# **Otmedical**®

# Innovative Präzision Made in Germany





### Introduction

OT-F<sup>1</sup> implants are self tapping cylindrical screw implants made of titanium grade 4 for insertion down to the bone crest level. The surgical procedure is usually two-phase, but can be one-phase in special cases at corresponding indication.

The implants are available in multiple sizes (diameters 3.30/3.80/4.10/4.90 mm and lengths of 8/10/12/14/16 mm), assuring a wide indication spectrum at sufficient vertical as well as horizontal bone quantity. The indication spectrum is increased by surgical procedures such as augmentation, bone spreading or bone splitting.

The OT-F<sup>1</sup> implant is suitable not only for insertion in completely healed jaw bone (late implantation), but also for delayed insertion (6-8 weeks after tooth extraction), as well as at corresponding preconditions for immediate implantation (directly after tooth extraction).

The implant diameter should be selected accordingly to fill out the extraction site diameter completely or ideally to slightly expand the site, considering the planned prosthetic type of restoration. The choice of correct implant size is not only determined by the anatomic situation of mandible and maxilla, but especially dependent on the desired type of prosthetic restoration, in order to avoid possible overloading.

#### Important:

Please follow the general and special contraindications contained in the instructions for use and in addition the indication restrictions for implants with a diameter of 3.30 mm !

Detailed information on the implant surfaces Nanoplast<sup>®</sup> and TPS is contained in the OT-F<sup>1</sup> Product Catalog.

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### The color coding system

The OT-F<sup>1</sup> implant is provided in four different diameters in order to cover multiple indications.

The color coding facilitates the access to the individual components for the implantology team. You will find the color coding on all packages of implants as well as prosthetic components, surgical Final Drills, Cortical Drills, Cover Screws and Healing Abutments for all diameters.

Titanium abutments are color coded in yellow (ø 3.80) and blue (ø 4.90).

The outer package and the labels provide valuable information about the enclosed product before opening: Sterilization expiry date, implant length and diameter, article and lot number. The lot number is the basis for traceability of relevant product information and is essential in the preparation of potential returns or warranty claims.

The packaging contains the Instructions for Use with important instructions as to how the implant should be inserted. In addition, the adhesive stickers are contained which can be used in the documentation of patient records or with the implant passport. The implant is delivered in a gamma sterile packaging that includes the appropriate Cover Screw. Following the opening of the blister packaging, the implant and Cover Screw are found in separate sterile compartments, which remain sterile until the time for their use. This is due to an acrylic, doubled chambered vial sealed with a color coded sealing cap on each end (see color coding). These sealing caps provide for the appropriate selection of both the implant and the Cover Screw.

When the acrylic vial has been removed from the blister packaging, it may be placed on the work station or table, as the acrylic vial will not roll due to the form of the sealing cap. For insertion of the implant, please remove the implant from the acrylic vial with the aid of the sealing cap.

The implant needs not to be detached from the sealing cap, as it can be used to place the implant directly into the prepared site with 2 to a maximum of 4 turns. The advantage: no implant contamination through the use of additional instruments.

### The color coding system

Diameter	Color code	Color markings	and the second	_ lesipau 30
3.30 mm	green			Otmedical*
3.80 mm	yellow	•	Ctmedical*	
4.10 mm	red		Ë	Innovative Präzision Made in Germany
4.90 mm	blue		Innovative Präzision Made in Germany	



### Preparation

Any implantation should in principle be preceded by a thorough clinical examination. The vertical and horizontal bone quantity can be determined with the aid of an osteometer being placed through the gingiva. For an exact diagnosis, the use of a panoramic radiograph and a template prepared in the laboratory is mandatory. The X-ray indicator helps to determine the optimal length and the diameter of the implant for the implant site prior to surgery. The X-ray indicator corresponding with the magnification factor of the X-ray unit used is placed on the radiograph.

A sufficient number of implants in different lengths and diameters should be available during surgery, as in many cases the definitive decision as to which implant would have the optimal dimensions for the revealed bone anatomy can be made only after exposure of the jaw bone.

An additional aid for diagnosis is the three dimensional CT or

DVT scan method in order to decide for the exact implantation planning and surgery.

In many cases, model or computer supported surgery templates based on a virtual surgery planning at the computer, can be recommended. This procedure guarantees a high safety both for the doctor and the patient. An intra-operative decision for the suitable implant size as described above, is usually not necessary with this method.

### Surgical Tray

The Surgical Tray is compact and well-accessible and contains all drills and accessories for insertion of the  $OT-F^1$  implants of 3.30 mm up to 4.90 mm diameter.

Immediately after insertion, the implants should be protected with the Cover Screw contained in the implant package. After healing and exposure, the implants should be provided with Healing Abutments in cylindrical or conical shape. For impression taking, the doctor can choose between Impression Copings for the closed or the open impression. The ideal planning prior to surgery should encompass the awareness about the available prosthetic abutments and their indications offered by the implant system.



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### Prosthetics

### Prosthetic Abutments

The prosthetic variations of the OT-F<sup>1</sup> implant system feature versatility, but also a simplicity at the same time. The system offers constructions from single tooth replacement to small and also large bridges up to an edentulous jaw reconstruction in different variations. Whether cemented, screw-fixed or removable by the dentist, the denture may be standard, individually custom-made or highly esthetic, everything is possible.

### The following prosthetic abutments are available:

- **Temporary Abutment "CreativeLine"** For temporary restoration and design of the emergence profile
- Massive abutment titanium "VersaLine" For preparation of individual abutments by trimming from the complete piece, especially for the telescope and cone crown technique
- Anatomical titanium abutment "NaturalLine" For high quality restoration of cemented crowns and bridges
- Standard titanium abutment "BasicLine" For simple restoration of cemented crowns or bridges
- Gold base abutment "GoldLine" (cast-on) Cast-on Abutment for preparation of individual abutments in precious metal alloys.
- CAD/CAM Abutment "HighLine"

High quality abutment with titanium base for preparation of individual zirconium abutments by CAD/CAM or also copy drilling procedure

#### • Zirconium abutment "CeraLine"

High quality zirconium standard abutment with titanium base for preparation of individual zirconium abutments.

• Bar abutment system "ProfiLine" (two-part) Abutment of two parts for compensation of divergence for preparation of confectioned and individual bar constructions.

### Ball head abutment "TecLine"

For anchorage of complete prostheses with O-ring or Dalbo® Plus elliptic attachments

LOCATOR<sup>®</sup> Abutment

For anchorage of complete prostheses with original LOCATOR® retention elements (Zest Anchors, USA)

### Magnet Abutment "Titanmagnetics<sup>®</sup>"

For anchorage of complete prostheses with original countermagnets (Distributor STECO, Hamburg)

### IMPORTANT

The abutments VersaLine, NaturalLine, HighLine and CeraLine are delivered with an additional laboratory screw (groove marking at the shaft). The color-coded definitive screw is used for final fixation of the abutment in the mouth of the patient with 30 Ncm.

Please see detailed information in the OT-F<sup>1</sup> Product Catalog.



### Preparation

### Step-by-Step Instructions for the Bone Preparation

All drills are cooled externally as an internal cooling would be difficult to clean. The drills are inserted into the jaw bone with careful up-and-down-movements. Any bone particles should carefully be preserved and may be used later for a possibly necessary augmentation.

Important: The drills must not be used more than 15 times as otherwise optimum cutting action cannot be guaranteed.

#### Step 1: Exposure

OT-F<sup>1</sup> implants are inserted after exposure of the jaw bone. The doctor decides if individual incisions are required in the present situation.

#### Step 2: Preparation of the jaw bone

If the exposed alveolar crest shows protrusions which are unfavorable for implant insertion, such as small or even sharp edged ridges, these can be removed by using the Bone Trephine in order to prepare a plane level for insertion of the implant.

#### **Step 3: Perforation of the Cortical Bone**

The Pilot Drill 1 (diameter 1.6 mm) perforates the cortical bone plate in an exact horizontal positioning and in vertical correspondence with the axis.

The Pilot Drill is a very sharp three-edged drill performing the first drilling considerably easier than the conventional rose bur (recommended speed: 1,200 rpm).

### **Step 4: Pilot Drilling**

The first preparation is now continued to the complete depth with Pilot Drill 2 (diameter 2.0 mm). This drill has a laser graduation according to the implant lengths 8/10/12/14 and 16 mm (recommended speed 1,100 rpm).



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### Preparation

### Step 5: Control check No. 1

The Depth Gauge (diameter 2.0 mm) can now be inserted for an exact control of the prepared depth. The lower laser markings correspond with the Pilot Drill and following Drills of the OT-F<sup>1</sup> system.

### Step 6: Control check No. 2

In order to keep a parallel adjustment of the implants at un-guided implant bone preparation, the use of a Direction Indicator is required. This instrument should be placed into the preparation with the thin (Ø 2.0 mm) part of the shaft and indicates the direction of the axis for adjustment of additional bone preparations.

### Step 7: Expansion of the preparation

The expansion of the implant site preparation of 2.0 mm starts with the Interspace Drill to diameter 3.0 mm (recommended speed 1,000 rpm)

At this point, another control of parallelism (see step 6) should take place. The Direction Indicator should now enter the preparation with the thicker (Ø 3.0 mm) shaft end.

### Step 8: Step by step expansion of the preparation

The following step by step expansion of the bone preparation is made with the color coded Final Drills up to the planned final implant diameter. The Final Drills are slightly underdimensioned in relation to the real implant diameter. The drilling depth is indicated by a laser marking. In principle, the Final Drill with green marking 3.30 (diameter 3.12) should be used first (recommended speed: 1,000 rpm).

Then the sequence of Final Drills should be used step by step until the final implant diameter is reached:

- Final Drill 3.80 (3.50) yellow marking (recommended speed: 950 rpm)
- Final Drill 4.10 (3.75) red marking (recommended speed: 900 rpm)
- ! Interim step: Interspace Drill red-blue marking (recommended speed: 850 rpm)
- Final Drill 4.90 (4.65) blue marking (recommended speed: 800 rpm)

Depending on the bone quality the protocol may deviate, based on the individual experience of the user. If the bone density is very low, the expansion drills should not be inserted to their final depth in order to ensure an optimal primary stability of the implant. For strong cortical bone we recommend to apply after the last Final Drill the corresponding identical colorcoded Cortical Drill for slight expansion of the crestal bone site (recommended speed 800-1,000 rpm) in order to avoid a heavy compression of the bone.





### Insertion

### Step by step instructions for the implant insertion

Please take care that the implant, when removed from the sterile acrylic vial, does not come into contact with for instance saliva, neighboring teeth, instruments or is contaminated by saline solution. The implant is mounted on a carrier which is connected with the round cover cap.

### **Step 1: Primary fixation**

Remove the implant by pulling off the cover cap from the acrylic vial and place directly into the bone preparation which is ideally filled with blood. Stabilize the implant in bone first manually by conducting two to maximum four turns and then carefully pull off the carrier from the hex of the implant.

### **Step 2: Complete insertion**

The further insertion procedure is to be done with the Implant Driver. Please note when selecting the corresponding key that OT-F<sup>1</sup> implants with smaller diameters of 3.30/3.80 (green/yellow) have a smaller internal hex connection (2.20), while larger implant diameters 4.10/4.90 (red/blue) have a larger hex connection (2.50) accordingly. The Implant Driver for diameters 3.30/3.80 mm is marked by two grooves at the shaft. A complete 360° turn – see marking on the Finger Key – will insert the implant by approx. 1.1 mm further into depth. Due to the self cutting expansion threads of the OT-F<sup>1</sup> implant the friction will increase the deeper the implant proceeds into the bone preparation.

If the resistance feels too strong, turn the implant back slightly counter-clockwise (120°-180°) and then proceed clockwise again. Repeat this procedure until the implant has reached the final depth and is ideally leveled with the alveolar crest.

Please consider for the final positioning of the implant the most favorable prosthetic position of the internal hex in order to facilitate an optimal prosthetic restoration at this point.





### Insertion

#### Step 3: Implant coverage

While healing the implant is protected by the Cover Screw which is contained in the implant package in the square cover cap. Remove the screw by screwing it off with the friction-fit Prosthetic Driver 1.7 mm hex and cover the inserted implant tightly (not exceeding 10 Ncm).

If an open transgingival healing is intended, please choose a corresponding sterilized Healing Abutment and place it instead of the implant Cover Screw by using the Prosthetic Driver 1.7 mm hex (not exceeding 15 Ncm).

#### Step 4: Wound coverage/suturing

When closing the mucous membrane, make sure that the sutures are placed without tension. The type of suture technique is up to the doctor's decision.





### Healing time of the implants

### Healing time

The duration of the healing time depends on several factors:

- bone quality D1-D4 (mandible/maxilla)
- implant surface (TPS or Nanoplast®)
- time of insertion (immediate/delayed/late)
- age and state of health of the patient
- required augmentation procedures etc.

Principal rules for healing time of OT-F<sup>1</sup> implants:

- 3 months in the mandible
- 5-6 months in the maxilla

A prolonged healing time due to the smaller implant surface of implants with a diameter of 3.30 mm should be accounted for. In order to control the healing process a perio-test check is recommended. At transgingival healing, the implants should be allowed to osseointegrate without loading. Please take care that the Healing Abutments should be selected – aside from the planned later prosthetic restoration – with a height which will protrude from the gingiva, but on the other hand does not transfer any loading forces on the implant.

Special attention should be focused on the fact that there should be absolutely no contact to the antagonists.

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### **Exposure and Impression**

### Exposure of the implants

When the healing time has elapsed, the mucous membrane is reentered in order to expose the implants. ① The doctor decides about the type of incision, which Healing Abutment should be inserted and which suture technique would be favorable in each case.

Exposure by laser technology is also indicated and is up to the surgeon's decision. The use of a manual centering punch for exposure can also be indicated in certain cases. The implants should be covered with the Healing Abutments. (2)

At this point we recommend:

- the check-up by a perio-test in order to control the osseointegration
- the panoramic radiograph for documentation.

If an immediate temporary primary restoration with the abutments "CreativeLine" is planned with temporary crowns, we recommend to prepare these in anatomically smaller shape and to anchor these in stable connection to the neighboring teeth.

### Impression

After complete healing of the gingiva, the impression can be taken.

The implant system offers a selection between closed (reposition technique) (3) and open impression method (pick-up technique). (4)

Remove the Healing Abutments and place the Impression Copings onto the implants and fix with the corresponding fixation screws. The hex connection provides an exact transfer of the implant position to the master model to be prepared. We recommend to use an individually prepared impression tray for the impression taking.

### **Closed impression:**

After curing of the impression material, the individually prepared impression tray is removed from the mouth of the patient. The Impression Copings are removed from the implants and screwed onto the corresponding implant analogs and then are repositioned into the Transfer Copings remaining in the impression. The Transfer Copings are for one-way use only.

### **Open impression:**

After curing of the impression material, the screws of the Impression Copings are removed through the perforations in the impression tray. The individual impression tray is removed from the mouth. The Impression Copings have disconnected from the implants and are fixed stable within the impression. The screws of the Impression Copings are repositioned to allow screwing in the corresponding implant analogs.





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