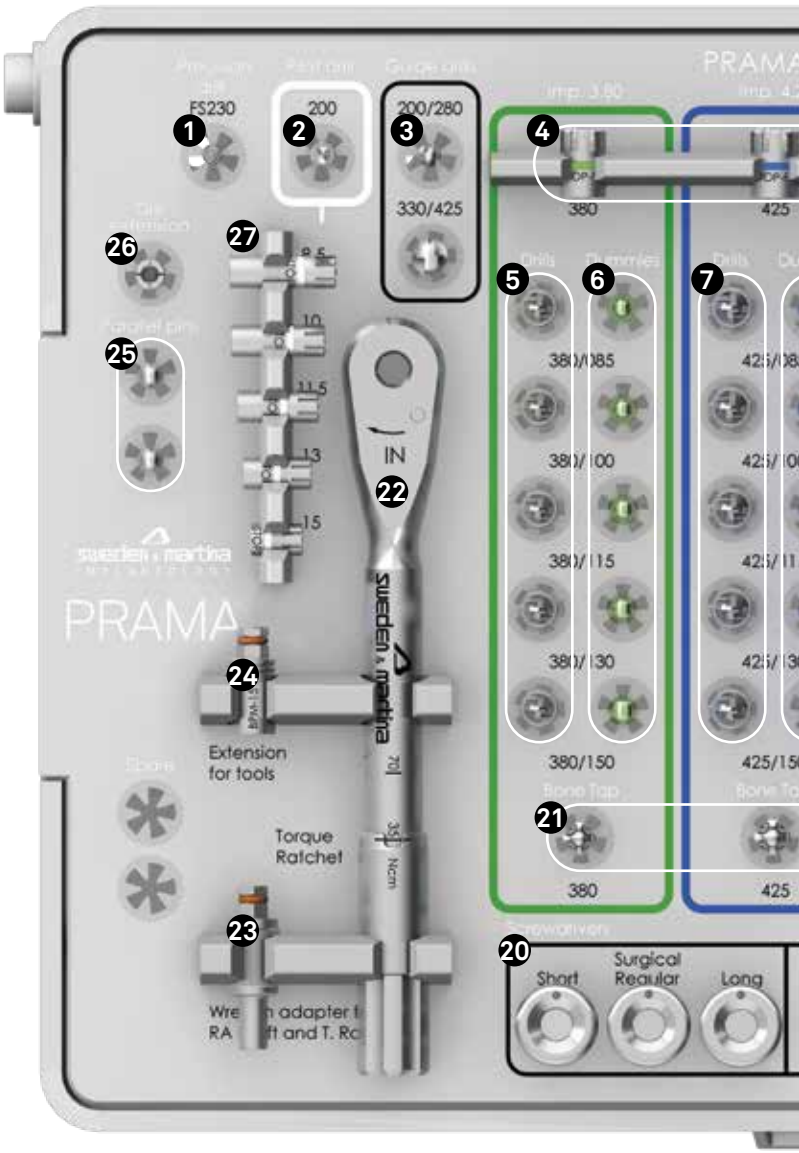
27 **Stop for pilot drill**
STOP4-200-085 ○
STOP4-200-100 ○
STOP4-200-115 ○
STOP4-200-130 ○
STOP4-200-150 ○

26 **Extension**
PROF-CAL3

25 **Parallelism pins**
PP-2/28

24 **Extension**
BPM-15

23 **Adaptor**
AVV-CA-DG-EX



22 **Dynamometric ratchet**
CRI5-KIT

21 **Bone taps**
SH-MS-380-CA ●
SH-MS-425-CA ●
SH-MS-500-CA ●

20 **Surgical screwdrivers**
HSMXS-20-DG HSM-20-DG HSML-20-DG

19 **Prostehtic screwdrivers**
HSM-20-EX HSML-20-EX HSM-20-CA

6

Reply
- SH-380-085-RP
- SH-380-100-RP
- SH-380-115-RP
- SH-380-130-RP
- SH-380-150-RP

7

Conical drills
- SH-FK425-085
- SH-FK425-100
- SH-FK425-115
- SH-FK425-130
- SH-FK425-150

8

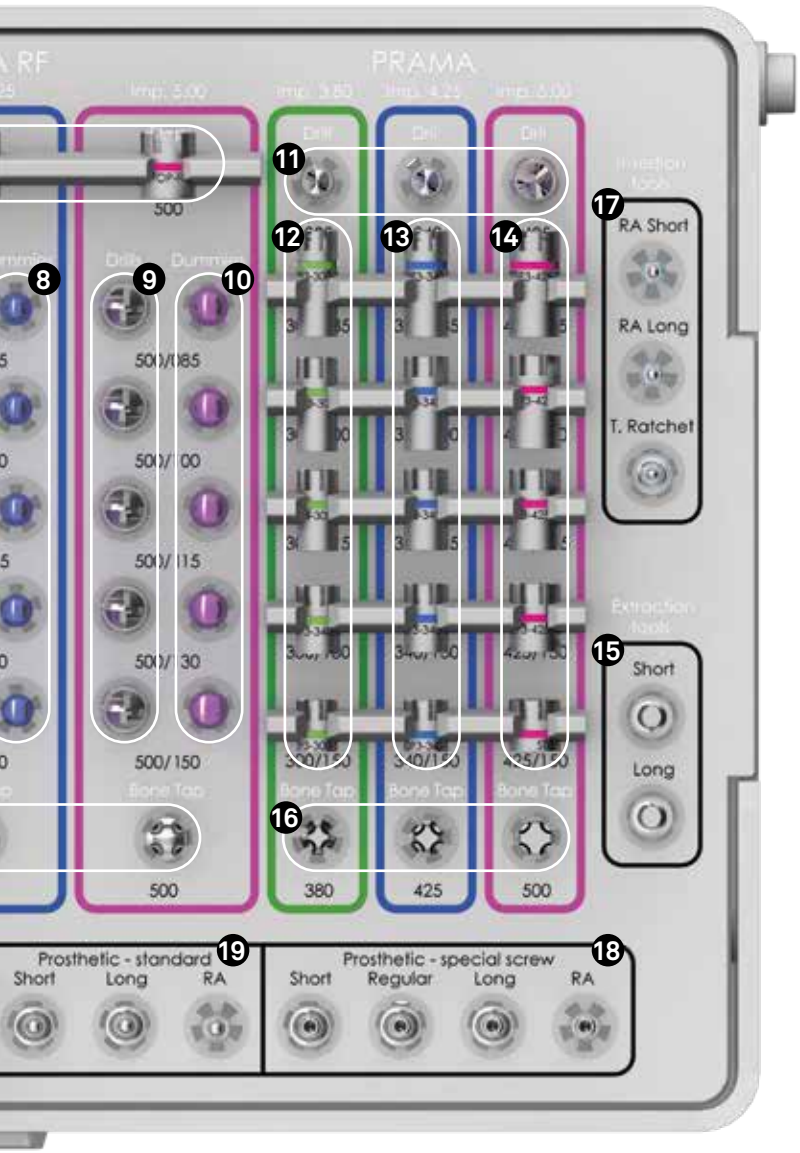
Reply
- SH-425-085-RP
- SH-425-100-RP
- SH-425-115-RP
- SH-425-130-RP
- SH-425-150-RP

9

Conical drills
- SH-FK500-085
- SH-FK500-100
- SH-FK500-115
- SH-FK500-130
- SH-FK500-150

10

Reply
- SH-500-085-RP
- SH-500-100-RP
- SH-500-115-RP
- SH-500-130-RP
- SH-500-150-RP



11

Final cylindrical drills
- FFT3-300-LXS
- FFT3-340-LXS
- FFT3-425-LXS

12

Stop for cylindrical drills
- STOP4-300-085
- STOP4-300-100
- STOP4-300-115
- STOP4-300-130
- STOP4-300-150

13

Stop for cylindrical drills
- STOP4-340-085
- STOP4-340-100
- STOP4-340-115
- STOP4-340-130
- STOP4-340-150

14

Stop for cylindrical drills
- STOP4-425-085
- STOP4-425-100
- STOP4-425-115
- STOP4-425-130
- STOP4-425-150

15

Drivers

BC-EX230 BL-EX230

18

Prostehtic screwdrivers for Full Head screws

L-HSM-EX L-HSML-EX L-HSMXL-EX L-HSM-CA

17

Easy Insert drivers

EASY4-EX230-EX EASYC4-EX230-CA EASYL4-EX230-CA

16

Bone taps
- A-MS-380-CA
- A-MS-425-CA
- A-MS-500-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 for temporary use (not more than 60 minutes), re-usable. 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, healing abutments, 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 implant 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	diameter	lenght
The range of instruments is vast, we indicate some examples of the main families of instruments.	-	Normally it is the ø of the implant for the insertion or of the preparation for which the instrument should be used.	This measurement is normallylinked to the height of the component, or to other important measurements that haracterise it, or it is a letter which defines whether a post is repositionable or not.
FFT3-300-LXS	**FFT3**: final cylindrical drill	300: 3.00 mm, for the preparation of the ø 3.80 mm implant	115: 11.50 mm
STOP4-200-085	**STOP4**: stop for cylindrical drills	200: 2.00 mm	085: 0.85 mm
PP-2/28	**PP**: parallelism pin	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 use completely free from vibrations and oscillations. 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 manufacturers, 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, with a back and forth movement in a vertical direction, 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 bluent instruments.
Never sharpen drills before use. Never use damaged, buckled or worn instruments.

Precision drill FS-230

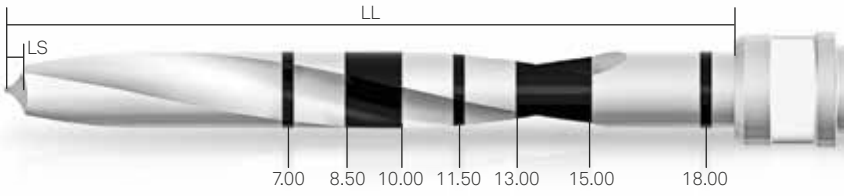
The Precision drill is made of surgical stainless steel. It is used to cut the cortical bone, so it is very sharp and pointed. The design of the blades ensures efficient cutting with both the tip and the edge. It has a maximum diameter of 2.30 mm. The laser marking at 4.80 mm indicates the depth to which 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 The sole purpose of this protective sheath is 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 FPT3-200-LXS

The pilot drill ø 2.00 is used to prepare the initial hole for preparing the site. 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, a cylindrical shape and a spiral with two cutting edges. It must be used with abundant external irrigation.

LL: Total length of the working part, including the tip.
LS: Length of the tip. This measurement must be calculated in 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 (LS) is equal to the height of the tip of the drill that is being used.

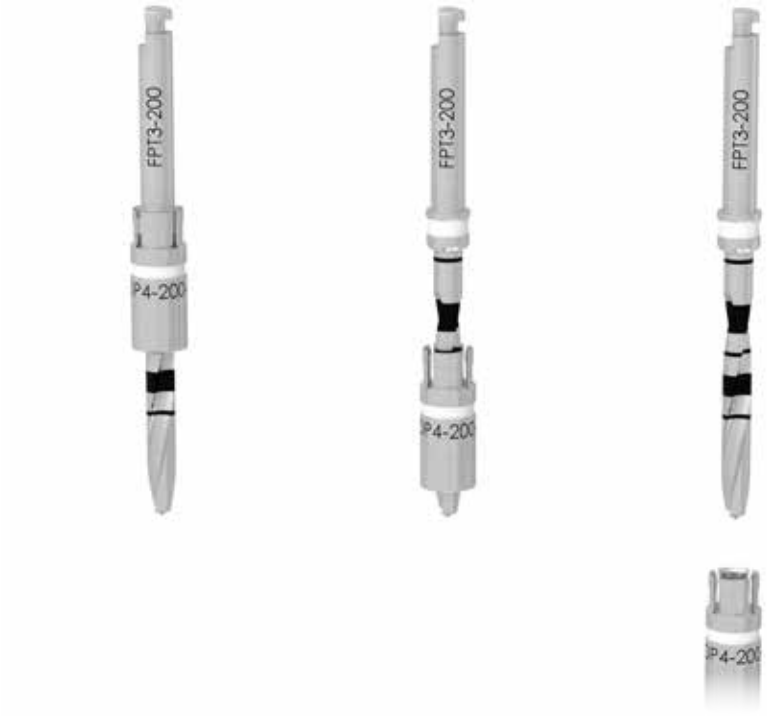
code	ø	LS	LL
FPT3-200-LXS	2.00	0.58	19.30

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	8.50 mm	10.00 mm	11.50 mm	13.00 mm	15.00 mm
stop	**STOP4-200-085** 	**STOP4-200-100** 	**STOP4-200-115** 	**STOP4-200-130** 	**STOP4-200-150** 

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.

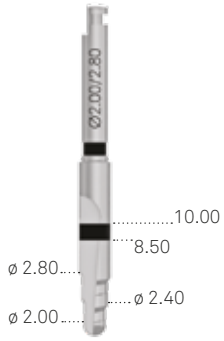


Intermediate drills

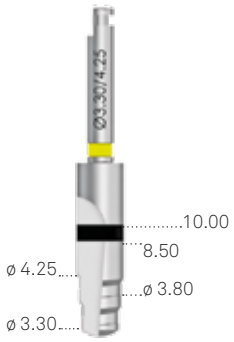
Intermediate drills are drills with two cutting edges suitable for progressively widening the preparations in relation to the diameter of the drills to be used in succession. They have two small steps with an initial guide with a progressive diameter and final diameter, respectively equal to 2.00/2.80 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).

intermediate drills

FG-200/280XS
intermediate drill ø 2.00 - 2.80 mm



FG-330/425XS
intermediate drills ø 3.30 - 4.25 mm

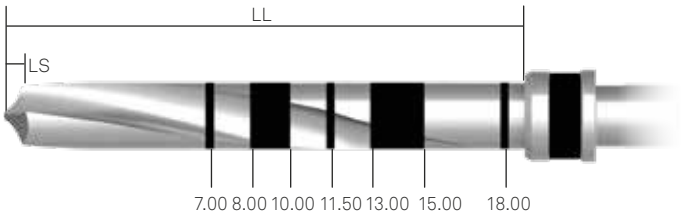


Other intermediate drills

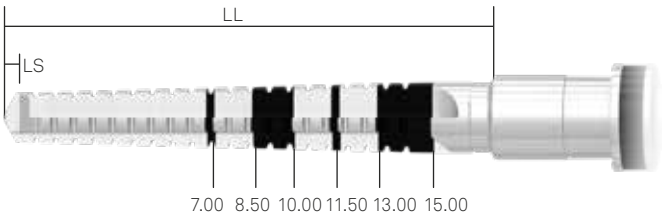
Optionally two ø 2.50 mm stainless steel intermediate drills are available. These drills, in cylindrical version for Prama implants and conical version for Prama RF implants, are useful for underpreparation protocols. The related stops are available, meant to guarantee a safe preparation.

Both the drills are not contained in the Prama surgical kit. The ø 2.50 mm cylindrical drill and the related stops are contained in the kit on sale with the code **KIT-INTEGRA-F250**, while the ø 2.50 mm conical drill and the related stops are contained in the kit on sale with the code **KIT-INTEGRA-SE-FK250**.
Drills and stops are also available separately.

Please note: the drills always make a hole that is longer than the implant to be inserted. The oversizing (LS) is equal to the height of the tip of the drill that is being used.
See drawing on the side.



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



cylindrical drill ø 2.50 mm and related stops

FFT3-250-LXS cylindrical drill	**STOP4-250-070** stop 7.00 mm for cylindrical drill	**STOP4-250-085** stop 8.50 mm for cylindrical drill	**STOP4-250-100** stop 10.00 mm for cylindrical drill	**STOP4-250-115** stop 11.50 mm for cylindrical drill	**STOP4-250-130** stop 13.00 mm for cylindrical drill	**STOP4-250-150** stop 15.00 mm for cylindrical drill
						

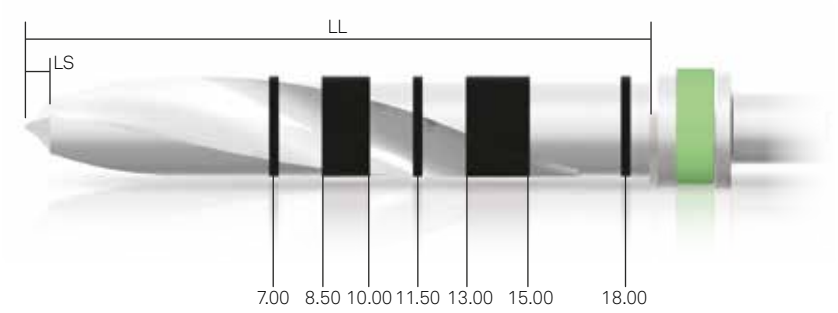
conical drill ø 2.50 mm and related stops*

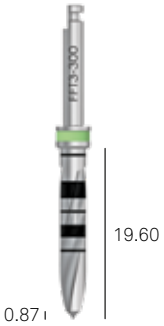
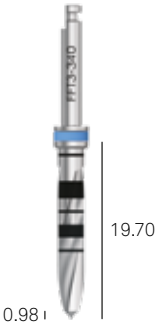
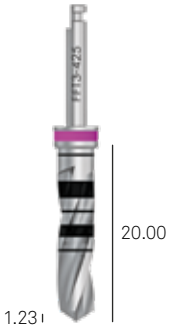
SE-FK250 conical drill	**CSR-STOP-2028-085** stop 8.50 mm for conical drill	**CSR-STOP-2028-100** stop 10.00 mm for conical drill	**CSR-STOP-2028-115** stop 11.50 mm for conical drill	**CSR-STOP-2028-130** stop 13.00 mm for conical drill	**CSR-STOP-2028-150** stop 15.00 mm for conical drill
					

Final cylindrical drills and related stops

Made of stainless steel with high resistance to corrosion and wear, the Prama final drills have a number of cutting edges proportioned to the diameter off the hole, in order to allow a continue and homogeneous cutting movement and a better stability of the instrument during the surgical phases. All this allows to obtain high precision implant preparations, with following easiness in the insertion of the implant.
The use of these drills is recommended with the related depth stops, also included in the kit.

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



ø implant	3.80 mm	4.25 mm	5.00 mm
cylindrical drills	**FFT3-300-LXS** 	**FFT3-340-LXS** 	**FFT3-425-LXS** 

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

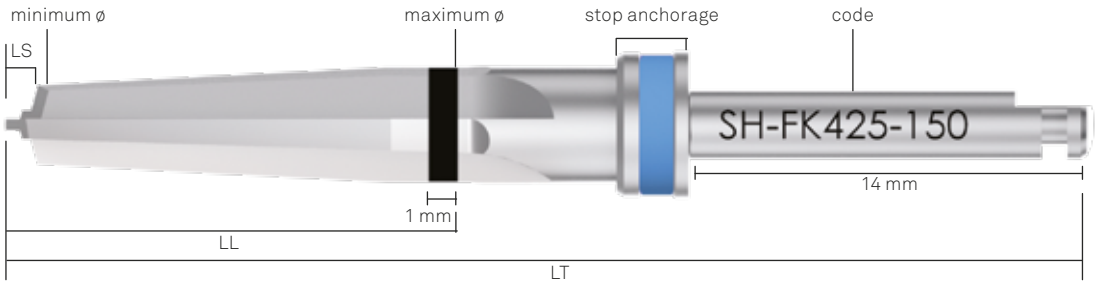
Stop per frese cilindriche

ø implant	3.80 mm	4.25 mm	5.00 mm
stop for preparations H 8.50 mm	**STOP4-300-085** 	**STOP4-340-085** 	**STOP4-425-085** 
stop for preparations H 10.00 mm	**STOP4-300-100** 	**STOP4-340-100** 	**STOP4-425-100** 
stop for preparations H 11.50 mm	**STOP4-300-115** 	**STOP4-340-115** 	**STOP4-425-115** 
stop for preparations H 13.00 mm	**STOP4-300-130** 	**STOP4-340-130** 	**STOP4-425-130** 
stop for preparations H 15.00 mm	**STOP4-300-150** 	**STOP4-340-150** 	**STOP4-425-150** 

It is recommended always to 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.

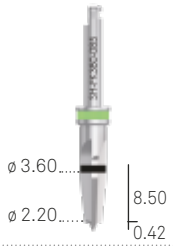
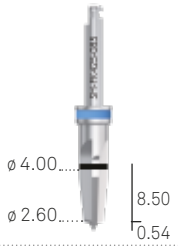
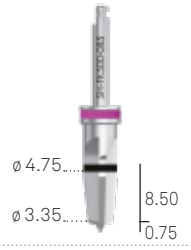
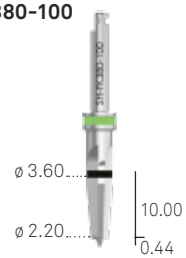
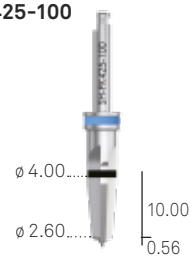
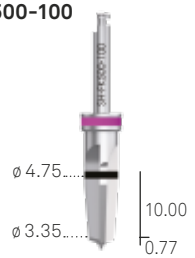
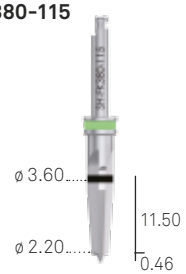
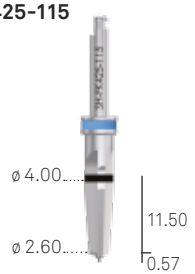
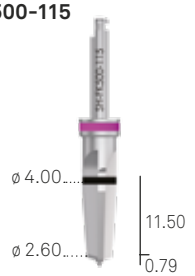
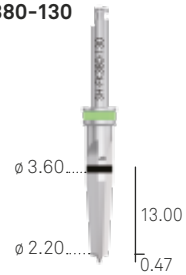
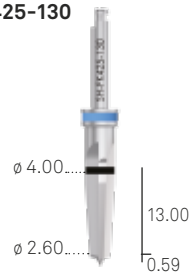
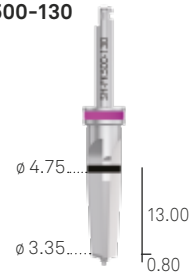
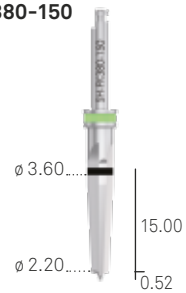
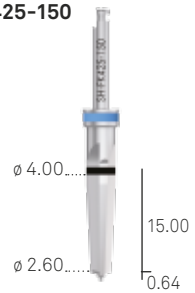
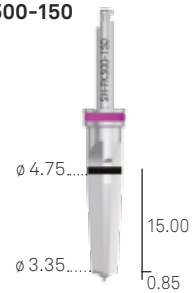
Final conical drills and related stops

The conical drills for Prama RF implants are also made of stainless steel with high resistance to corrosion and wear. They 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. They are distinguished by a coloured ring that makes it easy to recognize the instruments intended for each diameter. All this results in very precise implant preparations, which are the key to success of conical implants. The kit contains 15 conical drills, each one of which forms the final hole for the implant with diameter and height referred to by the instrument code.



LT: Total lenght of the working part, including the shank
LL: Total lenght of the working part, including the tip
LS: Length of the overpreparation

Important warning
The drills always make a hole that is longer than the implant to be inserted. The oversizing (LS) is equal to the difference between the length of the working part of the drill and the nominal height of the implant.
For details of the sizes of the different drills, refer to the table on the next page.

ø implant	3.80 mm	4.25 mm	5.00 mm
8.50	**SH-FK380-085** 	**SH-FK425-085** 	**SH-FK500-085** 
10.00	**SH-FK380-100** 	**SH-FK425-100** 	**SH-FK500-100** 
11.50	**SH-FK380-115** 	**SH-FK425-115** 	**SH-FK500-115** 
13.00	**SH-FK380-130** 	**SH-FK425-130** 	**SH-FK500-130** 
15.00	**SH-FK380-150** 	**SH-FK425-150** 	**SH-FK500-150** 

drill code	corresponding implant	nominal ø	minimum ø	maximum ø	LT	LL	LS	colour code
SH-FK380-085	**LS-ZT-380-085**	3.80	2.20	3.60	30.92	8.92	0.42	verde
SH-FK380-100	**LS-ZT-380-100**	3.80	2.20	3.60	32.44	10.44	0.44	verde
SH-FK380-115	**LS-ZT-380-115**	3.80	2.20	3.60	33.96	11.96	0.46	verde
SH-FK380-130	**LS-ZT-380-130**	3.80	2.20	3.60	35.47	13.47	0.47	verde
SH-FK380-150	**LS-ZT-380-150**	3.80	2.20	3.60	37.52	15.52	0.52	verde
SH-FK425-085	**LS-ZT-425-085**	4.25	2.60	4.00	31.04	9.04	0.44	blu
SH-FK425-100	**LS-ZT-425-100**	4.25	2.60	4.00	32.56	10.56	0.56	blu
SH-FK425-115	**LS-ZT-425-115**	4.25	2.60	4.00	34.07	12.07	0.57	blu
SH-FK425-130	**LS-ZT-425-130**	4.25	2.60	4.00	35.59	13.59	0.59	blu
SH-FK425-150	**LS-ZT-425-150**	4.25	2.60	4.00	37.64	15.64	0.64	blu
SH-FK500-085	**LS-ZT-500-085**	5.00	3.35	4.75	31.26	9.25	0.75	magenta
SH-FK500-100	**LS-ZT-500-100**	5.00	3.35	4.75	32.77	10.77	0.77	magenta
SH-FK500-115	**LS-ZT-500-115**	5.00	3.35	4.75	34.29	12.29	0.79	magenta
SH-FK500-130	**LS-ZT-500-130**	5.00	3.35	4.75	35.80	13.80	0.80	magenta
SH-FK500-150	**LS-ZT-500-150**	5.00	3.35	4.75	37.85	15.85	0.85	magenta

Stops for conical drills

The kit contains a stop for each diameter of the final conical drills, for **inserting the drill from the tip**. They are suitable for limiting the working length to predetermined heights. With the same working diameter, the same stop is compatible with all the drill lengths, as explained in the following table:

stop for conical drills	**SH-STOP4-FK380** 	**SH-STOP4-FK425** 	**SH-STOP4-FK500** 
colour code	green	blue	magenta
nominal ø corresponds to the implant diameter	3.80	4.25	5.00
drill for implant H 8.50 mm	SH-FK380-085	SH-FK425-085	SH-FK500-085
drill for implant H 10.00 mm	SH-FK380-100	SH-FK425-100	SH-FK500-100
drill for implant H 11.50 mm	SH-FK380-115	SH-FK425-115	SH-FK500-115
drill for implant H 13.00 mm	SH-FK380-130	SH-FK425-130	SH-FK500-130
drill for implant H 15.00 mm	SH-FK380-150	SH-FK425-150	SH-FK500-150

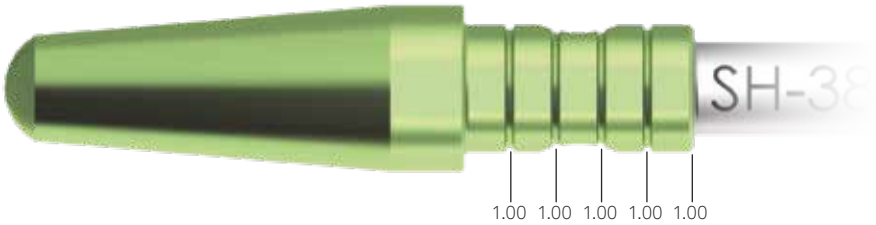
As already indicated with regard to the pilot drill stops, in this case too it is recommended always to check that the stop is inserted at the desired height. Incomplete insertion may reduce the preparation height. Any insertion difficulties can be resolved by loosening the stop tabs slightly, using 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.

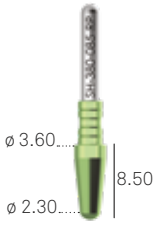
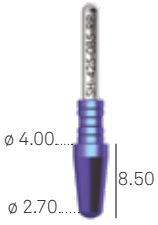
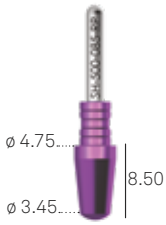
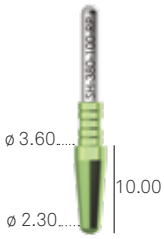
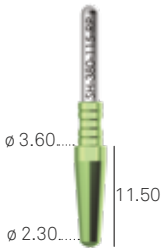
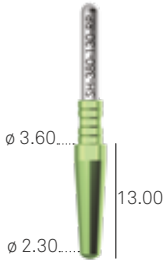
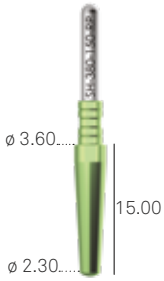
Reply: replies for Prama RF implants

The Reply replies are made of Gr. 5 titanium and reply the morphology of the final drills of the related Prama RF conical implants. They are useful to verify the depth of the preparation hole made with the final drills, and to verify the axis of the preparation made with the drill.

Above the conical section, the replies has some notches far from each other 1.00 mm to verify the gingival thicknesses

The section of the device intended to be inserted in the bone and is anodized with the colour related to the implant diameter, following the same colour code of the systematic: in this way its use is even more simple and intuitive



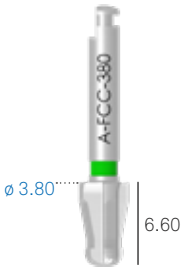
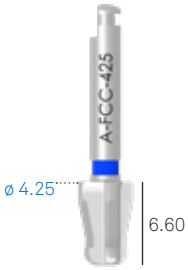
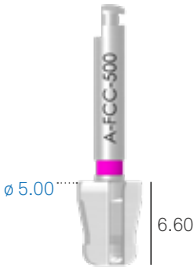
ø implant	3.80 mm	4.25 mm	5.00 mm
H 8.50 mm	**SH-380-085-RP** 	**SH-425-085-RP** 	**SH-500-085-RP** 
H 10.00 mm	**SH-380-100-RP** 	**SH-425-100-RP** 	**SH-500-100-RP** 
H 11.50 mm	**SH-380-115-RP** 	**SH-425-115-RP** 	**SH-500-115-RP** 
H 13.00 mm	**SH-380-130-RP** 	**SH-425-130-RP** 	**SH-500-130-RP** 
H 15.00 mm	**SH-380-150-RP** 	**SH-425-150-RP** 	**SH-500-150-RP** 

Countersink drills

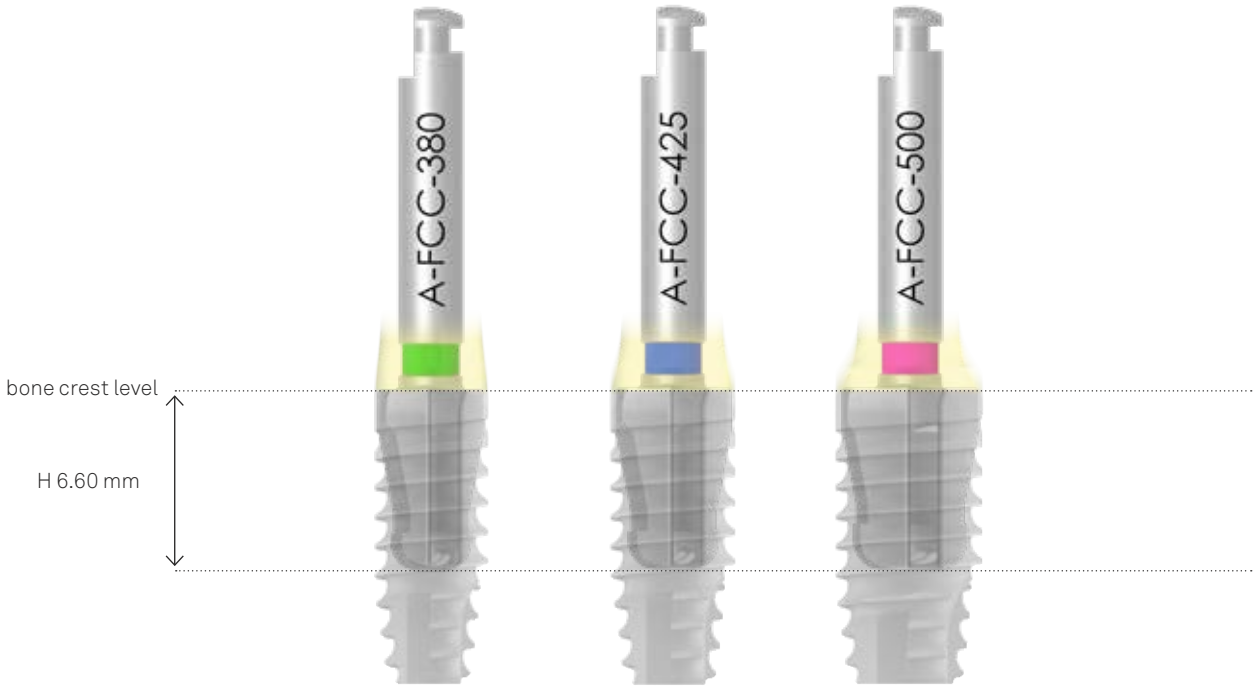
Countersink drills are optionally available. They allow to prepare the seat fot yhe most coronal part of Prama and Prama RF implants in presence of a very thick cortical bone. The drills are characterized by an apical portion that is guided into the hole created by the fi nal cylindrical drill and by a standard height of the working part of 6.60 mm.

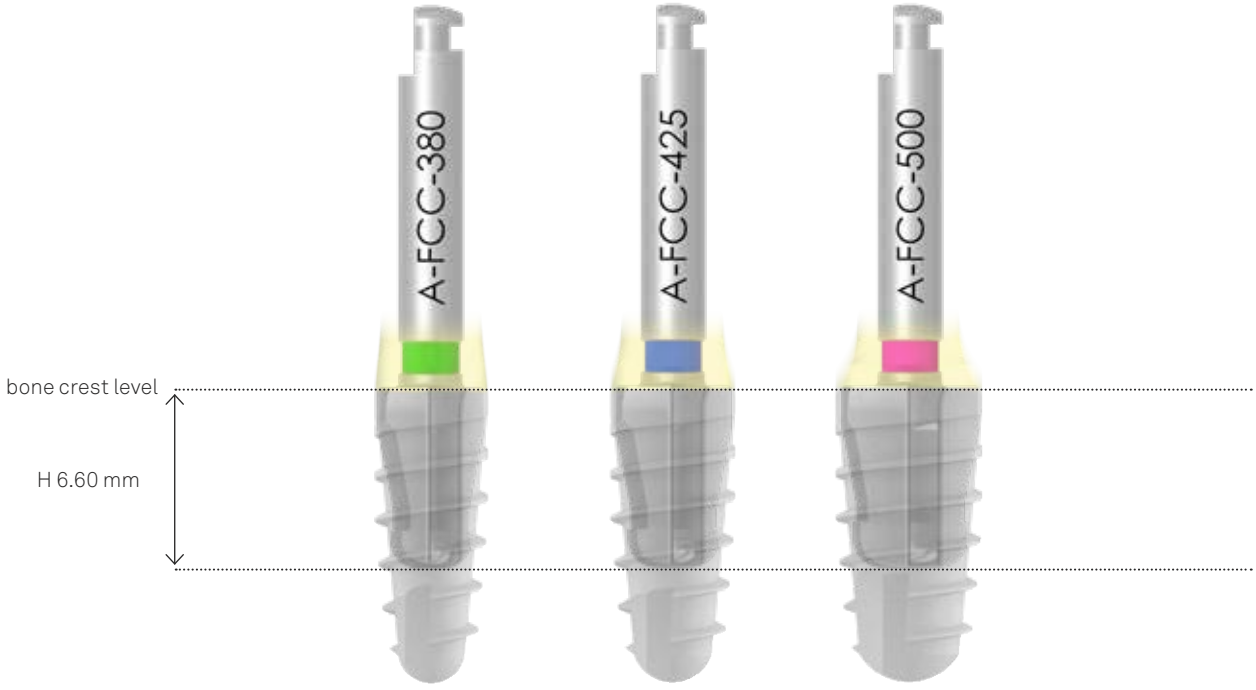
Colored rings make it simple to recognize the instruments for each implant diameter

Drills are available with 3.80, 4.25 and 5.00 mm diameters

ø implant	3.80 mm	4.25 mm	5.00 mm
countersink drills	**A-FCC-380** 	**A-FCC-425** 	**A-FCC-500** 

The particular morphology of the countersink drills allows to widen the initial part of the hole bored by the fi nal cylindrical drills to prepare the cortical bone portion, that will be in contact with the neck of the implant. The maximum recommended speed is 1,000 rpm.
Each drill has to be used only for the implant of equal diameter.

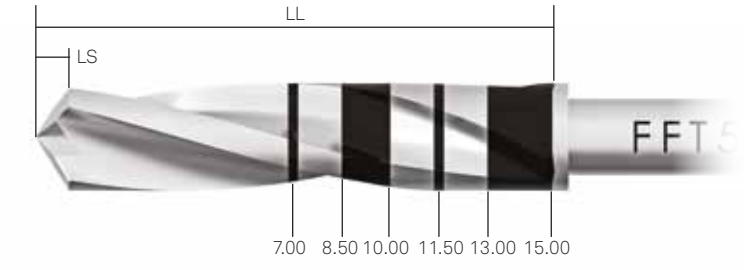




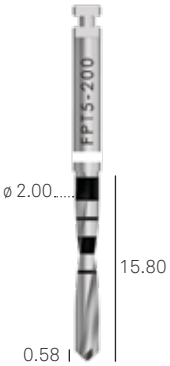
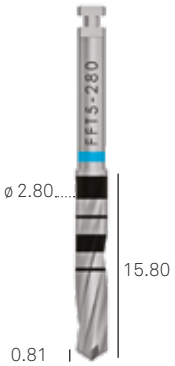
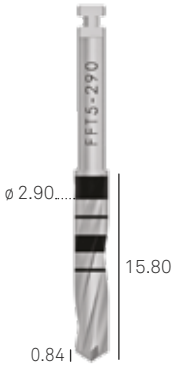
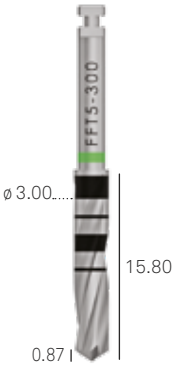
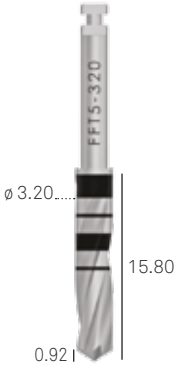
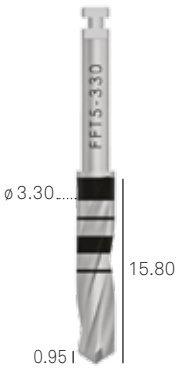
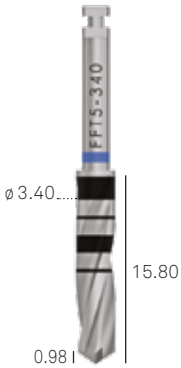
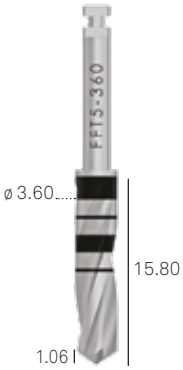
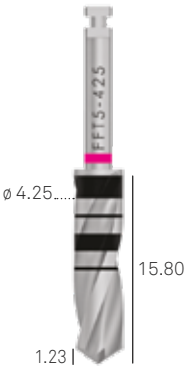
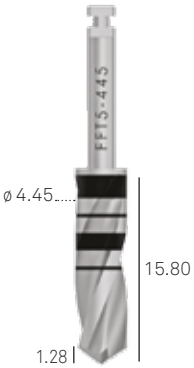
Drills for distal sectors

As an option, shorter drills are available that are very practical in distal sectors with limited oral opening. They come in a wide range of diameters and are also useful for preparations in extremely compact bone where, in the most coronal portion, it is desired to widen the preparation diameter by 0.10 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.

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



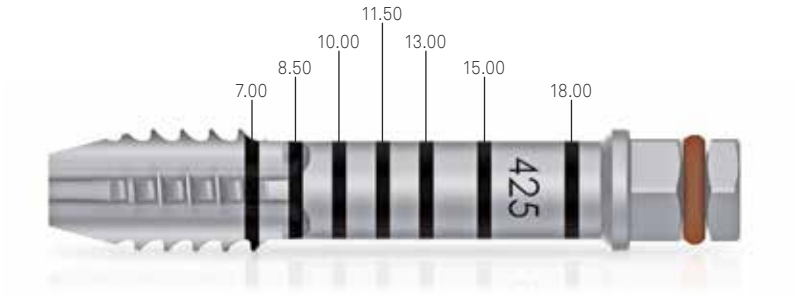
Important note: the drills always make a hole that is longer than the implant to be inserted.
The oversizing (Ls) is equal to the height of the tip of the drill that is being used. See drawing on the side.

ø drill	2.00	2.80	2.90	3.00	3.20
drills for distal sector	**FPT5-200-LXS**	**FFT5-280-LXS**	**FFT5-290-LXS**	**FFT5-300-LXS**	**FFT5-320-LXS**
					
ø frese	3.30	3.40	3.60	4.25	4.45
drills for distal sector	**FFT5-330-LXS**	**FFT5-340-LXS**	**FFT5-360-LXS**	**FFT5-425-LXS**	**FFT5-445-LXS**
					

The drills for distal sectors are not included in any surgical kit and must be purchased separately.
They cannot be used with depth stops.

Bone taps

The Prama and Prama RF 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 requires it in order to facilitate the insertion of the fixture. They are available both with right angle shank and with a connector for dynamometric ratchet and have a specific design with two different endosseous morphology.



ø implant	3.80 mm	4.25 mm	5.00 mm
Bone taps with right angle attachment for Prama implant	**A-MS-380-CA**  ø 2.30	**A-MS-425-CA**  ø 2.50	**A-MS-500-CA**  ø 3.55
Bone taps with connection for ratchet for Prama implants*	**A-MS-380**  ø 2.30	**A-MS-425**  ø 2.50	**A-MS-500**  ø 3.55
Short bone taps with connection for ratchet for Prama implants*	**A-MSC-380**  ø 2.25	**A-MSC-425**  ø 2.45	**A-MSC-500**  ø 3.50
Bone taps with right angle attachment for Prama RF implants	**SH-MS-380-CA**  ø 2.55	**SH-MS-425-CA**  ø 2.65	**SH-MS-500-CA**  ø 3.40
Bone taps with connection for ratchet for Prama RF implants*	**SH-MS-380**  ø 2.55	**SH-MS-425**  ø 2.65	**SH-MS-500**  ø 3.40

**Optional instruments not included in the surgical kit, to be ordered separately.*

Osteotomes

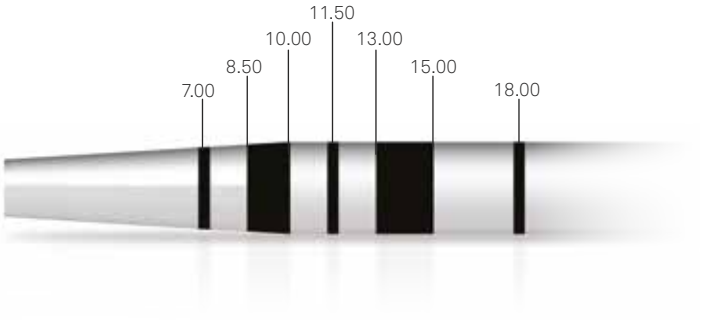
Osteotomes for expansion protocols are available for each Prama and Prama RF endosseous morphology, not included in the surgical kit. The laser-etched codes on the handles indicate the osteotome diameter, to make it easier to recognize the correct surgical sequence. A practical universal instrument case for storing and organising them is available and can be ordered separately using the code **OS-TRAY**.

Prama osteotomes

Prama osteotomes present laser markings of all the available heights.

code	**E-OS-020-PP**	**E-OS-090-PP**	**E-OS-160-PC**	**E-OS-200-PC**	**E-OS-240-PC**
					
description	Osteotome ø 0.20 flat tip	Osteotome ø 0.90 flat tip	Osteotome ø 1.60 concave tip	Osteotome ø 2.00 concave tip	Osteotome ø 2.40 concave tip

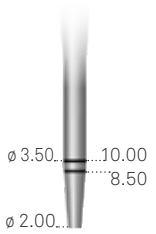
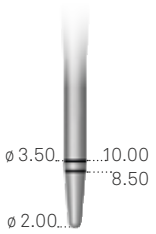
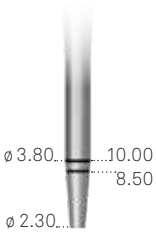
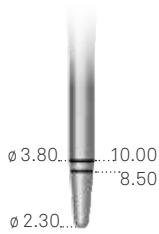
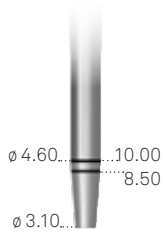
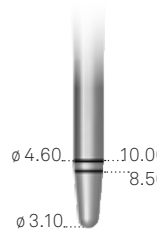
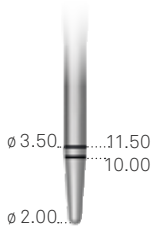
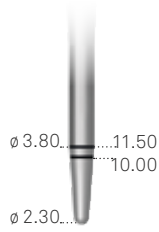
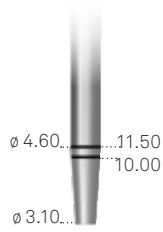
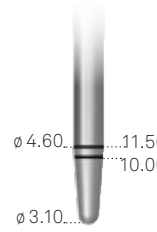
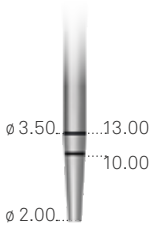
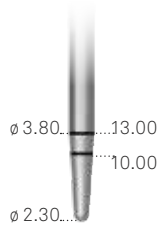
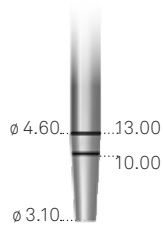
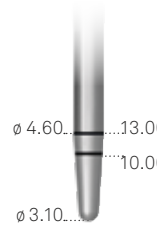
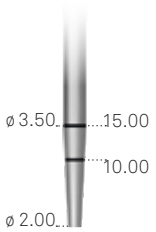
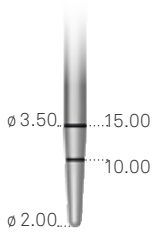
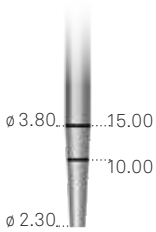
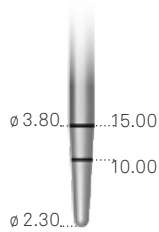
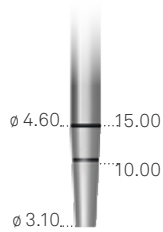
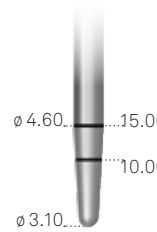
Osteotomes are optional instruments that are not included in the surgical kit. They can be purchased separately and singularly.



description	code	
Universal case in Radel for osteotomes for Prama and Prama RF Can hold up to 12 instruments	**OS-TRAY**	

Prama RF osteotomes

Prama RF osteotomes are designed considering the height and diameter of the implant to be inserted. They present two laser-etched markings: one corresponds to the height of the fixture and the other one, at a lower height, is useful for an intermediate check during the preparation phase. In the osteotome for 10.00 mm implants the laser markings correspond to the height 8.50 and 10.00 mm, therefore the instrument can also be used for inserting implants of height 8.50 mm.

ø implant	3.80		4.25		5.00	
osteotome for implants H 8.50 and 10.00 mm	**SH-OS-380-100-PP** 	**SH-OS-380-100-PR** 	**SH-OS-425-100-PP** 	**SH-OS-425-100-PR** 	**SH-OS-500-100-PP** 	**SH-OS-500-100-PR** 
osteotome for implants H 11.50 mm	**SH-OS-380-115-PP** 	**SH-OS-380-115-PR** 	**SH-OS-425-115-PP** 	**SH-OS-425-115-PR** 	**SH-OS-500-115-PP** 	**SH-OS-500-115-PR** 
osteotome for implants H 13.00 mm	**SH-OS-380-130-PP** 	**SH-OS-380-130-PR** 	**SH-OS-425-130-PP** 	**SH-OS-425-130-PR** 	**SH-OS-500-130-PP** 	**SH-OS-500-130-PR** 
osteotome for implants H 15.00 mm	**SH-OS-380-150-PP** 	**SH-OS-380-150-PR** 	**SH-OS-425-150-PP** 	**SH-OS-425-150-PR** 	**SH-OS-500-150-PP** 	**SH-OS-500-150-PR** 
tip	flat	round	flat	round	flat	round

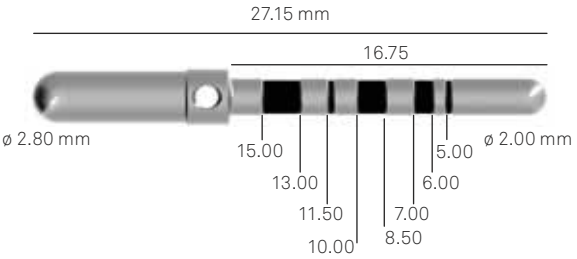
Osteotomes are optional instruments that are not included in the surgical kit. They can be purchased separately and singularly.

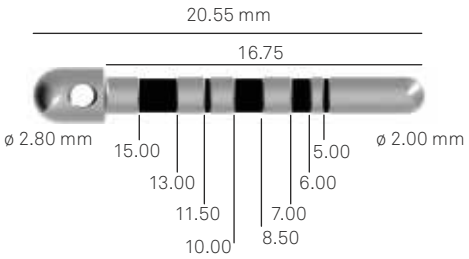
Parallelism pins

Parallelism pins can be used to check the insertion axis of the implants and the parallelism between more fixtures. They have one side with diameter ø 2.00 mm and the other ø 2.80 mm, so as to be used after the drills with the same diameter.

description	code
parallelism pin with a ø 2.00 mm side and a ø 2.80 mm	**PP-2/28** 

Parallelism pins with depth lines are available optionally, they allow the control of the preparation depth during the first surgical step, thanks to the presence of dedicated lines in the side with ø 2.00 mm. As the lines have a reduced diameter in comparision with the pin body, it is possible to distinguish them also on the x-ray images. The other side of the instruments has a diameter of ø 2.80 mm and presents a hole for safety thread.
The small version of the pin, the one with a shorter ø 2.80 side, is useful for patients with limited oral opening or the use in distal sectors.





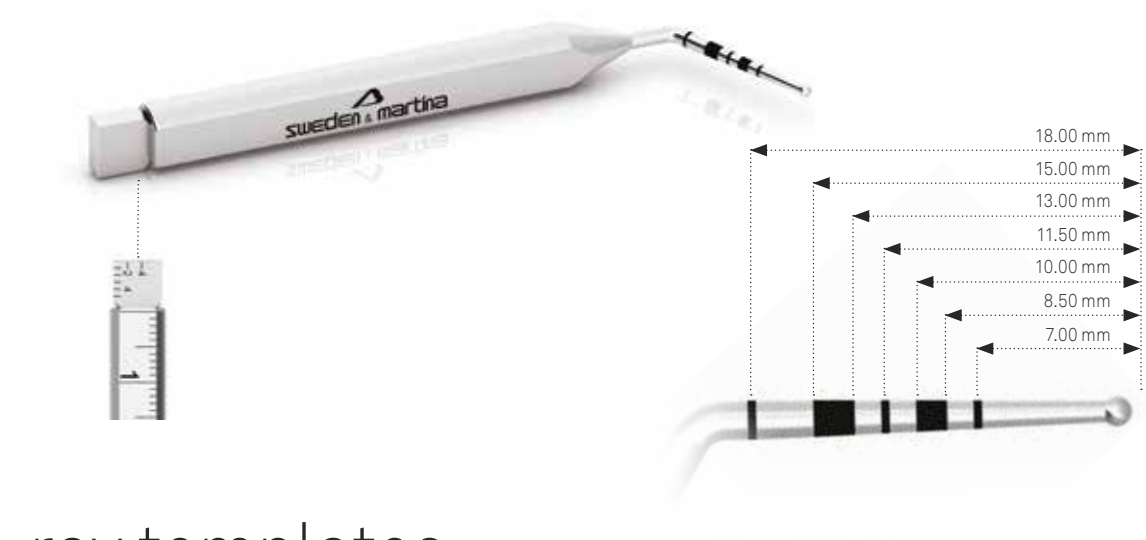
description	code
parallelism pin with depth lines, large	**PPTL-2-28** 
parallelism pin with depth lines, small	**PPTS-2-28** 

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

Parallelism pins with depth lines are not contained in the surgical kit, they can be ordered singularly for separate.

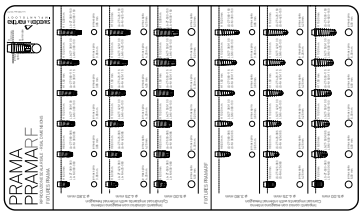
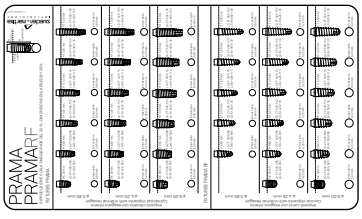
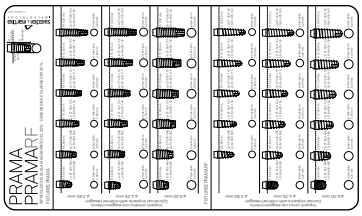
Depth gauge PROF3

It is a practical instrument which allows to verify the depth of the preparation holes and the distance between the implants. It is not included in any surgical kit, it can be ordered separately.



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 radiographic or tomographic methods. The templates are available in three versions: in real dimension and enlarged of 20% and 30% .

description	code
X-ray template for Prama and Prama RF implants, real dimensions	**L-L100** 
X-ray template for Prama and Prama RF implants, dimensions increased by 20%	**L-L120** 
X-ray template for Prama and Prama RF implants, dimensions increased by 30%	**L-L130** 

Easy Insert driver

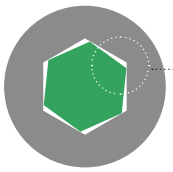
The Prama implant does not require a mounter for inserting into the implant site because it is engaged directly inside the connection by practical Easy Insert drivers designed to guarantee a safe grip, to prevent deformations to the corners of the connections and at the same time to allow easy removal from the implant wells. The use of these drivers makes the surgical procedure of insertion extremely easy.

The Easy Insert drivers aid **visibility of the operating field**, do not occupy much space, and allow adjusting the connection hexagon properly because they present a hexagonal visual index corresponding to the prosthetic index and three laser marks on three of the six sides

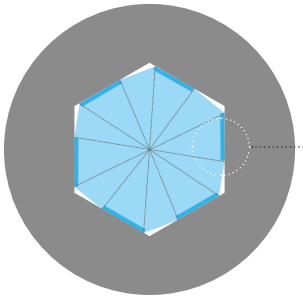
The presence of a wide hexagon allows **engaging the patented Easy Insert drivers easily and safely** for insertion of the implants into the relative sites

A single instrument that allows the insertion of all Prama implant diameters

The whole is extremely safe and reliable with the use of a special **titanium O-ring** that engages inside the connection



The photo on the left shows how a traditional instrument (in green) edges itself into the connection (in grey). This geometry inevitably determines the grip and deformation of the actual session



The **special design** of the Easy Insert drivers prevent any deformations of the implant connection, since the driver's faces (not the corners) are the ones in contact with the the connection walls

The **dodecagonal design** of the drivers prevents deformations to the implant connection, thus guaranteeing extremely high prosthetic stability and precision.

When using the Easy Insert with ratchet, as when using any other instrument for inserting implants with a dynanometric key, it is likewise advisable to take care to keep the working axis as perpendicular as possible.
It is also fundamental for the movement performed with the ratchet during tightening to be slow and uniform, avoiding brusque movements as much as possible. If these recommendations are not respected and the insertion torque is exceeded, the instrument should get broken: for this reason a preferential failure point is present above the black laser marks, to help the operator to easily remove the driver.
It is recommended to grip the ratchet in the part closest to the connection and to maintain a light and constant pressure with one finger, to allow greater stability during tightening.

description	code	included in the kit
short driver with right angle shank	**EASYC4-EX230-CA** 	**Prama**
long driver with right angle shank	**EASYL4-EX230-CA** 	**Prama**
driver with connector for dynamometric key	**EASY4-EX230-EX** 	**Prama**

Maintenance and care of the Easy Insert drivers

The Easy Insert drivers are supplied pre-mounted with the special titanium O-rings. Since they are mechanical components, the retainer rings are subject to wear over time and can lose their elasticity and functionality.
The O-rings cannot be replaced, but it is necessary to replace the instrument. The Easy Inserts were tested to be good for 40 uses in the worst conditions of use. These limits can therefore change depending on the conditions of use.
However, it is always a good idea to check its good functionality even during the cleaning and sterilisation operations. For this reason and to allow the doctor to familiarise himself with the Easy Inserts, the surgical kit contains a “test implant” that has not been treated or sterilised; it can be distinguished from the others as it is in blue.

Important warning
It is recommended to use the Easy Insert with a torque between 50 Ncm and 70 Ncm. Thanks to tests performed on models, it has been observed that from 70 Ncm to 100 Ncm slight frictions between the instrument and the implant connection are possible, they can be avoided with a slight shaking movement of the Easy Insert in the connection. From 100 Ncm to 200 Ncm higher frictions are possible, they can be solved with a simple counter-rotation movement (at 40 Ncm) in order to remove the instrument from the connection. It is moreover recommended to end the bone tapping phase using a dynamometric ratchet.

Drivers for fixation screws

All the drivers are made of stainless steel for surgical use. There are two types of drivers for the Prama implants: the traditional ones (on the left in the picture) and the ones for the screws with Full Head technology (on the right). They differ in the design of the tip, studied in the first case to join a screw with internal hexagonal connection and in the other with external hexagonal connection, therefore they are not interchangeable. In both cases the slightly conical coupling between the driver and the screw allows an appropriate retention when carrying the screw in the oral cavity. Both drivers families are available in different shank lengths, in order to facilitate the ergonomics depending on the patient anatomy. The standard drivers are available also in the hand one-piece version, this means they are integral with the hand knob which allows the grip.
Regularly verify that this functionality have not been lost due to wear.

Important warning
Excessive torques can damage the thread of the well or of the sharp edges of the connecting screws and damage the thread of the drivers, causing also severe intra-surgical and prosthetic complications. The recommended torque for the tightening of the different components are summarized in the following chart:

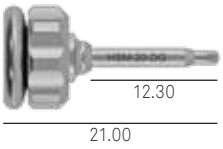
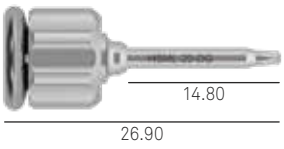
description	recommended torque
surgical cover screws, healing abutments	(manually) 8-10 Ncm
all the prosthetic screws	20-25 Ncm
all the prosthetic components with direct screwing on the implant	25-30 Ncm
transfer fixation screws	(manually) 8-10 Ncm

Given the importance of the tightening torque, it is recommended to use always the drivers with hexagonal connection, keeping always the exerted torque under control with the ratchet. To facilitate the joint of the screws or of the threaded sections of the prosthetic components, the screwing can be started with the hand drivers.

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

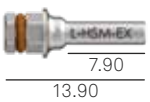
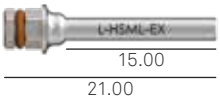
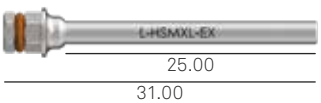
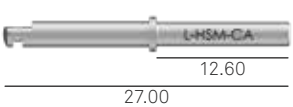
Surgical screwdrivers

Their design makes them very practical in the surgical phases for the screwing of the surgical connecting screws and for the phases of uncovering and management of the healing abutments. They must not be used in the final prosthetic screws since they do not allow the control tightening torque.

description	code	included in the kit
screwdriver for tap screws and fixation screws, digital, extra-short	**HSMXS-20-DG** 	**Prama**
screwdriver for tap screws and fixation screws, digital, short	**HSM-20-DG** 	**Prama**
screwdriver for tap screws and fixation screws, digital, long	**HSML-20-DG** 	**Prama**

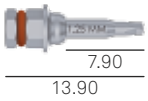
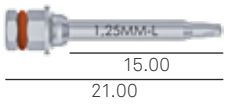
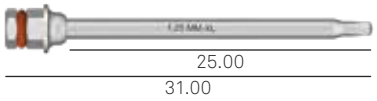
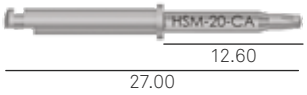
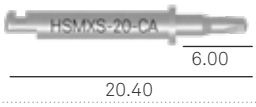
Prosthetic screwdrivers (for screws with Full Head technology)

The specific screwdrivers for the Full Head technique screws are available in the version with hexagonal connection for ratchet, with different shank lengths. A screwdriver with right angle connector is also available. The instrument's tip has an hexagonal notch, which connects the full hexagon of the Full Head screws, giving the retention needed for the carriage of the screw. These screwdrivers cannot be used for the connecting screws of the temporary posts or for other types of screws in the catalogue.

description	code	included in the kit
screwdriver for screws with Full Head technology, digital, extra short	**L-HSM-EX** 	**Prama**
screwdriver for screws with Full Head technology, digital, short	**L-HSML-EX** 	**Prama**
screwdriver for screws with Full Head technology, digital, long	**L-HSMXL-EX** 	**Prama**
screwdriver for screws with Full Head technology, for right angle	**L-HSM-CA** 	**Prama**

Prosthetic screwdrivers for standard screws (surgical cover screws, healing abutments, standard prosthetic screws)

The screwdrivers with upper hexagonal connection have been designed to be used with the dynamometric ratchet with function of control of the torque. In the kit there are two versions available the long one and the short one, an optional extra-long version is also available, necessary when the length of the hole for the screw to pass inside the posts is greater than 13.00 mm.

description	code	included in the kit
screwdriver for fixation screws, with connector for dynamometric ratchet or digital connector, short	**HSM-20-EX** 	**Prama**
screwdriver for fixation screws, with connector for dynamometric ratchet or digital connector, long	**HSML-20-EX** 	**Prama**
screwdriver for fixation screws, with connector for dynamometric ratchet or digital connector, extra-long	**HSMXL-20-EX** 	**Not included in the surgical kit, available separately**
screwdriver for fixation screws, with right angle shank	**HSM-20-CA** 	**Prama**
screwdriver for fixation screws, with right angle shank, extra-short	**HSMXS-20-CA** 	**Not included in the surgical kit, available separately**

Important warning
All the ratchet drivers have a red polymer O-ring in the connecting hexagon that guarantees friction between the instruments and therefore a correct grip 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.

Drivers for intraoperative removal of implants

description	code	included in the kit
short driver	**BC-EX230** 	**Prama**
long driver	**BL-EX230** 	**Prama**

Other instruments

description	code	included in the kit
Extension for bone taps, mounters, drivers and manual drivers, with hexagonal connector for dynamometric key	**BPM-15** 	**Prama**
Extension for surgical drills	**PROF-CAL3** 	**Prama**
Mechanical adapter with right angle shank for instruments with hexagonal connector	**B-AVV-CA3** 	**Prama**
Driver for right angle and manual instruments and instruments with hexagonal connection for ratchet	**AVV-CA-DG-EX** 	**Not included in the surgical kit, available separately**
Digital knob for bone taps, mounters, screwdrivers and drivers	**AVV3-MAN-DG** 	**Prama**

Spare O-ring

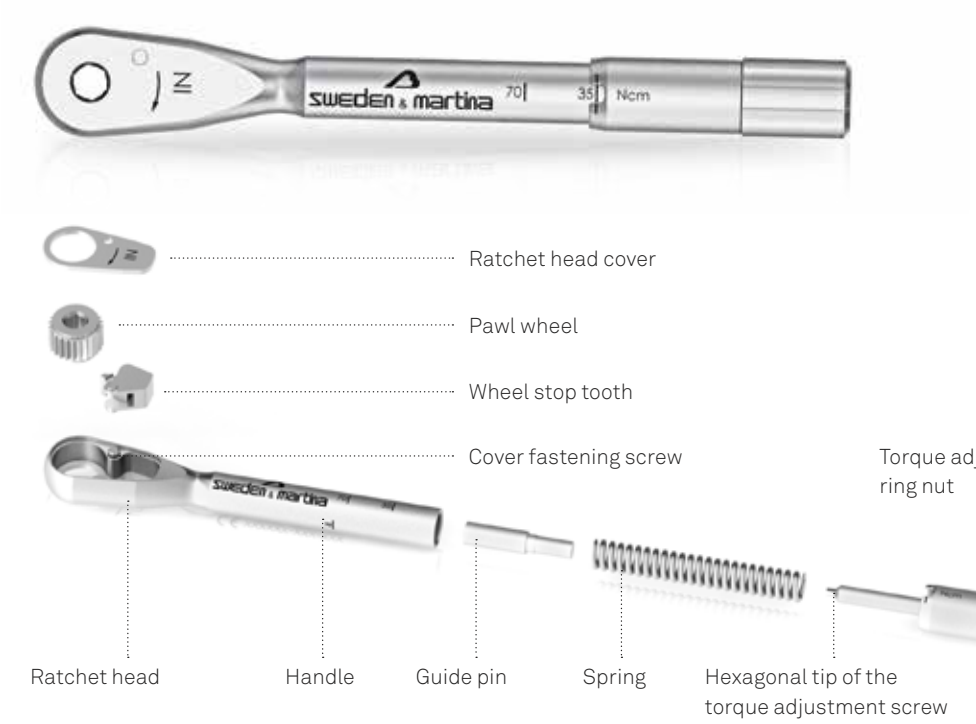
description	code	included in the kit
Box with 5 spare o-rings for all accessories with hexagonal connector for dynamometric key	**ORING180-088** 	**Not included in the surgical kit, available separately**

Mounter

description	code	included in the kit
Mounter	**MOU-EX230** 	**Not included in the surgical kit, available separately**
Mounter stop key	**CM2** 	**Not included in the surgical kit, available separately**

Dynamometric ratchet CRI5-KIT

The surgical kit of the implant system contains a special ratchet (CRI5-KIT), with its own adjustment key, for quickly screwing the torque adjustment ring nut, and with gel lubricant 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 CRI5 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 page 50. 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.

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.

Important warning

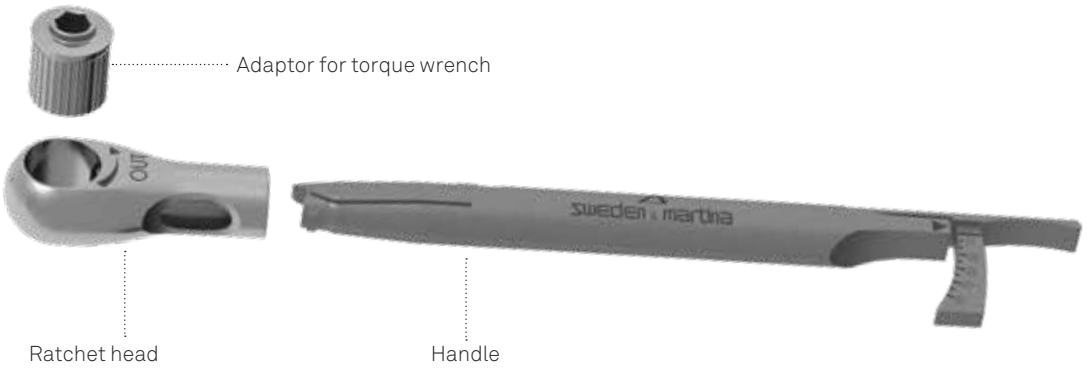
The torque is adjusted by screwing/unscrewing the ring nut located at the bottom of the instrument's handle. The torque must always be adjusted on the rise, starting screwing from a lower value until the desired torque is reached, or unscrewing the ring nut in a clockwise direction. To do this, if it 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.

In order to set a torque value, turn the ring nut in a clockwise direction until the wanted value.

To turn down a torque value of work of the ratchet, first it is necessary to unscrew the ring nut in a anticlockwise direction until reaching a value inferior of the wanted one, then proceed with the clockwise direction screwing until the chosen torque.

Torque wrench with control lever TWL

The surgical kit of the CSR-DAT implant system includes a special dynamometric key with a control lever (TWL). The torque wrench can be used to indicate the value of the torque applied during the surgical phases of screwing and unscrewing, showing values from 10 to 90 Ncm.
It is supplied complete with a specific adaptor that allows it to be used with surgical instruments with a hexagonal connection.
The torque wrench with control lever TWL is a multipurpose instrument that can be dismantled, and it is sold as non-sterile.



Every time this instrument is used, it must first be cleaned and sterilized following the instructions on page 52.
Adequate maintenance, carried out by scrupulously following all the steps indicated for dismantling and reassemblying of the torque wrench during cleaning operations is essential for its correct use and to prolong its shelf life. The personnel using this instrument must be suitably trained and must have read the instructions given in this manual before proceeding with any operations with it.

After sterilization and before use, check that the first mark on the scale is aligned with the arrow.
The instrument must be tested for correct assembly and correct funcionality every time it is used.

Important warning
The arm of the torque wrench must not move beyond the end of the scale, as this could lead to inaccurate torque readings.

The torque wrench can also be used as a fixed key, without using the scale, by using the entire handle as a lever. In this case, it must not exceed the torque value of 150 Ncm.
The personnel responsible for the use and maintenance of this instrument must check it for possible signs of deterioration of the tightening, insertion and torque mechanisms.
The single components of the torque wrench are not interchangeable, and it is not possible to use a component from one key to replace a component on another. If any component of the torque wrench is lost, always return the entire instrument to Sweden & Martina S.p.A. for all necessary repairs. Components for the assembly of the torque wrench with control lever are not sold individually. Failure to respect the instructions given may cause aesthetic problems and be damaging for the patient‘s health.

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 and transport to be used for washing: 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.
For drills with internal irrigation, use the special pins provided with the handpieces to ensure that the irrigation holes are completely clean and free of bone fragments or biological tissues. After rinsing, dry the devices thoroughly and place them inside suitable sterilisation bags. Do not exceed 120 °C when performing a drying cycle in a washing and disinfection appliance.

b. Sterilisation
In a vacuum autoclave, sterilizing as follows:
- autoclave (gravity displacement cycle) at a temperature of 121°C with minimum exposure of 30 minutes and drying cycle of 15 minutes;
- autoclave (dynamic air removal cycle) at the temperature of 132°C with minimum exposure o 4 minutes and drying cycle of 20 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.

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

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 and transport to be used for washing: 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-toaccess 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.
Please note: 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:

- Autoclave (Gravity - Displacement Cycles) Temperature of 121°C with a minimum autoclave cycle of 30 minutes and a drying cycle of 15 minutes.

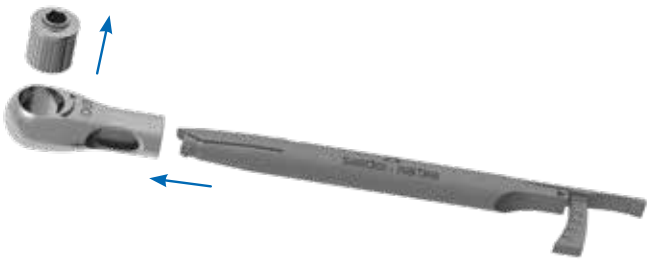
This procedure is important in order to preserve the precision of the instrument within a tolerance of ± 3.5 Ncm. Operate the torque and insertion mechanism to check their proper functioning. Remove any traces of lubricant from the outer surface of the key. Place the device in suitable sterilisation bags. It is recommended to practice the disassembly and reassembly operations, following the instructions.

Cleaning, disinfection, sterilization and storage of the torque wrench with control lever TWL

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.

a. Cleaning
Containers and transport to be used for washing: 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:



Press the driver and remove it from the head of the torque wrench, then remove the head by pressing inside the hollow, and delicately pull it out. The three separate components are now ready for cleaning.

In case of manual cleaning, clean the outer and inner surfaces of the instrument mechanically under hot water with a soft bristled brush. 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.
Observation: 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.

Components must be reassembled before sterilization.

This procedure is important in order to preserve the precision of the instrument within the following tolerances:

10 Ncm	± 0,75 Ncm
30 Ncm	± 1,5 Ncm
50 Ncm	± 2,5 Ncm
70 Ncm	± 3,5 Ncm
90 Ncm	± 4,5 Ncm

After cleaning, connect the torque wrench head to the body, pushing the components together and rotating them in opposite directions until a click is heard.

Press the driver into the torque wrench until a click is heard. The arrow on the torque wrench head indicates the direction of operation.

Place the device in a suitable sterilization bag. Disassembly and reassembly operations must be carried out following the indications provided here.

b. Sterilization

In a vacuum autoclave, proceeding as follows:

- autoclave (Gravity-Displacement Cycles) at a temperature of 121°C with minimum exposure of 30 minutes and drying cycle of 15 minutes.;
- autoclave (Dynamic –Air – Removal Cycles) Temperature of 132°C with exposition of 4 minutes and a minimum drying cycle of 20 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.

Shorty Drilling Kit

A kit of drills and stops dedicated to Prama cylindrical implants with 6.00 mm height and other short implants (7.00 and 8.50 mm) of Sweden & Martina system is available. Using Shorty drills allows all the available bone to be used for seating the implant since they do not make any overpreparation of the implant site. In addition, the laser markings that report heights from 5.00 mm to 7.00 mm, together with the relative stops, allow safe and rapid preparation.

Compared to traditional drills, the overall length of Shorty drills is shorter (24.85 mm instead of 35.00 mm), making it possible to use them even in case of difficult-to-reach distal sectors or in case of patients with reduced oral opening. In the following pages just the instruments used for the insertion of Prama implants height 6.00 mm are explained.

The kit contains two short parallelism pins, which are very practical in distal sectors

All the instruments contained in the Shorty Drilling Kit are also available as individual spares

The colour codes of the implant diameters facilitate the instrument choice

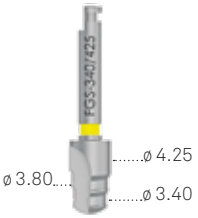
description	code
Drilling Kit for short implants	**ZSHORTY-INT** 
Drilling Kit Shorty tray	**SHORTY-TRAY-INT** 
Kit with 5 spare silicon supports for surgical trays, for drills or instruments with right-angle shank	**GROMMET-CA-1** 

Important warning
The Shorty Drilling Kit contains only drills and two parallelism pins. It is not a complete surgical kit: to insert implants must be used all the other instruments included in the standard surgical kit (driver, ratchet, screwdrivers, etc.).

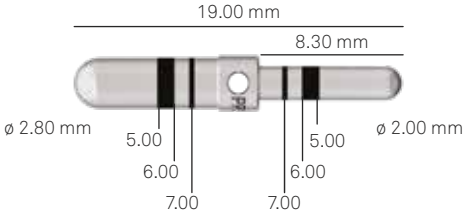
Pilot drill

Shorty pilot drill and related stop	
FPS-200 	**STOPS4-200-060** 

Short guide drills

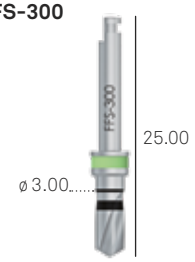
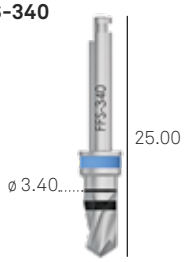
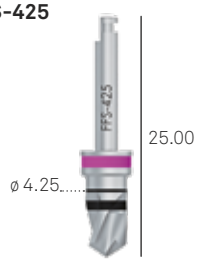
short guide drills	
FGS-200/300 	**FGS-340/425** 

Parallelism pin



description	code
parallelism pin for short drills with depth lines at 5.00, 6.00 and 7.00 mm	**PPS-2/3** 

Final drills and related stops

drills ø	3.80	4.25	5.00
short final drills	**FFS-300** 	**FFS-340** 	**FFS-425** 
stop for preparations H 0.60 mm	**STOPS4-300-060** 	**STOPS4-340-060** 	**STOPS4-425-060** 

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

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

Drilling Kit Syra Short

The Drilling Kit Syra Short contains the specific drills for the insertion of short conical implants, such as Syra Short and 6.00 mm height Prama RF implants. The drills do not overprepare the implant site and allow to dedicate all the available bone to the implant insertion. Two types of drills are contained in the Drilling Kit Syra Short: one is specific for the preparation in hard bone and the other for the preparation in soft bone, that underprepare the implant site so as to stabilize the implant even in cases of low density bone. The drills have been designed to be used together with the stops, that ensure a more precise and safe preparation. The drills have laser markings at the three different heights of 4.00 mm, 5.00 and 6.00 mm. For the maximum duration of the components, it is recommended to respect the cleaning and sterilisation procedures. In the following pages just the instruments used for the insertion of Prama RF implants height 6.00 mm are explained.

Important warning
The Drilling Kit Syra Short is a set of drills. It is not a complete surgical drill: for the insertion of Prama RF implants the instruments contained in the standard surgical kit are needed (torque wrench, screwdrivers, etc.)

The instruments are made of stainless steel. On the tray the housings of the single components are indicated to simplify the identification of the pieces and their following positioning after cleaning and detersion phases

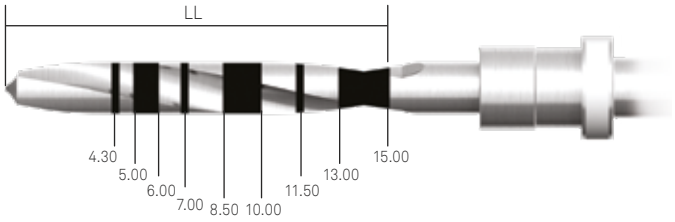
description	code
Drilling Kit Syra Short for short implants	**ZSYRASHORT-INT** 
Drilling Kit Syra Short tray	**SESHORT-TRAY-INT** 

Syra Short pilot drill

The pilot drill SE-FP200 is used to prepare the initial hole for the insertion of the implant. It has a cylindrical morphology and a diameter of 2.00 mm. The drill is recognizable thanks to a white ring and the laser marked code on the shank of the drill. It has a two cutting edges. Besides the laser markings at the heights of 4.00 mm, 5.00 mm and 6.00 mm, the Short pilot drill has also laser markings at standard heights, because it can be also used in distal sectors in case of patients with reduced oral opening.

description	code	
short pilot drill and related stop	**SE-FP200** 	**SE-STOP-FP200-060** stop 6.00 mm for short pilot drill 

LL: Total length of the working part, including the tip



Stop for pilot drill

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. 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.

LL: Total length of the working part, including the tip

Syra Short final drills and related stops

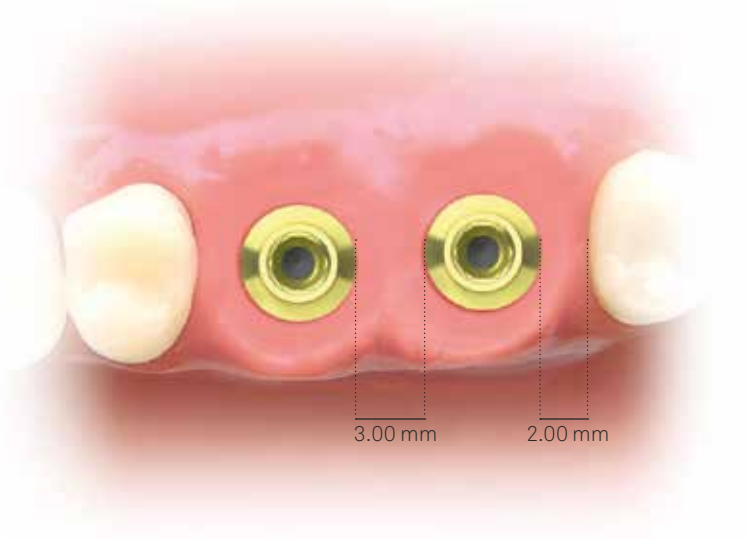
Conical drills are made of stainless steel with high resistance to corrosion and wear. They have a number of cutting edges proportioned to the diameter of the hole, in order to allow a continue and homogeneous cutting movement and a better stability of the instrument during the surgical phases. All this allows to obtain high precision implant preparations, with following easiness in the insertion of the implant.
In order to prepare Prama RF implant site both Syra Short drills for hard bone, which code on the shank is SE-FK*, and Syra Short drills for soft bone, which code on the shank is characterized by the letter “U”, thus the code is SE-FK*-U, must be used.

ø drills	4.10	5.00	
short final drills	**SE-FK410-U** drill for preparation in soft bone 	**SE-FK500** drill for preparation in soft bone 	**SE-FK500-U** drill for preparation in soft bone 
stops	**SE-STOP-FK410-060** 	**SE-STOP-FK500-060** 	**SE-STOP-FK500-060** 

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 2.00 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. However, it should 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 to different solutions and indications. 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.

Remember to always use drills with stops correctly inserted. Remember that the drills always prepare a hole that is longer than the implant. For the overpreparation dimensions, refer to page 21 for the cylindrical pilot drill, to page 24 for the cylindrical drills to page 28 for the conical drills. 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 **drill** 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;
- the **bone taps** must only be used when indicated in each procedure.

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 **Impla6000** and **Impla7000**, different brushless micromotors for surgical and implant procedures, that combines reliability, high performances and easy to use procedures. Compact, practical and with a basic design, they come with all the requirements for maximum precision and safety.

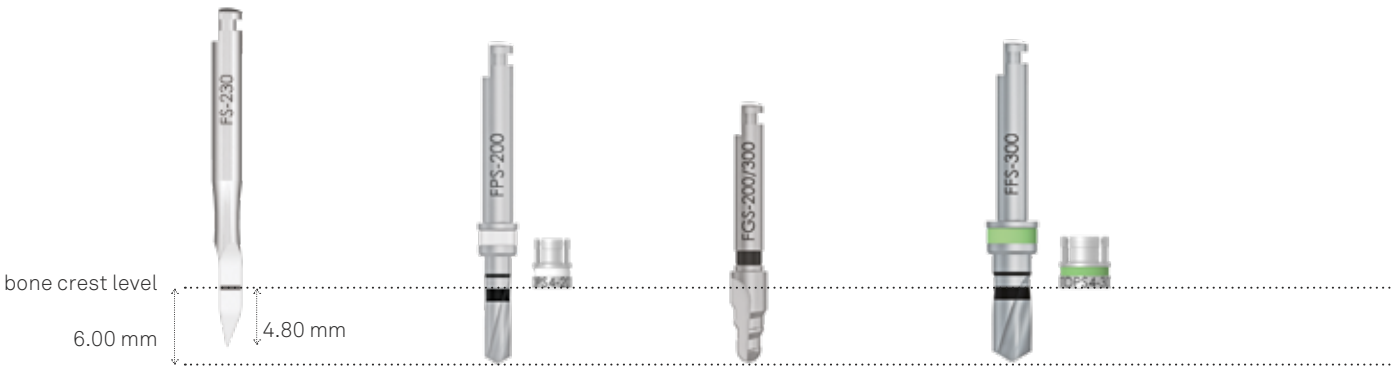
Impla6000

Impla7000

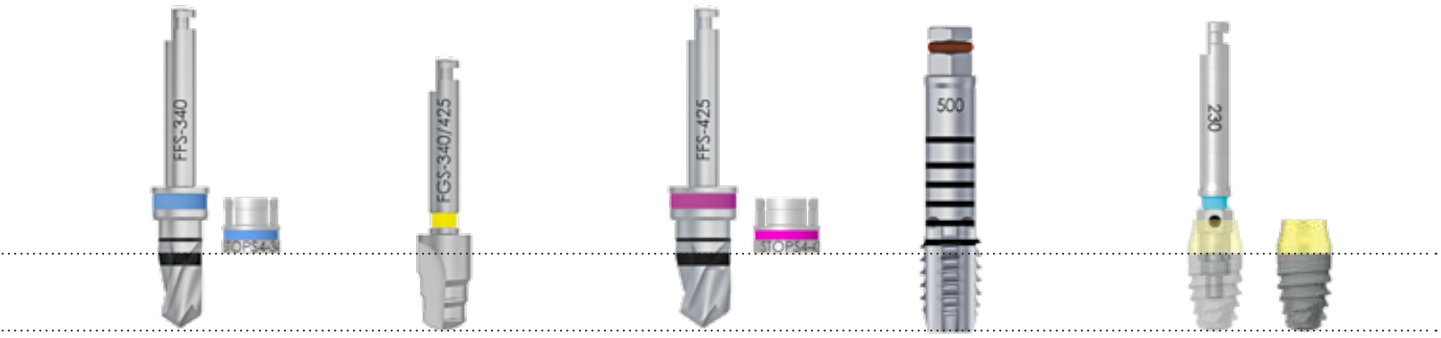
Surgical sequence for Prama implants

Surgical sequence for Prama Shorty implants H. 6.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility.
The graphic sequence is referred to the ø 5.00 mm implant.



		FS-230	FPS-200	FGS-200/300	FFS-300
ø 3.80 mm	**LA-ZT-380-060**		use up to marking 6.00 mm	use up to half of the last step	use up to marking 6.00 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	-	-	-	-
	BONE D4	-	-	-	-
ø 4.25 mm	**LA-ZT-425-060**				
	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	-	-	-	-
ø 5.00 mm	**LA-ZT-500-060**				
	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	-	-	-	-



FFS-340	FGS-340/425	FFS-425	See chart below	EASYC4-EX230-CA
use up to marking 6.00 mm	use up to half of the last step	use up to 6.00 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	-
-	-	-	-	-

			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
-	-	-	-	-
-	-	-	-	-

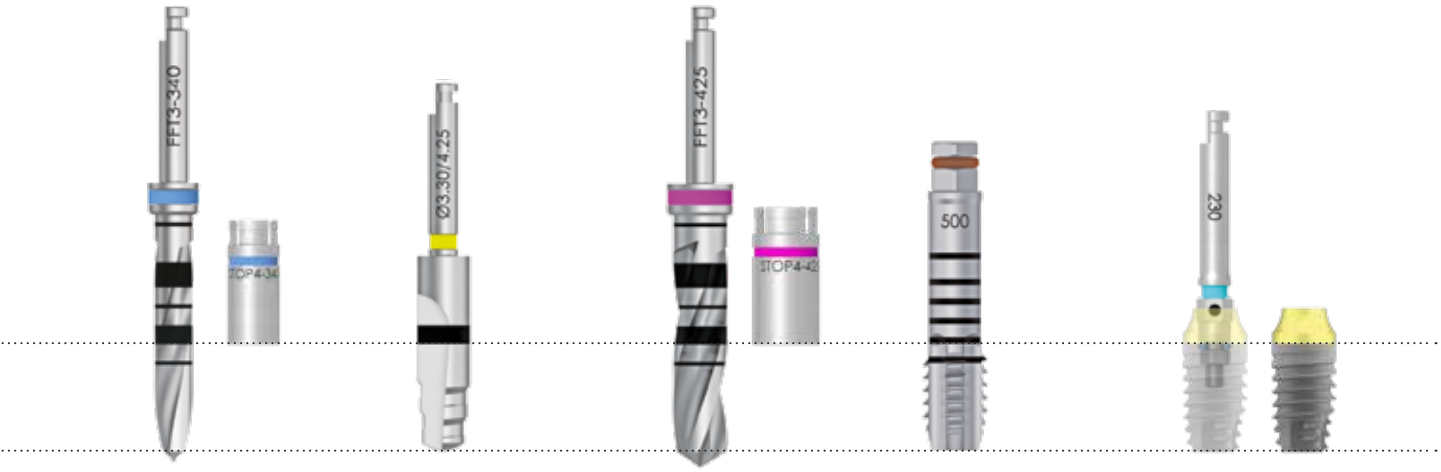
			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
-	-	-	-	-
-	-	-	-	-

Surgical sequence for Prama implants H. 8.50 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 24 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-300-LXS
ø 3.80 mm	**LA-ZT-380-085**		use up to marking 8.50 mm	use up to marking 8.50 mm	use up to marking 8.50 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	900 rpm	900 rpm	osteotome*	osteotome*
ø 4.25 mm	**LA-ZT-425-085**				
	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	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome*	osteotome*
ø 5.00 mm	**LA-ZT-500-085**				
	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	1.100 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	1.100 rpm	900 rpm	osteotome*	osteotome*

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	See chart below	EASYC4-EX230-CA
use up to marking 8.50 mm	use up to marking 8.50 mm	use up to marking 8.50 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm

			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome*	-	-	-	20 rpm

			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
900 rpm	900 rpm	900 rpm	-	20 rpm
osteotome*	osteotome*	osteotome*	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*

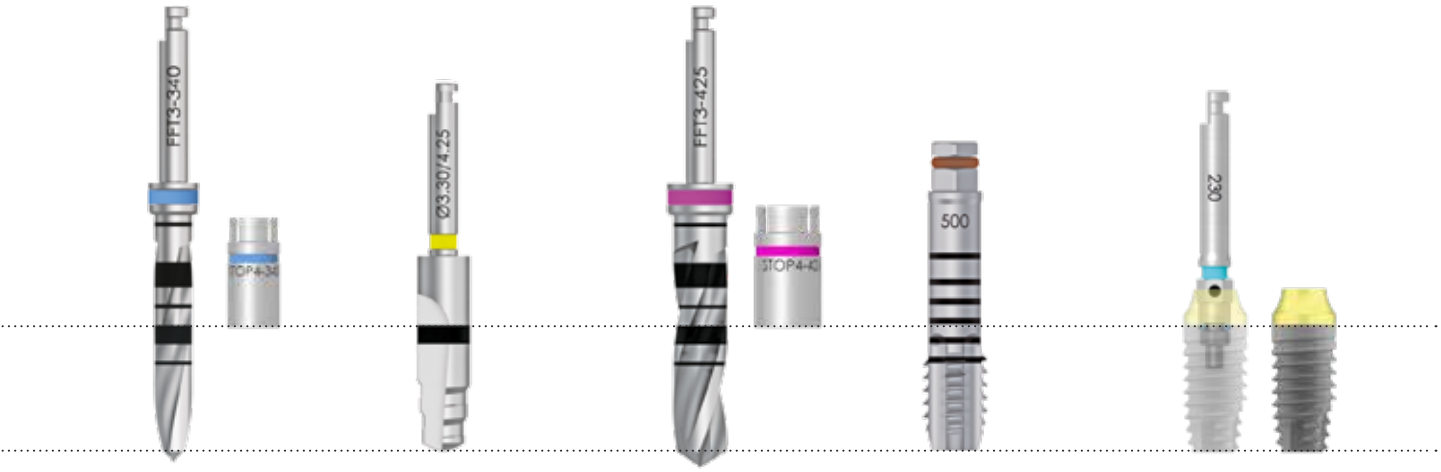
For further details see page 36.

Surgical sequence for Prama implants H. 10.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 24 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

	FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-300-LXS
ø 3.80 mm	**LA-ZT-380-100**	use up to marking 10.00 mm	use up to marking 10.00 mm	use up to marking 10.00 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	900 rpm	900 rpm	osteotome*	osteotome*
ø 4.25 mm	**LA-ZT-425-100**				
	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	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome*	osteotome*
ø 5.00 mm	**LA-ZT-500-100**				
	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	1.100 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	1.100 rpm	900 rpm	osteotome*	osteotome*

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	See chart below	EASYC4-EX230-CA
use up to marking 10.00 mm	use up to marking 10.00 mm	use up to marking 10.00 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome*	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
900 rpm	900 rpm	900 rpm	-	20 rpm
osteotome*	osteotome*	osteotome*	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*

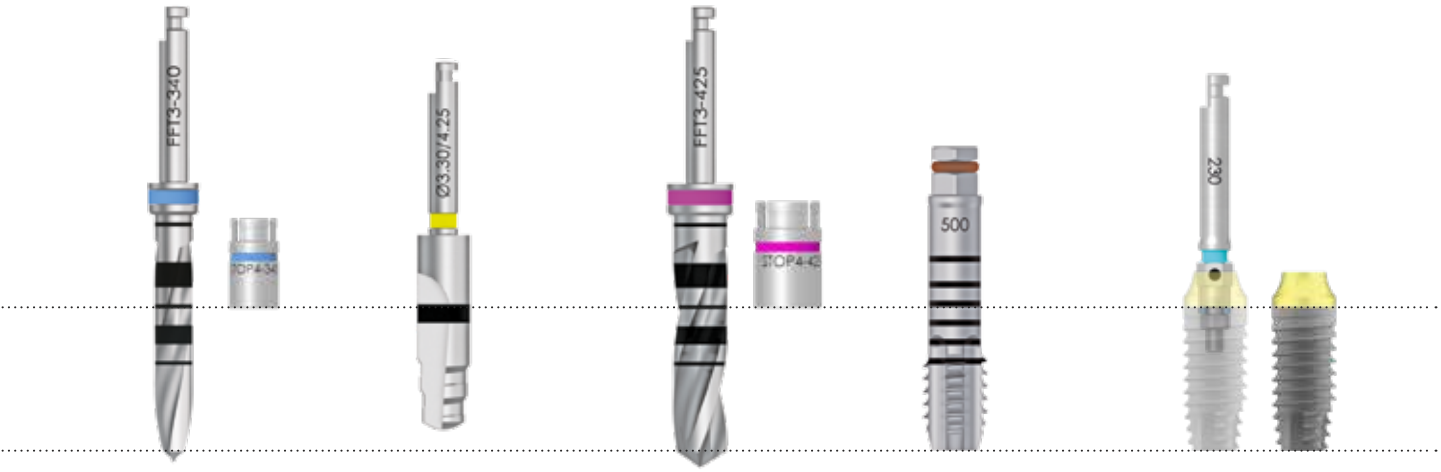
For further details see page 36.

Surgical sequence for Prama implants H. 11.50 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 24 (for the final drills).
The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-300-LXS
ø 3.80 mm	**LA-ZT-380-115**		use up to marking 11.50 mm	use up to marking 10.00 mm	use up to marking 11.50 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	900 rpm	900 rpm	osteotome*	osteotome*
ø 4.25 mm	**LA-ZT-425-115**				
	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	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome*	osteotome*
ø 5.00 mm	**LA-ZT-500-115**				
	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	1.100 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	1.100 rpm	900 rpm	osteotome*	osteotome*

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	See chart below	EASYC4-EX230-CA
use up to marking 11.50 mm	use up to marking 10.00 mm	use up to marking 11.50 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome*	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
900 rpm	900 rpm	900 rpm	-	20 rpm
osteotome*	osteotome*	osteotome*	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*

For further details see page 36.

Surgical sequence for Prama implants H 13.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 24 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-300-LXS
ø 3.80 mm	**LA-ZT-380-130**		use up to marking 13.00 mm	use up to marking 10.00 mm	use up to marking 13.00 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	900 rpm	900 rpm	osteotome*	osteotome*
ø 4.25 mm	**LA-ZT-425-130**				
	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	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome*	osteotome*
ø 5.00 mm	**LA-ZT-500-130**				
	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	1.100 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	1.100 rpm	900 rpm	osteotome*	osteotome*

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.

FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	See chart below	EASYC4-EX230-CA
use up to marking 13.00 mm	use up to marking 10.00 mm	use up to marking 13.00 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome*	-	-	-	20 rpm
			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
900 rpm	900 rpm	900 rpm	-	20 rpm
osteotome*	osteotome*	osteotome*	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*

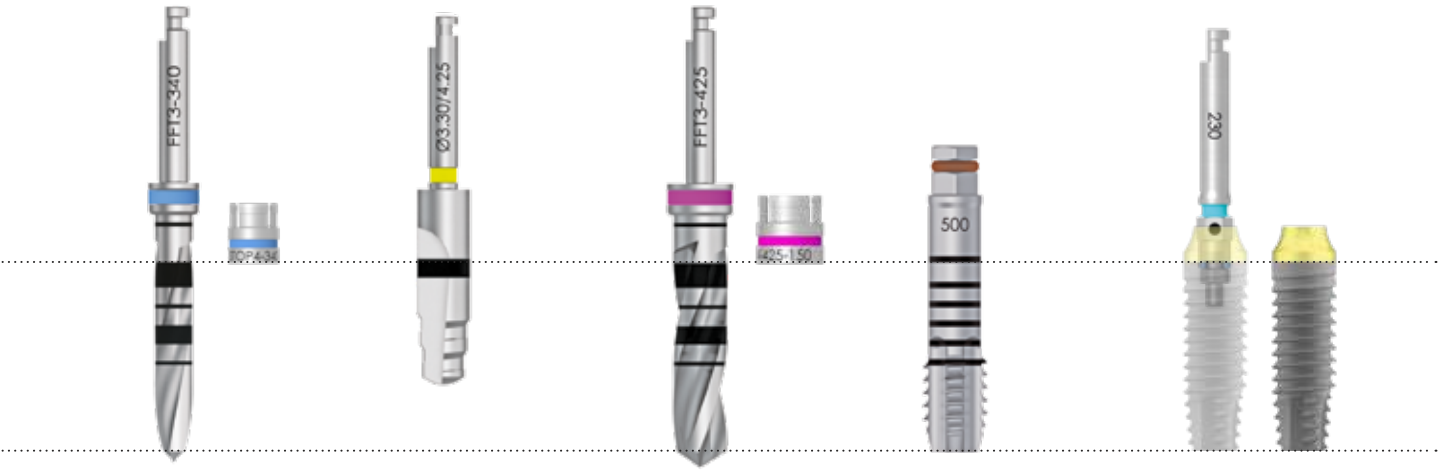
For further details see page 36.

Surgical sequence for Prama implants H 15.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 24 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	FFT3-300-LXS
ø 3.80 mm	**LA-ZT-380-150**		use up to marking 15.00 mm	use up to marking 10.00 mm	use up to marking 15.00 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	900 rpm	900 rpm	osteotome*	osteotome*
ø 4.25 mm	**LA-ZT-425-150**				
	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	900 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	900 rpm	900 rpm	osteotome*	osteotome*
ø 5.00 mm	**LA-ZT-500-150**				
	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	1.100 rpm	900 rpm	900 rpm	900 rpm
	BONE D4	1.100 rpm	900 rpm	osteotome*	osteotome*

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



FFT3-340-LXS	FG-330/425XS	FFT3-425-LXS	See chart below	EASYC4-EX230-CA
use up to marking 15.00 mm	use up to marking 10.00 mm	use up to marking 15.00 mm	50 Ncm max	50 Ncm max
-	-	-	**A-MS-380** (20 rpm)	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm
-	-	-	-	20 rpm

			50 Ncm max	50 Ncm max
900 rpm	-	-	**A-MS-425** (20 rpm)	20 rpm
900 rpm	-	-	-	20 rpm
900 rpm	-	-	-	20 rpm
osteotome*	-	-	-	20 rpm

			50 Ncm max	50 Ncm max
1.100 rpm	1.100 rpm	900 rpm	**A-MS-500** (20 rpm)	20 rpm
1.100 rpm	1.100 rpm	900 rpm	-	20 rpm
900 rpm	900 rpm	900 rpm	-	20 rpm
osteotome*	osteotome*	osteotome*	-	20 rpm

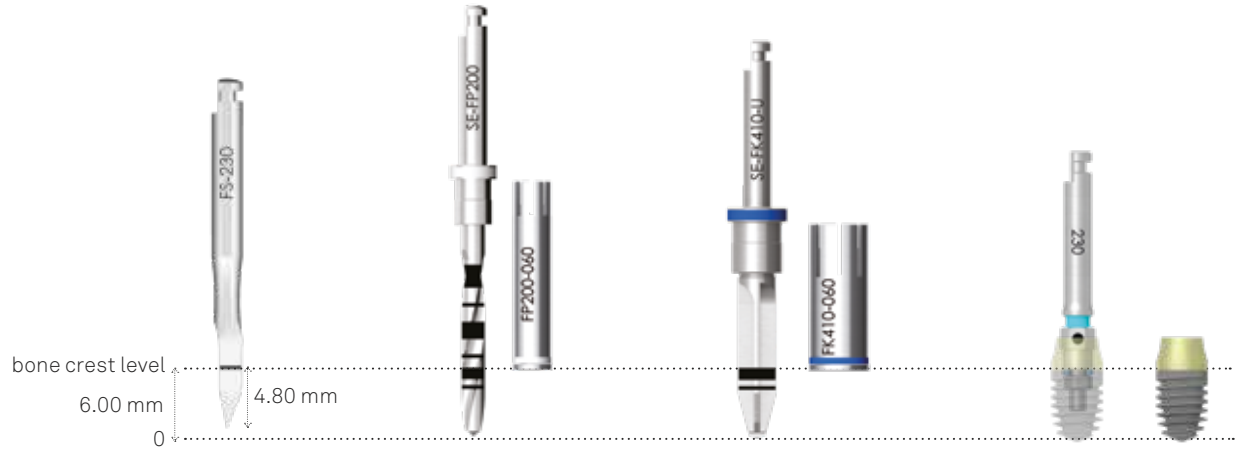
**All the osteotomes have to be used at the reference notch of the implant to insert.*

For further details see page 36.

Surgical sequence for Prama RF implants

Underpreparation in soft bone

Surgical sequence for Prama RF Shorty implant



FS-230 **SE-FP200** **SE-FK410-U** **EASYC4-EX230-CA**

ø 4.25 mm	**LS-ZT-425-060**		use up to marking 6.00 mm	use up to marking 6.00 mm	50 Ncm max
	BONE D2	600 rpm	1.100 rpm	900 rpm	20 rpm
	BONE D3	600 rpm	900 rpm	900 rpm	20 rpm
	BONE D4	600 rpm	900 rpm	900 rpm	20 rpm

FS-230 **SE-FP200** **SE-FK410-U** **SE-FK500-U** **EASYC4-EX230-CA**

ø 5.00 mm	**LS-ZT-500-060**		use up to marking 6.00 mm	use up to marking 6.00 mm	use up to marking 6.00 mm	50 Ncm max
	BONE D2	600 rpm	1.100 rpm	900 rpm	900 rpm	20 rpm
	BONE D3	600 rpm	900 rpm	900 rpm	900 rpm	20 rpm
	BONE D4	600 rpm	900 rpm	900 rpm	900 rpm	20 rpm

Preparation in hard bone

Surgical sequence for Prama RF Shorty implant

FS-230 **SE-FP200** **SE-FK410-U** **SE-FK500-U** **EASYC4-EX230-CA**

ø 4.25 mm	**LS-ZT-425-060**		use up to marking 6.00 mm	use up to marking 6.00 mm	use up to marking 6.00 mm	50 Ncm max
	BONE D1	800 rpm	1.100 rpm	900 rpm	900 rpm	20 rpm

FS-230 **SE-FP200** **SE-FK410-U** **SE-FK500-U** **SE-FK500** **EASYC4-EX230-CA**

ø 5.00 mm	**LS-ZT-500-060**		use up to marking 6.00 mm	use up to marking 6.00 mm	use up to marking 6.00 mm	use up to marking 6.00 mm	50 Ncm max
	BONE D1	800 rpm	1.100 rpm	900 rpm	900 rpm	900 rpm	20 rpm

Surgical sequence for Prama RF implants H. 8.50 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 28 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	SH-FK380-085
ø 3.80 mm	**LS-ZT-380-085**		use up to marking 8.50 mm	use up to marking 8.50 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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 4.25 mm	**LS-ZT-425-085**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 5.00 mm	**LS-ZT-500-085**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.

SH-FK425-085	**SH-FK500-085**	**See chart below**	**EASYC4-EX230-CA**
		50 Ncm max	50 Ncm max
-	-	**SH-MS-380-CA** (20 rpm)	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	-	**SH-MS-425-CA** (20 rpm)	20 rpm
900 rpm	-	-	20 rpm
800 rpm	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	900 rpm	**SH-MS-500-CA** (20 rpm)	20 rpm
900 rpm	900 rpm	-	20 rpm
800 rpm	800 rpm	-	20 rpm
-	-	-	20 rpm

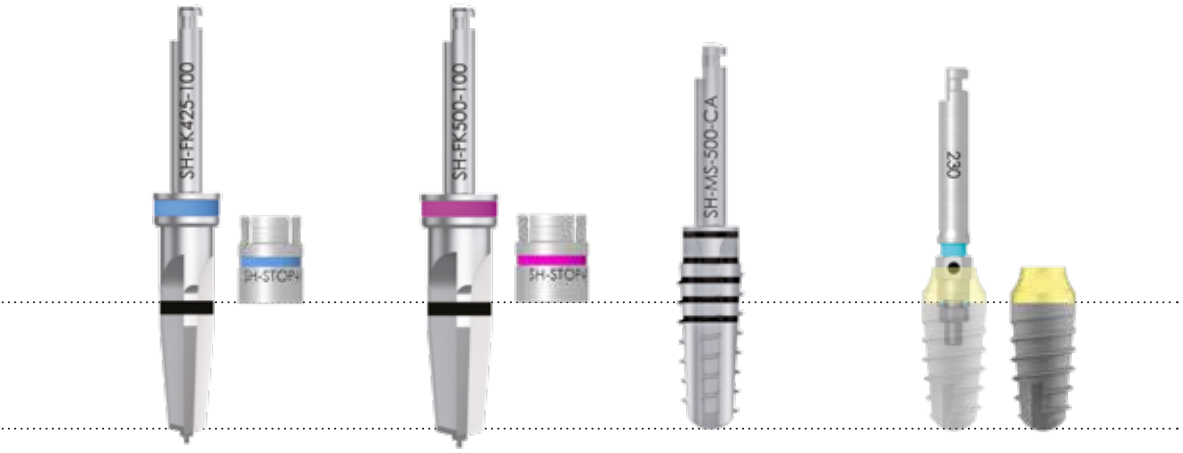
**All the osteotomes have to be used at the reference notch of the implant to insert.*
For further details see page 36.

Surgical sequence for Prama RF implants H. 10.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 28 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	SH-FK380-100
ø 3.80 mm	**LS-ZT-380-100**		use up to marking 10.00 mm	use up to marking 10.00 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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 4.25 mm	**LS-ZT-425-100**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 5.00 mm	**LS-ZT-500-100**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



SH-FK425-100	SH-FK500-100	See chart below	EASYC4-EX230-CA
		50 Ncm max	50 Ncm max
-	-	**SH-MS-380-CA** (20 rpm)	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	-	**SH-MS-425-CA** (20 rpm)	20 rpm
900 rpm	-	-	20 rpm
800 rpm	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	900 rpm	**SH-MS-500-CA** (20 rpm)	20 rpm
900 rpm	900 rpm	-	20 rpm
800 rpm	800 rpm	-	20 rpm
-	-	-	20 rpm

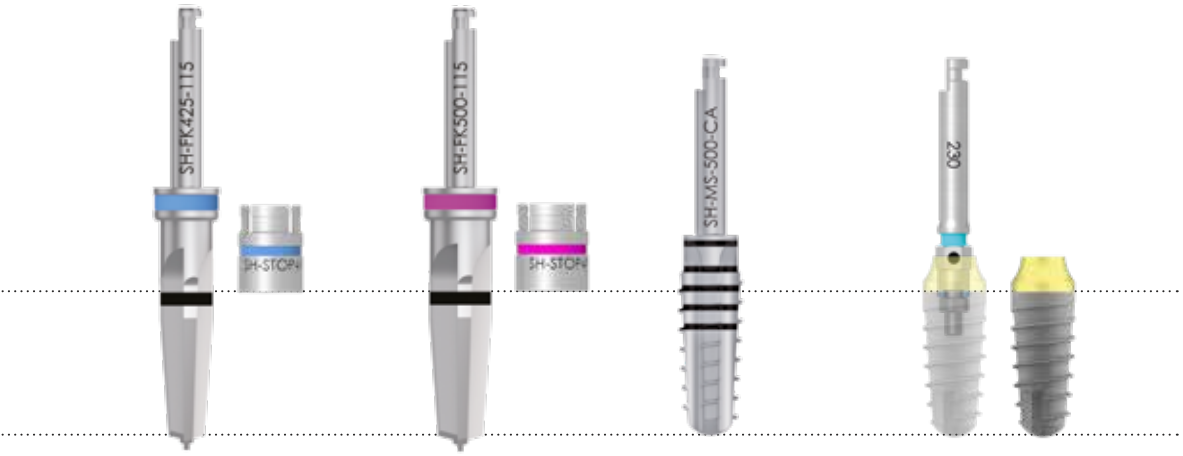
**All the osteotomes have to be used at the reference notch of the implant to insert.*
For further details see page 36.

Surgical sequence for Prama RF implants H. 11.50 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 28 (for the final drills).
The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	SH-FK380-115
ø 3.80 mm	**LS-ZT-380-115**		use up to marking 11.50 mm	use up to marking 10.00 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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 4.25 mm	**LS-ZT-425-115**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 5.00 mm	**LS-ZT-500-115**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



SH-FK425-115	SH-FK500-115	See chart below	EASYC4-EX230-CA
		50 Ncm max	50 Ncm max
-	-	**SH-MS-380-CA** (20 rpm)	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	-	**SH-MS-425-CA** (20 rpm)	20 rpm
900 rpm	-	-	20 rpm
800 rpm	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	900 rpm	**SH-MS-500-CA** (20 rpm)	20 rpm
900 rpm	900 rpm	-	20 rpm
800 rpm	800 rpm	-	20 rpm
-	-	-	20 rpm

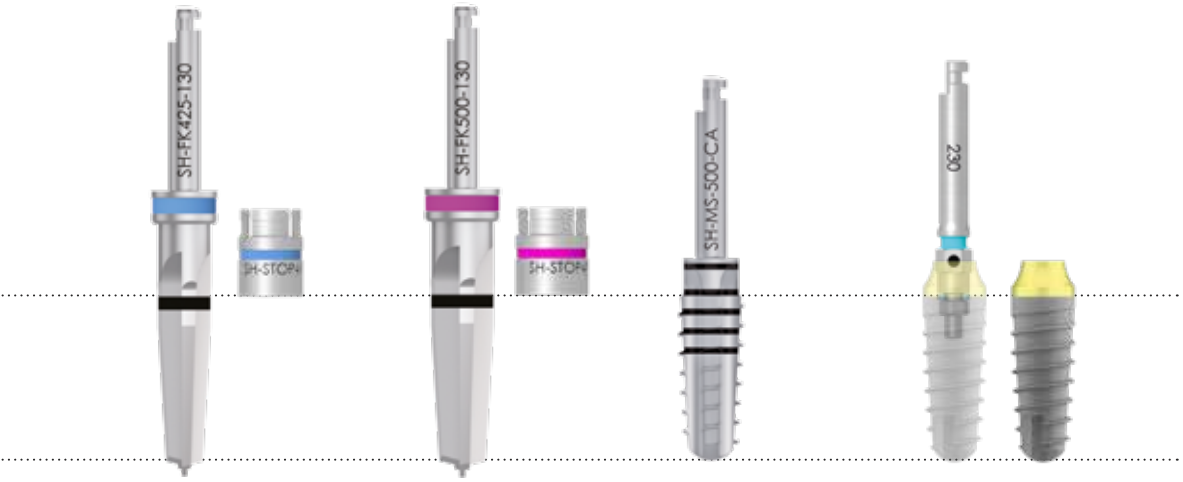
**All the osteotomes have to be used at the reference notch of the implant to insert.*
For further details see page 36.

Surgical sequence for Prama RF implants H. 13.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 28 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

		FS-230	FPT3-200-LXS	FG-200/280XS	SH-FK380-130
ø 3.80 mm	**LS-ZT-380-130**		use up to marking 13.00 mm	use up to marking 10.00 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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 4.25 mm	**LS-ZT-425-130**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 5.00 mm	**LS-ZT-500-130**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.



SH-FK425-130	SH-FK500-130	See chart below	EASYC4-EX230-CA
		50 Ncm max	50 Ncm max
-	-	**SH-MS-380-CA** (20 rpm)	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	-	**SH-MS-425-CA** (20 rpm)	20 rpm
900 rpm	-	-	20 rpm
800 rpm	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	900 rpm	**SH-MS-500-CA** (20 rpm)	20 rpm
900 rpm	900 rpm	-	20 rpm
800 rpm	800 rpm	-	20 rpm
-	-	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*

For further details see page 36.

Surgical sequence for Prama RF implants H. 15.00 mm

The use of the stops depends on the clinician. Their use is recommended, most of all in the case of poor intraoperative visibility. Please remember that the drills over-prepare the length for a measurement reported in the table on page 21 (for the pilot drill) and 28 (for the final drills). The graphic sequence is referred to the ø 5.00 mm implant.

	FS-230	FPT3-200-LXS	FG-200/280XS	SH-FK380-150
ø 3.80 mm	**LS-ZT-380-150**	use up to marking 15.00 mm	use up to marking 10.00 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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 4.25 mm	**LS-ZT-425-150**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-
ø 5.00 mm	**LS-ZT-500-150**				
	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	800 rpm
	BONE D4	900 rpm	osteotome*	-	-

In the case of surgeries in the distal sectors or in case of poor oral opening of the patient, drills of reduced length are available, to be used without stop. For further details see page 34.

SH-FK425-150	SH-FK500-150	See chart below	EASYC4-EX230-CA
		50 Ncm max	50 Ncm max
-	-	**SH-MS-380-CA** (20 rpm)	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	-	**SH-MS-425-CA** (20 rpm)	20 rpm
900 rpm	-	-	20 rpm
800 rpm	-	-	20 rpm
-	-	-	20 rpm

		50 Ncm max	50 Ncm max
900 rpm	900 rpm	**SH-MS-500-CA** (20 rpm)	20 rpm
900 rpm	900 rpm	-	20 rpm
800 rpm	800 rpm	-	20 rpm
-	-	-	20 rpm

**All the osteotomes have to be used at the reference notch of the implant to insert.*
For further details see page 36.

Implant insertion

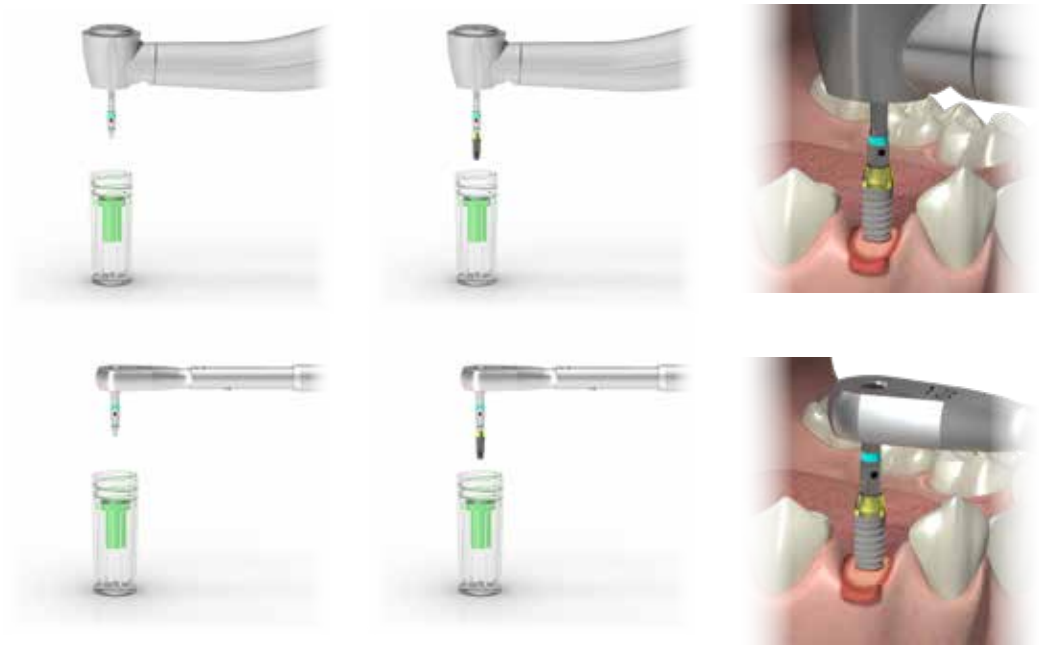
1 Use the patient label found inside the pack for the patient's medical file and apply it on the Dental Card: this will make it easier to record the patient's treatment plan and will keep a trace of the batch used.

2 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.

Standard procedure

When the vial is opened the mounter is presented with the hexagon ready to be engaged. The implant may be picked up using the dedicated driver 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 driver has been tested up to 70 Ncm and has not presented any deformations or failures. Instruments with torque control, both mechanical and normal, are regularly calibrated with a suitable calibrated instrument.



Phase after inserting the implant

Healing times

It is essential to respect the healing times recommended in implant surgery and to check periodically the state of evolution of osseointegration, with x-rays, the stadium of the osseointegration. The preliminary healing times of an implant are influenced by the quality of the receiving bone. In the case of immediate load, consider the warnings reported on pages 6-7 . In the case of a deferred loading, in order to minimize the discomfort conditioned by the biological times for the osseointegration, the use of mobile temporary prosthesis has to be carried out with prudence, widely unloading the prosthesis.

After the healing the screws are removed from the implants. If the right angle driver is used, the surgical micromotor must be set with the following parameters: 20 rpm and torque 10 Ncm.

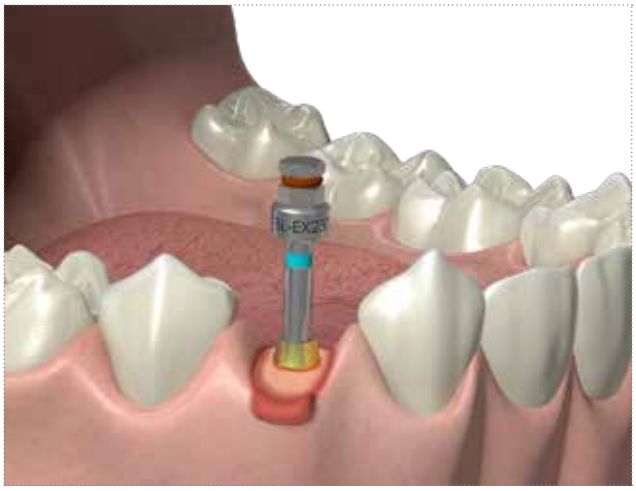
After that , depending on the protocol adopted, proceed with the adaptation of the profiles of the tissues with a proper temporary or with proper healing abutments.

It is recommended to secure the healing abutments manually or at any rate with a torque no greater than 10 Ncm.

Intraoperative removal of implants if necessary

If a previously inserted implant needs to be removed, this can be done by directly engaging the hexagonal driver connection of the implant.
Accurately clean away blood and any other residues produced during insertion from the implant socket by irrigating the site.

Take the BC-EX230 or BL-EX230 driver not included in the surgical kit and insert the hexagonal tip of the driver inside the implant connection, being very careful that the instrument is on-axis with the implant and that it completely and closely engages the internal hexagon.



Block the head of the CRI5-KIT ratchet or of the TWL key and connect it with the hexagonal tip of the driver making sure that the laser-etched arrow on the ratchet head indicates an anticlockwise direction, and move it in this direction while keeping the driver/ratchet assembly on-axis with the index finger.
It is recommended to apply a higher torque than the one applied during the insertion phase.
Once it has been unscrewed pick up 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. Sweden & Martina offers unlimited lifetime warranty for 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 the surgical instruments illustrated in this manual 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, in compliance with harmonized 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.

Grade 4 titanium (Cold worked)*

chemical composition	maximum allowed values (%)	tolerance
nitrogen	0.05	+/- 0.02
carbon	0.10	+/- 0.02
hydrogen	0.015	+/- 0.002
iron	0.25	+/- 0.10 (%<0.25) +/- 0.15 (%>0.25)
oxygen	0.20	+/- 0.02 (%<0.20) +/- 0.03 (%>0.20)
titanium	remainder	-

* This technical information complies with the express specifications of the regulations in force on the use of Gr. 4 titanium in implantology:
- ASTMF67 – 13(2017): Standard Specification for unalloyed titanium, for surgical implant applications.
- ISO 5832-2:2018: Implant for surgery - Metallic materials - Part 2: Unalloyed titanium.

Important note: the use of cold worked Gr. 4 titanium bars for the production of Sweden & Martina implants allows the exploitation of mechanical characteristics higher than those required by applicable standards. Furthermore, the excellent results documented during 20 years of clinical experience corroborate the choice of the coldworking production process and of ZirTi surface treatments, which express and enhance the raw material potential selected by Sweden & Martina.

Surgical instruments
Depending on the type of component, 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

Patients must be asked if they are allergic to any of the materials used.

Identification of the manufacturer

The manufacturer of Premium One implants and of the respective surgical instruments is:

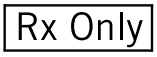
Sweden & Martina
Via Veneto 10 - 35020 Due Carrare (Padua) - Italy
Tel. +39 049.9124300 - Fax + 39 049.9124290
e-mail: info@sweden-martina.com
www.sweden-martina.com

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 indicated in Table 01. Even though they can be used with all patients who have suitable therapeutic indications, dental implants and the respective surgical instruments must be used only by professional dentists or surgeons with the necessary qualifications and training.

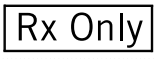
Table 01 - Risk classes

device	directive 93/42	packing	rule Annex IX	risk class
Implant fixtures for dental use, belonging to the Prama implant system	Implantable devices intended for long-term use (over 30 days)	Single-use and sterile package, fixture complete with surgical cover screw	8	IIb
Surgical cover screws	Implantable devices intended for long-term use (over 30 days)	Sold in packages complete with the respective fixtures or sold individually (single-use and sterile packages)	8	IIb
Complete surgical kits	Reusable surgical instruments	Sold in NON sterile packages	6	IIa
Radel instrument trays and x-ray templates	Non invasive medical devices	Sold in NON sterile packages	1	I
Surgical drills (precision, conical, cylindrical, for distal use, countersinks, bone profilers) and Drill extensions, Drill stops, Bone taps, Drivers and Drivers/Screwdrivers intended to be used with a micromotor	Reusable invasive surgical instruments for temporary use (for less than 60 minutes at a time)	Sold in NON sterile packages	6	IIa
Osteotomes/Bone Expanders, Drivers/ Screwdrivers, Bone taps, Drivers, Hex drivers, Hand knobs, Depth gauges, Parallelism pins and Stents	Reusable surgical instruments for temporary use (for less than 60 minutes at a time), not intended to be connected to an active medical device	Sold in NON sterile packages	6	I

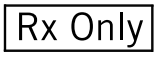
Key to symbols used on implant packs:

description	symbol
Caution! See instruction for use	
Batch number	
Code	
Manufacturer	
Consult instruction for use	
CE conformity mark for class IIa and IIb products	
American federal law restricts this device to sale by or by order of a professional practitioner	
Do not resterilize	
Disposable product, do not reuse	
Do not use if the packaging is damaged	
Sterilized with ionizing radiation	
Expiry date after which the product must not be used	

Key to symbols used on surgical instrument packs:

description	symbol
Caution! See instruction for use	
Batch number	
Code	
Manufacturer	
Consult instruction for use	
CE conformity mark for class IIa and IIb products	
CE conformity mark for class I products	
American federal law restricts this device to sale by or by order of a professional practitioner	
Non-sterile product	

Key to symbols used on prosthesis packs:

description	symbol
Caution! See instruction for use	
Batch number	
Code	
Manufacturer	
Consult instruction for use	
CE conformity mark for class IIa and IIb products	
CE conformity mark for class I products	
American federal law restricts this device to sale by or by order of a professional practitioner	
Disposable product, do not reuse	
Non-sterile product	

THIS MANUAL WAS LAST UPDATED IN JULY 2018.

The medical devices addressed by this manual have been designed and manufactured in accordance with the most recent directives and harmonized standards applicable to the materials used, production processes, the information supplied and packaging.

Bibliography on Sweden & Martina implants since 2013

For older pubblications please consult
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NOTE

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