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3DLiberty.
Simply ingenious.

One implant system
Two implant lines
Three collar heights

The freedom to choose the optimal implant for every indication in just one system!
Tune in to Thommen.
MORE THAN 25 YEARS OF EXPERIENCE AND INNOVATION

- **Tried and trusted Thommen connection**
  Fully compatible with all Thommen prosthetic components

- **Unique stabilization ring**
  Ensures optimal mechanical stability and best possible minimized microgap

- **Optimal prosthetic flexibility**
  Thanks to a narrow screw channel and a high-strength abutment screw

- **Conical screw seat of the abutment screw**
  Prevents screw loosening

- **Superhydrophilic INICELL® surface with the chairside APLIQUIQ® conditioning system**
  More safety in the early healing phase and greater flexibility during treatment
DIFFERENT IMPLANT DESIGNS – A SINGLE SURGICAL PROCEDURE

SPI®ELEMENT
The parallel-walled universal implant for all indications.

- Flexible placement depth according to indication
  Three different collar heights

- More safety in the early healing phase
  Superhydrophilic INICELL® surface

- Excellent primary stability and continuous grip on the bone
  Self-cutting thread

- Preparation of the implant bed with few drilling steps

- Accurately guided and easy insertion
  Slightly tapered and rounded implant tip

SPI®CONTACT
The conical-cylindrical implant for extraction sockets and specific anatomical situations.

- Reinforcement of alveolar ridge in extraction sockets
  Tapered implant body

- Large platform diameters can be chosen even in cases of narrow root areas
  Apically tapered implant body

- More safety in the early healing phase
  Superhydrophilic INICELL® surface

- Excellent primary stability and continuous grip on the bone
  Self-cutting thread

- Standardized, easy-to-follow drill protocol

- Accurately guided and easy insertion
  Slightly tapered and rounded implant tip

- Minimal set of instruments
- Ergonomic instrument design
Three collar heights

INDIVIDUAL SOFT TISSUE MANAGEMENT

**MC – Minimized Collar**
A thin gingiva or limited vertical space for the prosthetic restoration often requires a crestal implant position.

MC implants make it possible to achieve excellent esthetics, especially in the anterior region.

**RC – Regular Collar**
The distance between the implant shoulder and bone helps to respect the biological structures.

With RC implants, naturally esthetic results can easily be achieved.

**LC – Long Collar**
In the edentulous jaw, an irregular course of the gingival depth often requires a longer collar length.

LC implants are suitable for transgingival use in the case of restorations with hybrid prosthetics.
1. Implant specifications

The clinically relevant characteristics of Thommen implants are defined below:

**PF = platform**  
Refers to the implant-abutment connection, which constitutes the connection geometry to the abutment. The platform diameter is a key parameter for choosing the prosthetic components (see next page).

**C = collar**  
Collar height – refers to the absolute height of the machined collar. The Thommen Implant System offers three different collar heights: At 0.5 mm in length, the collar of MC implants (Minimized Collar) is shortened compared to the Regular Collar (RC). The LC implant (Long Collar) features the longest collar at 2.5 mm.

**S = shoulder**  
Refers to the coronal implant diameter. In the case of MC implants, it is the level that is positioned crestally. The shoulder diameter corresponds to the platform diameter.

**L = endosseous length**  
Length of the implant without collar (except in MC implants in which the collar height is included in the total length L). The length (L) always corresponds to the endosseous insertion depth (drilling depth) when preparing the implant bed.

**E = endosseous diameter**  
Refers to the largest external diameter of the implant thread (in the cylindrical portion of the implant).

**Core Ø = core diameter**  
Refers to the central diameter of the implant minus the thread, which corresponds to the diameter of the drill hole.

**Labeling**

The most important specifications are given on the outer packaging of the product for easier orientation:

- **Platform diameter**
- **Collar design**
- **Length of implant**
- **Absolute height of machined collar**
Color coding

For easy identification, each platform diameter of the Thommen Implant System has a specific color:

- Platform ø 3.5 mm, yellow
- Platform ø 4.0 mm, green
- Platform ø 4.5 mm, blue
- Platform ø 5.0 mm, grey
- Platform ø 6.0 mm, violet

A color-coded label on the implant packaging simplifies logistics and prevents mistakes. If available, all the labels of impression copings and secondary components can also be easily identified by the platform-specific color.

Healing caps, gingiva formers and their corresponding impression copings are also color-coded.

Materials

All Thommen implants are manufactured from the proven biocompatible material, pure grade 4 titanium, in accordance with ASTM F 67/ISO 5832-2.

Swiss precision to meet the highest expectations

Thommen consistently offers our customers and their patients high-quality products. Patient safety is paramount to Thommen Medical as a developer, manufacturer and distributor of medical devices for dental implantology. To ensure these standards are met, all products are thoroughly quality-checked by internal and external tests. Thommen Medical is certified in accordance with:


Thommen Medical is authorized to label every product with the CE marking, which ensures that all Thommen products meet the stringent statutory requirements demanded of medical devices. Thommen Medical quality products are produced at our own Swiss manufacturing site in Grenchen. All suppliers are chosen very carefully and our collaborations are based on long-standing personal relationships. They must meet the strict requirements expected of manufacturers of medical technology products. Regular audits enable Thommen to monitor a supplier’s performance and to ensure transparency in quality assurance.

Thommen also provides the highest standards of quality to its customers in the area of research and development, logistics, sales and customer service. This includes regular training and continued education for all employees.
2. Treatment planning

**Essentials**

Careful treatment planning is vital for the success of an implant-supported restoration.

Comprehensive preoperative diagnostics is essential, based on the intended prosthetic solution and biological conditions. It provides key information for the surgical procedure, as well as any preparatory and accompanying measures.

The creation of optimal bone and soft tissue conditions is an important element of multidisciplinary treatment planning. It is an effective preventive measure for bone preservation after tooth extractions or for bone augmentation. Thommen Medical offers a comprehensive selection of biomaterials for hard and soft tissue regeneration.

Furthermore, gathering comprehensive patient information and the clarification of patients’ expectations is crucial.

It is the responsibility of the implant specialist to refresh and acquire new mandatory medical knowledge through training and continuing education.

Thommen Medical offers courses and educational events for training in surgery and prosthetics.

**Indications and contraindications**

If not explicitly stated otherwise, the following indications and contraindications apply to both the ELEMENT and CONTACT lines of the Thommen Implant System with the INICELL® surface. See the package inserts for more detailed information.

The package inserts can also be viewed at the Thommen website: www.thommenmedical.com.

**Indications/Intended use**

Thommen implants with the INICELL surface are for one and two-stage surgical procedures. Thommen Implants with the INICELL surface are intended for immediate placement and function on single-tooth and/or multiple tooth applications when good primary stability is achieved and with appropriate occlusal loading, to restore chewing function. For immediate loading of Thommen implants the same prerequisites apply; however, in the case of edentulous patients, four or more implants must be used.

Due to its conical-cylindrical design, the CONTACT implant is indicated for:

- Immediate or delayed placement in extraction sockets.
- Special anatomical situations such as converging roots or alveolar ridge concavities.
In preoperative planning, one should consider that the explantation of a CONTACT Implant can be difficult due to its conical-cylindrical design if the apical end of the implant is positioned close to the roots of adjacent teeth.

ELEMENT and CONTACT implants with a collar height of 0.5 mm (MC, Minimized Collar) are designed for crestal positioning. Implants with a greater collar height (RC, Regular Collar) should be placed supracrestally. The ELEMENT LC implant (LC, Long Collar) is designed for transgingival positioning.

Contraindications
The placement of dental implants is contraindicated in patients with a general contraindication for the surgical procedure or if the prerequisites for healing are not given or severely reduced.

Thommen implants should not be used in patients if the primary stability of the implant cannot be achieved.

See the package insert included in every implant packaging for the general contraindications.

Reduced-diameter implants

Indications
Reduced-diameter implants should only be used where bone volume does not permit a larger diameter implant (minimum width of the alveolar ridge 5-6 mm). In this case, the reduced-diameter implant must be splinted with additional implants of a greater platform diameter.

Indications and requirements for ELEMENT PF (platform) ø 3.5 mm and CONTACT PF ø 3.5 mm:
- Partially edentulous jaw: alloplastic replacement of lateral incisors (12, 22) in the maxilla, or central and lateral incisors (41, 31, 42 and 32) in the mandible.
- Edentulous jaws: In the edentulous lower jaw a minimum of 4 implants PF ø 3.5 mm must be combined.
Contraindications
for ELEMENT and CONTACT PF ø 3.5 mm:
- Single-tooth restorations of canines.
- Single-tooth restorations of central incisors in the maxilla and restorations in the posterior region (maxilla/mandible).
- Any applications involving the use of retentive anchors (such as Dalla Bona®, Tima®, Suprasnap®, Ecco®).

The PF ø 3.5 mm implants are not suitable for use in areas where pronounced rotation and translation movements occur and where implants are subject to large bending moments (e.g. canine region).

Short implants

Short implants, such as the 6.5 mm ELEMENT, are only to be used as supplementary and auxiliary implants. For example, they should be used in conjunction with longer implants or as an auxiliary for implant-borne bar constructions that are supporting full dentures in the mandible.

Selection of ideal implant diameter, length and positioning

X-rays
X-ray images provide information about vertical bone volume, the relation of adjacent dental structures to the planned insertion site and the thickness of soft tissue. Therefore, they provide important clues in determining the optimal diameter, length and positioning of implants.

In order to determine the magnification factor or the scale of the X-ray image, the ø 5.0 mm X-ray reference sphere (art. no. 3.03.140) can be incorporated into an individual X-ray template.
After taking the X-ray images, the respective magnification factor or scale can be determined in two ways:

· by scale comparison of the X-ray reference sphere in the patient’s X-ray image with the reference sphere in the X-ray template for Thommen implants (measuring and comparison template with various distortion factors);

· by measuring the size of the X-ray reference sphere in the X-ray image and calculating the magnification factor.

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
</tr>
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<tbody>
<tr>
<td>Fo_20d184</td>
<td>X-ray template for ELEMENT MC, RC and LC implants</td>
</tr>
<tr>
<td>Fo_20d185</td>
<td>X-ray template for CONTACT MC and RC implants</td>
</tr>
</tbody>
</table>

The X-ray templates for the Thommen Implant System are for guidance purposes only in determining the implant size and positioning. In critical regions more extensive examinations (e.g. DVT) may be required.

**Important:** All VECTOdrill twist drills are 0.5 mm longer apically than the specified length of the respective Thommen implants. In order to avoid complications, this must be taken into account when choosing the dimensions and the positioning of the implant, particularly in proximity to anatomical structures.
DVT or CT-based planning
The Thommen Implant System can be found in various 3D treatment planning system libraries.

The current list of partners can be found on the Thommen Medical website under “Planning software”.

Thommen supports guided surgery (see page 28).

Mesiodistal position
The gaps between the adjacent natural tooth root and the implant shoulder at bone level should be at least 1.5 mm.

The standard equation for mesiodistal position is: distance from the adjacent tooth = half the platform diameter (measured from the center of the implant) + at least 1.5 mm.

The minimum required gap width for inserting an implant can thus be determined as: implant platform diameter + 3 mm.

The minimum distance between two implants at bone level should be 3 mm.

The standard equation is: distance from the adjacent implant (measured from the center of the implant) = half the platform diameter (implant 1) + half the platform diameter (implant 2) + at least 3 mm.

The mesiodistal position of implants can be estimated by using a periodontal probe placed vestibularly or determined with a gauge.

Alveolar ridge width (buccolingual position)
To enable a sufficient supply of blood to the peri-implant bone, a minimum vestibular and oral bone lamella of at least 1.0 mm should be ensured around the endosseous collar region of the implant, though more is ideal.

Strong dimension in the vestibular lamella is a requirement for good bone healing and an aesthetic restoration, especially in the anterior region. Missing bone width in the vestibular region can be compensated to a certain degree by strong palatal positioning of the implant. However, too strong palatal positioning should be avoided in the anterior region, otherwise the restoration proves to be very difficult or prone to compromise, especially with thin gingival morphology.
Vertical position and soft tissue situation

An important part of preoperative planning is estimating the attachment height of adjacent teeth and measuring soft tissue characteristics (in particular the thickness and mobility of soft tissue). The vertical position of the implant and the length of the machined implant collar can be defined in conjunction with the selected prosthetic restoration and the X-ray diagnostic results.

Thommen Medical offers two implant lines with three collar heights in order to satisfy varying clinical situations.

The regular collar heights (RC) allow for the biological situation resulting from the supracrestal position in standard situations.

The minimal collar height (MC) is suitable for situations in which aesthetic demands dictate that crestal placement is more favorable, such as low soft tissue volume, thin gingival biotype, situations after bone augmentation and low vertical jaw relation.

In an edentulous jaw an uneven progression of gingival height often necessitates a longer collar height. Long collar height (LC) implants are ideally suited to transgingival use in restorations with hybrid prosthetics.

Important: The conical-cylindrical shape of the CONTACT implant requires a specific drilling protocol. It must never be inserted deeper than planned, measured and predrilled.
3. Implant bed preparation

Essentials

The patented VECTOdrill twist drills reduce to a minimum the number of instruments required for implant bed preparation. Surgery time can be even further reduced by careful preparation and arrangement of required surgical instruments and suture material. This reduced time can have positive effects on postoperative healing.

Any implant bed preparation for Thommen Implant System implants starts by using the VECTOdrill pilot drill to accurately define the drilling axis and drilling depth. This is followed by sequential preparation with the VECTOdrill twist drills (see page 33 for product details). All VECTOdrill twist drills feature a tapered tip which has the same diameter as the shaft of the preceding drill. The axis guidance thus obtained prevents slippage of the drill and ensures a precisely shaped implant bed.

When using ELEMENT implants, a final profile drilling is only required with the crestal placement of ELEMENT MC implants (see chapter “Implant bed preparation for the ELEMENT implant line” page 17). When using CONTACT implants profile drilling is always required (see page 18).

All holes must be drilled by exerting slight pressure intermittently while constantly cooling the exterior with physiological, sterile, cooled saline solution (approx. 5°C/41°F). Recommended rotation speeds must be adhered to in order to avoid overheating the bone tissue and possible instrument fractures. The rotation speeds to be used are subject to the respective drill size: with ascending drill diameter the rotation speed reduces (see back cover page).

Regularly remove the bone chips to ensure ideal drilling performance.

Check the drilling depth and drilling axis of the implant bed at each drilling step with the respective depth gauge (see page 34).

Secure the products used in the oral cavity against aspiration.

Complete clinical and X-ray documentation is recommended.

The operational sequences shown below refer to implantation in medium to hard bones. See chapter “Implant bed preparation in extremely hard bone” for implantations in very hard bone, page 31.
Initial site preparation with the pilot drill

First prepare the implantation site with the VECTOdrill Ø 2.0 mm pilot drill. This initial step has special significance since this step defines the drilling depth and drilling axis.

The fine tip of the pilot drill secures the drilling position and prevents the drill chatter. Center marking with the round burr is not required.

Guide the pilot drill at a maximum of 800 rpm while exerting slight axial pressure until the required depth is reached. Pilot drills, unlike other twist drills, have the attribute of also cutting laterally and thus allow for easy axis corrections. Always perform lateral drilling corrections with the pilot drill carefully and with the drill turning. See also page 35 for pilot drilling.

Implant bed preparation for the ELEMENT implant line

The sequential use of VECTOdrill twist drills is represented in the following overview (see also detachable appendix with the ELEMENT and CONTACT drilling protocols on the back cover). Using the last VECTOdrill twist drill completes the implant bed preparation for RC and LC implants and the implant can be placed immediately.

The implant shoulder of MC implants must be positioned crestally. When using ELEMENT MC, be certain to use a profile drill when preparing each implant bed so as the implant does not exert any pressure on the crestal bone edge. The chapter “Profile drill” describes the use of the ELEMENT profile drill (see page 18).

Overview of ELEMENT drilling protocol

<table>
<thead>
<tr>
<th>PF Ø 3.5 endosseous Ø 3.5</th>
<th>PF Ø 4.0 endosseous Ø 4.0</th>
<th>PF Ø 4.5 endosseous Ø 4.2</th>
<th>PF Ø 5.0 endosseous Ø 5.0</th>
<th>PF Ø 6.0 endosseous Ø 6.0</th>
<th>Rotational speed rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 Pilot drill</td>
<td>2.0 Pilot drill</td>
<td>2.0 Pilot drill</td>
<td>2.0 Pilot drill</td>
<td>2.0 Pilot drill</td>
<td>800</td>
</tr>
<tr>
<td>2.8 VECTOdrill</td>
<td>2.8 VECTOdrill</td>
<td>2.8 VECTOdrill</td>
<td>2.8 VECTOdrill</td>
<td>2.8 VECTOdrill</td>
<td>600</td>
</tr>
<tr>
<td>3.5 VECTOdrill</td>
<td>3.5 VECTOdrill</td>
<td>3.5 VECTOdrill</td>
<td>3.5 VECTOdrill</td>
<td>3.5 VECTOdrill</td>
<td>500</td>
</tr>
<tr>
<td>4.3 VECTOdrill</td>
<td>4.3 VECTOdrill</td>
<td>4.3 VECTOdrill</td>
<td>5.3 VECTOdrill</td>
<td>5.3 VECTOdrill</td>
<td>400</td>
</tr>
<tr>
<td>ELEMENT Profile drill*</td>
<td>ELEMENT Profile drill*</td>
<td>ELEMENT Profile drill*</td>
<td>ELEMENT Profile drill*</td>
<td>ELEMENT Profile drill*</td>
<td>250-300</td>
</tr>
</tbody>
</table>

* only with ELEMENT MC and in extremely hard bone
Implant bed preparation for the CONTACT implant line

The sequential use of VECTOdrill twist drills is shown in the following overview (see also detachable appendix with the ELEMENT and CONTACT drilling protocols on the back cover). When using CONTACT implants, the profile drill step is always required.

Overview of CONTACT drilling protocol

Using the profile drill with implants of varied collar design

Due to the varying implant design of ELEMENT and CONTACT, there is a profile drill for each implant line.

The profile drills feature an integrated guide tip (A) corresponding to the diameter of the preceding drill hole with the VECTOdrill twist drill. This permits the profile drill to be accurately aligned in the pre-drilled hole and thus offers optimum safety to the user while shaping the coronal implant bed.

All profile drills feature the same 1.5 mm depth marking (black band “B”). This height matches the depth markings of the VECTOdrill twist drills and depth gauges.

With ELEMENT MC and CONTACT MC, preparation as far as the top edge of the depth marking follows the standard protocol.

Preparation to the bottom edge of the depth marking follows the standard protocol for all CONTACT RC implants.

The standard protocols for using the profile drill, including the maximum speed to be used, are shown in the respective overviews (see appendix on the back cover). If the insertion depth of ELEMENT RC or CONTACT RC is increased, the profile drill has to be used in every case. For further special instructions on this procedure, see the chapter “Implant bed preparation in extremely hard bone”, page 31.

Profile drills are disposable instruments in sterile packaging.
4. Implantation

Essentials

The surface of the endosseous portion of all Thommen implants is sand-blasted and acid etched. The surface chemistry of the micro-rough implant surface is modified in a simple conditioning process with APLIQUIQ. The resulting superhydrophilic surface, INICELL, promotes greater bone-implant contact during the early healing phase (see page 25).

Each implant package comes with three patient labels. These labels are used in order to ensure the traceability of the implants, as well as to relay the pertinent information of manufacturer, implant type and implant dimensions to the restorative clinician. These labels should be used in the practice for documentation and for the patient passport.

APLIQUIQ – Designed for function.

- **Cartridge**: The cartridge contains the conditioning agent and is sealed with a foil seal.
- **Body**: The body is the central part of APLIQUIQ and protects the dry mounted implant during storage and conditioning.
- **Reservoir**: The integrated reservoir catches the liquid after the conditioning process and prevents spillage.
- **Healing cap**: The healing cap is safely embedded in the rotating lid and can be removed only in the half-open position of the lid.
- **Lid**: The rotating lid offers access to the implant and covers the passage to the reservoir in its fully open position.
- **Implant**: Implants are mounted on the insertion aid.
- **Winglets**: The winglets allow secure handling of APLIQUIQ. When pressed together the clamping force on the insertion aid is released and the implant can be removed easily.

Thommen implants are packaged in sterile blister packs. Take the blister pack out of the protective packaging (cardboard box) and check for damage before opening. Sterility is not guaranteed if implants are removed from damaged packaging or if implants are not used immediately after opening the packaging (see page 46 and package insert).

Follow the directions for maintaining an aseptic product when removing the implant container out of the sterile packaging and the implant from the implant container.
Surface conditioning of the implant

Conditioning of the implant is performed immediately before implantation using the APLIQUIQ conditioning system. Remove the APLIQUIQ container from the sterile packaging and activate by pressing the liquid-filled cartridge into the applicator body.

Hold the applicator vertically with the cartridge upwards and shake vigorously at least five times. This conditioning process is the only way to produce the superhydrophilic INICELL surface.

Afterwards hold APLIQUIQ horizontally and allow the conditioning agent to flow into the integrated reservoir.

After the conditioning process, the surface properties of INICELL are maintained throughout the patient’s treatment time. The liquid must not be used any further.

Removing the implant from the APLIQUIQ container

After conditioning, remove the rubber cap on the rear of the applicator in the direction of the arrow. Place the applicator horizontally on a firm surface.

Rotate the lid to an unobstructed view of the implant and the insertion aid. Ensure that the implant is entirely conditioned and wet.

Place the insertion device (MONO or adapter) on the insertion aid. Apply light pressure to the lateral wings on the applicator to release the clamping force of the implant retainer. Once the retainer has opened, carefully remove the implant from APLIQUIQ without turning it.

The implant can be inserted manually (using the MONO insertion device) or mechanically (with the handpiece adapter) (see page 22).
Manual implant insertion

For manual implant insertion of Thommen implants with the MONO torque ratchet, there are two insertion devices: the MONO insertion device, short, and the MONO insertion device, long.

Both instruments feature an internal hexagon for accepting the pre-mounted insertion aid on the implant.

Without the insertion aid (due to being unsterile or loss), work can be done with the adapter for handpiece, one-piece (see page 38).

Insert the implant into the prepared implant bed. Manually screw in the implant with the MONO insertion device to the point where the implant is seated firmly in the bone.

Afterwards continue working with the MONO torque ratchet. Place the torque ratchet in the direction of the arrow as far as the stop on the ratchet body of the MONO insertion device.

Do not force the ratchet onto the insertion device. The torque ratchet should simply slide over the ratchet body of the MONO instrument. If this is not the case, the parts are not aligned correctly. Realign accordingly and check for damage.

The torque ratchet is labeled on one side with “IN” (A), and on the other side with “OUT” (B). The arrow on the ratchet indicates the direction for tightening or loosening. For insertion or tightening, the side marked “IN” points upward. For removal or loosening, the word “OUT” points upward for unscrewing.
Screw in the implant with slow movements of the ratchet. To screw in, guide the ratchet on the rigid arm (A) as shown in the picture.

The ratchet can be guided either with the finger on the finger rest (B) or the guide key (C).

To display the torque, the flexible section of the ratchet, the bending rod (D), can be used.

**Mechanical implant insertion**

To mechanically insert the implant, the handpiece adapter comes in two lengths.

**Important:** Only supported handpieces must be used for mechanical insertion under power.

Push the handpiece with inserted handpiece adapter over the insertion aid until it stops against the APLIQUIQ implant container.

While screwing in the implant under power, always exert a slight axial pressure on the handpiece. This ensures that the insertion aid completely engages with the internal hexagon of the implant and can be removed without any problems after implantation.

The maximum rotation speed is 15 rpm.
Alignment of the internal hexagon

The internal hexagon needs to be perfectly aligned if angled abutments (e.g. SPI\textsuperscript{®}EASY or SPI\textsuperscript{®}VARIO) are to be used in the restoration.

The devices for screwing in the implants – MONO insertion device (A), Adapter for handpiece (B) and Adapter for handpiece (one-piece) – are marked with six dots. These dots are used for the alignment of the implant, marking the position of the corners of the internal hexagon and the superstructure.

To insure adequate access to the abutment screw channel, we recommend aligning one of the points in a facial/labial direction.

For additional information, see the product brochures for the respective abutments.

Removing the insertion aid

Take the insertion aid (A) out of the implant in an axial direction.

**Important:** If there is high insertion torque after screwing in the implant with the adapter, make a short counter-movement (counter-clockwise). This facilitates removing the insertion aid.
Placement of healing cap (gingiva former)/
use of MONO screwdriver

Before you place the healing cap, the interior of the implant needs to be clean and free of blood.

The accuracy of the implant-abutment connection can be considerably impaired if debris or any material (such as antibiotics) creates an obstruction between the implant and the healing cap, gingiva former or abutment. The correct seating of each prosthetic part must be precisely checked, especially when using very viscous pastes. Ensure that small items are not aspirated.

Twist the cover of the APLQUIQ container to expose the healing cap. Engage the healing cap with a MONO screwdriver by exerting slight axial pressure.

Always avoid non-axial forces on the screwdriver.

Screw in the healing cap (or, if required, the gingiva former) by hand until it is in slight contact with the implant shoulder.

**Important:** Tightening by hand with the MONO screwdriver can subject the healing cap/gingiva former to such a high torque that it can be damaged. Thus for final tightening only use the torque ratchet with the indicated maximum torque (max. 10 Ncm).

For final tightening, push the torque ratchet as far as it will go onto the MONO screwdriver and tighten while checking the torque.

An index of all torque values can be found on page 49 of this brochure. The torque overview can also be ordered separately (Fo_22d123).

Gingiva formers must not have any occlusal contact.
Healing phase

Thommen implants with INICELL surface conditioning are approved for im-
mediate implant placement and restoration provided that sufficient primary
stability can be achieved (see indications and contraindications, page 10).

Due to accelerated bone formation on the superhydrophilic INICELL sur-
face, we recommend a healing phase of 3 weeks when using INICELL im-
plants (of the appropriate diameter and length) under the following condi-
tions:
· good bone quality and sufficient bone volume
· Thommen implants with an endosseous diameter ≥ 4.0 mm
· Thommen implants 8 mm in length or greater

Thommen implants with the INICELL surface can be loaded after 8 weeks
under the following conditions:
· cancellous bone quality
· Thommen implants with an endosseous diameter ≤ 3.5 mm
· implants 6.5 mm in length

A 12-week healing phase is recommended for CONTACT PF 3.5 mm.

For situations in which the implant surface does not completely touch the
bone, or if bone augmentation measures are required, extend the duration
of the healing phase accordingly.

Verification with X-ray is recommended prior to beginning the restoration.
Shaping of the gingiva

Thommen offers standardized titanium gingiva formers in various heights (see page 39). Furthermore, the emergence profile can be shaped with customizable gingiva formers (see page 40).

Provisional and final restorations

For information on temporary restorations with SPI®TEMPORARY abutments, see the Prosthetic Procedure brochure (Fo_22d010).

Single-tooth implants can also be temporarily restored with the customizable gingiva former (see page 40).

Thommen Medical offers a comprehensive range of abutments for the final restoration. An overview of abutments can be found in the product catalogue.

See the respective brochures for more detailed information on using the abutments.

The information can also be found on the Thommen website: www.thommenmedical.com
5. Instruments and procedures

Surgical cassette

The surgical cassette is designed for the safe storage, use and sterilization of surgical instruments of the Thommen Implant System.

The following points facilitate orientation during surgery or its preparation:

- A diagram guides the user through the required surgical sequence for implant bed preparation for all Thommen implant lines.
- Colored silicon sleeves for the profile drills match the platform-specific colors.
- The diagram gives an overview of the significance and sizes of the black depth markings on the VECTOdrill twist drills and profile drills.

The instrument positions for implant bed preparation are arranged according to the drilling sequences and marked by pictograms. This facilitates the sorting of the instrument set and ensures the set is complete.

For clarity, the areas in the picture above are colored as follows:

a. The standard drilling sequence for all implant lines (pilot hole and platform-guided implant bed preparation) (white).

b. The required profile hole for all CONTACT implants (light grey).

c. The required profile hole for ELEMENT for preparing the implant bed for the MC collar (see page 18) (dark grey).
In order to have an optimum view of the flowchart schematic and to facilitate removal of the instruments, the inner tray of the surgery cassette can be fixed at a 30° angled position. The lid can be detached and used as a base for the cassette (if it is not used as a support for the inner tray).

The silicon sleeves can be exchanged, if required. When exchanging, ensure that the appropriate size and color of silicon sleeve is used to guarantee that the instruments are securely seated in the cassette.

Sterilization instructions are to be found on the lid of the surgery cassette. See page 46 for detailed instructions on the care, maintenance and sterilization of instruments.

**Guided surgery**

For planning based on 3-D X-ray procedures, there are several planning systems which contain the data for the Thommen Implant System.

For an up-to-date list of planning systems, see the Thommen website under “Planning Software”.

Some companies offer more comprehensive solutions in the field of guided surgery, with which drilling can also be carried out.

Thommen supports guided surgery by providing a guide sleeve for pilot drilling. Due to the VECTOdrill twist drill self-guided tip, a guide is no longer needed for the following drill sequence. Therefore, the guide can be removed after the pilot drilling. Thommen Medical recommends using drill guides with the open flap technique.
To define the drilling depth, the guide sleeve can be used in combination with the 2.0 mm VECTOdrill pilot drill as a stop. For this method, the guide sleeve must be accurately positioned in the drill guide, taking into account the vertical distance between the guide sleeve and the bone.

The following table provides guidance on the maximum drilling depths achieved with the respective pilot drill and guide sleeve (art. no. 3.03.141):

### VECTOdrill pilot drill/Guide sleeve

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Drill length</th>
<th>Shaft height</th>
<th>Length of the drilling sleeve</th>
<th>Actual drilling depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.03.624</td>
<td>29.0 mm extra short</td>
<td>13.5 mm</td>
<td>6.0 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td>3.03.610</td>
<td>34.0 mm short</td>
<td>14.0 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.03.611</td>
<td>40.0 mm long</td>
<td>20.5 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The actual drilling depth does not match L, the intrasosseous implant length. The 0.5 mm by which the drill exceeds the corresponding implant length is already included in the actual drilling depth.
Drill extension

Every VECTOdrill twist drill and thread tap can be extended by 16.0 mm with the drill extension. Greater differences between drills and the mechanical drive can be bridged, especially with single tooth gaps or when using drill guides.

The drill extensions come in two sizes:
- for implant bed preparation of implants with 3.5 mm platform and 4.0 mm platform: exterior ø 3.7 mm
- for implant bed preparation of implants with 4.0 mm platform and greater: exterior ø 5.0 mm

The drill extension must not be used for insertion of any implant.

Extending insertion depth for RC implants

In special clinical situations, implants which are designed for supracrestal use need to have deeper vertical placement. Two key points must be considered:

**Important:**
- All prior holes have to be drilled 1.5 mm deeper.
- The implant bed must be shaped in the area of the implant shoulder with the respective profile drill (this pertains also to ELEMENT implants). Drill to the upper edge of the depth marking (see page 18).

MC implants are more suitable for use at bone level.
Implant bed preparation in extremely hard bone

All Thommen implants are self-tapping. This substantially simplifies the standard technique of implant bed preparation since thread tapping is not normally required. Clinical experience and in-vitro tests with these implants demonstrate that high primary stability can be ensured by this approach.

However, when implants are placed in extremely hard bone (such as in the case of a strongly atrophied edentulous jaw), thread-tapping can be indicated.

The thread is tapped after drilling the final hole for the intended endosseous implant diameter and, if necessary, prior to use of the profile drill.

To prepare the implant bed, insert the thread tap and its guide into the prepared implant bed. Ensure that the thread tap is screwed exactly in the axis of the hole to prevent widening of the implant bed and loss of primary stability. Do not exert any axial force in tapping the thread.

Tap the thread to the same depth as the implant bed prepared with the drill (depth marking).

**Important:** Be sure not to screw the thread tap deeper into the site. If the thread tap is screwed in deeper, it will damage or tear the threads in the bone. It is recommended to tap the thread towards the intended implant insertion depth very slowly.

Never remove the thread tap and screw it back in again. Separate out blunt or damaged thread taps or replace after a maximum of 20 applications.

The thread tap is made of stainless steel and is meant for multiple use. See page 46 for detailed instructions on the care, maintenance and sterilization of instruments.

The dental latch allows the thread tap to be used manually with the MONO insertion device, short, and under power.
**Manual implant insertion**

Insert the thread tap with the MONO insertion device, short, into the hole and then tap the thread with the MONO torque ratchet with slow, clockwise turns.

**Mechanical implant insertion**

Employ supported handpieces for mechanical operation. The maximum rotation speed is 20 rpm.

**Important:** To unscrew the thread tap, set the power drill or the handpiece to rotate counter-clockwise. Slowly unscrew the thread tap and within the axis of the implant bed to prevent it from widening and losing primary stability.

**Implant insertion using a thread tap**

If the implant bed was prepared using a thread tap, work slowly and without pressure when placing the implant, especially with the first turns. This ensures the implant precisely engages with the pre-cut bone thread. A rise in torque indicates that the implant has not engaged with the pre-cut thread. In this case, unscrew the implant and screw it back in.
**VECTOdrill™ twist drill, stainless steel, for single use**

The VECTOdrill twist drills for single use are made of stainless steel and are delivered in a sterile package. This ensures the best protection against cross-contamination and that the optimal cutting properties are maintained.

VECTOdrill twist drills come in three lengths: 29.0 mm, 34.0 mm, and 40.0 mm.

See pages 13 and 29 for notes on usage, especially for the clinically relevant specification of the drill lengths.

Products featuring the instruction "Do not re-use" on the packaging must not be re-used under any circumstances (see page 46).

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**VECTOdrill™ twist drill, ceramic, reusable**

VECTOdrill ceramic twist drills are made from the high-grade composite ceramic ATZ (alumina toughened zirconium). Ceramic drills have high initial sharpness and durable, consistent cutting properties throughout multiple applications and provide good biocompatibility. They do not corrode and can be re-sterilized.

Ceramic materials are more brittle than metal, and thus more susceptible to fracture. The following points must be observed during use:

- Do not stop the drill in the bone, but ensure continuous rotation even for removal.
- Do not make any corrections from the drilled axis, i.e. do not exert lateral pressure on the drill.
- Ceramic drills can be used a maximum of 20 times/sterilization cycles.
- Damaged or blunt instruments must be disposed of.

The ceramic drills have the identical VECTOdrill guiding-tip design as the stainless steel drills and are used according to the same surgical procedure.
Depth gauge

The upper and lower edge of the notches on the depth gauge designates the drilling depths. The distance from edge to edge is always 1.5 mm and matches the depth marks on the VECTOdrill twist drills.

Check the drilling depth on the front or back of the depth gauge (in and spin). The notches make it easier to read the drilling depth on the X-ray image.

The depth gauge can be cleaned and steam-sterilized. See page 46 for detailed instructions on the care, maintenance and sterilization of instruments.
Pilot drilling with small diameter drills

The twist drill and depth gauge Ø 1.5 mm can be used in clinical cases where adjacent structures necessitate additional precautionary measures and precision.

For these critical situations we recommend an intraoperative X-ray image with the depth gauge inserted. The notches which are present on the depth gauge are visible in the X-ray image and allow the drilling depth to be read.

The depth gauge must not be allowed to touch antagonistic structures since it could pierce adjacent anatomical structures (mandibular canal, sinus floor, nasal floor, floor of the mouth).

The depth gauge Ø 1.5 mm not only serves for measuring the drilling depth, but can also be used to estimate available occlusal space and the later alignment of the implant. For this purpose it is possible to individually shorten the coronal area of the depth gauge by intervals of 1 mm up to a length of 18 mm.
MONO torque ratchet

The MONO torque ratchet is manufactured from a solid billet of high-strength, titanium alloy and features the following advantages:

- can be used in surgery and prosthetics
- extraordinary stability and longevity with consistent precision
- no parts to disassemble for cleaning or sterilization
- no maintenance

Step by step instructions on MONO torque ratchet use are described on pages 21 (Manual implant insertion) and 24 (Use of MONO screwdriver).

Before using the torque ratchet ensure that the indicator on the bending arm is pointed exactly to “0” on the scale under no load. If this is not the case, the bending arm might be damaged and torque values can no longer be displayed correctly. In this case, the torque ratchet must no longer be used. Accurate indication of torque values is critical to the long-term success of screw-retained components.

To achieve additional safety in using MONO instruments, the MONO circlip can be used as an option. The circlip is reusable; however, it needs to be replaced if its function starts to be compromised or signs of wear appear (cracks, brittleness).

Use only instruments designed for use with the MONO torque ratchet. The torque ratchet may be damaged if used inappropriately or with instruments not designed for compatible use.

Thommen Medical received the “red dot: best of the best” design award for the extraordinary design and the ergonomic handling of the MONO torque ratchet.
**MONO insertion device, short, with integrated dental latch**

The MONO insertion device is designed for manual insertion and removal of Thommen implants. Implants can be accurately aligned for the planned prosthetic management due to the markings on the corners of the outer surface, which indicate the internal hexagon.

The insertion device, short, features an integrated dental latch for use with latch-type dental instruments. Any instrument with a dental latch can thus be used, allowing the MONO torque ratchet to be used with other systems.

**MONO screwdriver**

MONO screwdrivers can be used to screw in and tighten the healing caps, gingiva formers and screws of the Thommen Implant System.

MONO screwdrivers come in three lengths. The short (B) and long (C) screwdrivers are equipped with a fingerplate for easy guidance. The MONO screwdriver, extra short (A), has no fingerplate in order to minimize its height for use within tight occlusal spaces.

All MONO screwdrivers have a 4-lobe head design which securely holds all Thommen Implant System components and provides optimum torque transfer. Avoid exerting any non-axial pressure on the screwdriver.

All screwdrivers feature a predetermined breaking point (D). If excess torque is applied the screwdriver shaft will fracture at the predetermined breaking point. Always observe the tightening torques as given in the overview for a successful outcome (see page 49).

If screws, healing caps and gingiva formers are tightened too firmly, the special instruments from the service set must be used to prevent breaking instruments (see page 44).
Adapter for handpiece, one-piece

The one-piece adapter for handpiece (A) engages directly with the internal hexagon of the implant and thus allows for direct, precise transfer of the forces applied. It can be used after initially positioning the implant in the bone after the insertion aid has been removed.

The following manipulations are possible:
- correction of the vertical implant position
- alignment of the implant hexagon
- explantation of the implant

Subsequent adjustments to the position can impair the primary stability of the implant.

The adapter for handpiece features six dots in a circle that indicate the corners of the internal hexagon and which are used to align the implant and thus the superstructure. See page 23 for details.

The adapter for handpiece, can be used either manually with the MONO insertion device, short (B), or by mechanical means with a supported handpiece (C).
Healing caps and gingiva formers

In addition to the healing cap in the APLIQUIQ container, Thommen Medical also offers separate healing caps with a tapered edge that enable the mucosa flap to be better adapted, particularly in thin soft tissue conditions (Healing Cap SE, smooth edge).

Gingiva former
Gingiva formers allow peri-implant soft tissue to be shaped for all implant diameters. Four different heights (2.0/3.2/4.5 and 7.0 mm) make it possible to optimally condition and match soft tissue to the subsequent prosthetic restoration.

Gingiva former+
The gingiva former+ is available for a platform diameter of 3.5 mm and has a slightly larger outer diameter (4.5 mm) compared to the standard gingiva former (4.0 mm). The gingiva former+ comes in heights of 2 mm and 3.2 mm.

The gingiva former+ is used primarily for shaping the gingiva in edentulous patients and in conjunction with the ELEMENT LC implant.

The standard gingiva former is primarily used in a partially edentulous jaw. Due to the larger outer diameter, the gingiva former+ cannot be used if teeth are positioned closely together.

Healing caps and gingiva formers are sold separately and non-sterile. The products must be sterilized prior to use.
Customizable gingiva former

The customizable gingiva former, made of polymethyl metacrylate (PMMA), enables the emergence profile for the final single-tooth crown to be individually shaped while healing. It can be used immediately after implantation or at the time of re-exposure for insertion of a short-term temporary restoration bearing no load.

The customizable gingiva former may remain in the mouth for a maximum of 30 days.

The customizable gingiva former can be used in several ways:
· as a gingiva former, shortened to gingival level
· as a provisional abutment for a cement-retained single-tooth temporary restoration
· as a directly veneered temporary screw-retained single-implant replacement

Customizable gingiva formers must only be used for single-tooth restorations. Since axial divergences cannot be bridged, the customizable gingiva former must not be used in conjunction with other abutments.

Customization is conveniently possible chairside or in the dental laboratory. For safe processing and to preserve the connection geometry while performing extra-oral contouring, the gingiva former should always be screwed onto an analog and fixed in the handle for dental technicians.

The minimum construction height (X) is 2.3 mm for PF Ø 3.5 mm and 2.7 mm for PF Ø 4.0-6.0 mm (measured from shoulder height to below the first retention notch).

Shaping by reduction
Position the customizable gingiva former on the implant and temporarily fix with the abutment screw in order to determine the occlusal height. While doing so, the gingiva former must be correctly aligned.

The gingiva former should never be in occlusion with antagonist teeth. If required, shorten the gingiva former by using appropriate instruments, such as cross-toothed dental burs. Adequate cooling may be necessary. Leave a circular plastic element to ensure that the abutment remains stable on the titanium base.
Shaping by addition
As the customizable gingiva former is made of polymethyl metacrylate (PMMA), creating the ideal shape can also be achieved by applying dual-component veneering plastic. Follow the manufacturer’s instructions for proper use. Due to the chemical bond, there is no need for mechanical retentions.

The screw channel needs to be protected during the veneering process. This is best achieved by utilizing the black fabrication screw. The fabrication screw is made of black anodized aluminium and is meant solely as a single-use modeling aid. This screw is available for PF Ø 3.5 mm and PF Ø 4.0-6.0 mm and has corresponding labeling.

The fabrication screw can be used intraorally while modeling is taking place to protect the screw channel or to extend it. Insulating the screw slightly with Vaseline prior to modeling makes the procedure easier. The fabrication screw also anchors the gingiva former onto the implant and gives a good indication of the alignment through the lengthening of the longitudinal axis of the implant. It must not be used in the patient for final insertion of the customized gingiva former.

Tighten the black fabrication screw lightly by hand only and with a maximum torque of 5 Ncm.

If it is necessary to perform the application extra-orally, use an analog and a black fabrication screw to protect the screw channel. If neither are available, it is strongly recommended to seal the screw channel with a suitable material, e.g. wax.

Polish and thoroughly clean the customized gingiva former before insertion to minimize irritation to the mucosa.

The customizable gingiva former is not sterile and must not be sterilized. Disinfect as needed with a 30% solution of alcohol. The alcohol must completely evaporate prior to insertion in the mouth.

Only use new abutment screws for final insertion of the customizable gingiva former. Observe the following torques:

<table>
<thead>
<tr>
<th>Torque directly after implantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10 Ncm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Torque after successful osseointegration</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Ncm</td>
</tr>
<tr>
<td>25 Ncm</td>
</tr>
</tbody>
</table>
Bone contouring instrument

If bone obstructs the insertion of a healing cap or gingiva former, the bone contouring instrument can be used to prepare the emergence profile of the bone without damaging the implant. With this tool, adequate space can be created to accurately fit impression caps and abutments.

The bone contouring instrument can be used manually with the short MONO insertion device or under power. If you use the contra-angle handpiece, we recommend cooling with physiological, sterile, cooled saline solution (approx. 5°C/41°F) at a maximum rotational speed of 200 rpm.

The interior of the implant needs to be fully accessible. Gently position the guide pin of the bone contouring instrument into the implant, ensuring that the axis of the contouring instrument is aligned with the implant axis.

Rotate the instrument clockwise to remove excess bone and shape the emergence profile.

As soon as the bone contouring instrument touches the platform of the implant, stop rotation of the instrument as this indicates that all of the interfering bone is removed. Before taking the subsequent impression or before placing any prosthetic components, clean and dry the interior configuration of the implant thoroughly.

For detailed instructions on the care, maintenance and sterilization of instruments, see the instructions on page 46.
Mucosa punch

Indication/area of application
The mucosa punch is used to perforate the soft tissue when placing an implant (flapless technique) or for exposing a previously placed implant.

The mucosa punch should only be used when:
- the existing anatomical conditions are well understood
- there is sufficient width in the alveolar ridge and masticatory mucosa

The mucosa punch is made of stainless steel and designed for multiple use. A sharp and undamaged mucosa punch is essential for a precise cut in soft tissue. Check the mucosa punch for correct functioning after each use. Damaged and blunt instruments must not be used. The mucosa punch features a dental latch for manual or mechanical operation. Select the mucosa punch that matches the diameter of the planned or placed implant platform. Only use the mucosa punch under sterile conditions.

For instructions on the care, maintenance and sterilization of instruments, see the instructions on page 46.

Manual operation
Manual use of the mucosa punch is especially recommended for exposing a placed implant as it provides more tactile control and reduces the risk of damaging the healing cap. Always carefully evaluate the position of the implant before use.

Use the mucosa punch manually with the MONO insertion device, short. Open the soft tissue as far as the alveolar ridge with an oscillating movement and while applying light axial pressure.

Mechanical operation
The mucosa punch must be used with a handpiece having a speed reduction gear. The recommended rotational speed is approximately 20 rpm.
Service set for removal of overly tightened or fractured screws

To remove overly tightened abutment screws which can neither be removed with the MONO screwdriver nor with the screwdriver for handpiece, Thommen Medical offers a service set that is specific to each screw type and platform diameter.

**Important:** The abutment screw/transversal screw can be fractured due to excessive force, such as in an accident. Abutment screws typically fracture directly below the head, or at the transition from the shaft to the thread. In this case, if the fractured part of the screw is flush with, or projects above the implant, loosen or unscrew the remaining part of the screw using ultrasound and/or a suitable instrument (e.g. forceps).

Contact your Thommen Medical representative for further details.

Explantation

If explantation of an implant with the adapter for handpiece, one-piece, is impossible, explantation drills and corresponding guiding cylinders are available for all types of implant and platform diameters (see Product Catalogue).

The explantation drills are supplied with a package insert describing the surgical technique to be used for explantation.

Contact your Thommen Medical representative for further details.
6. Thommen Services

Long-term provision of components of the Thommen Implant System

The Thommen Implant System evolved from the Ha-Ti system which has been in use and clinically documented since 1986. In the further development of the implant system, care has been taken to ensure that the new components are compatible with the existing connection geometry. Therefore, all prosthetic components can be provided for all Thommen Medical and Ha-Ti implants from 1986 onwards.

Guarantee

See the country-specific guarantee brochures for comprehensive guarantees for implants, abutments and instruments.

For further information, see the Thommen Medical website: www.thommenmedical.com.

Training and education

Thommen Medical offers continuing education courses and events in the areas of surgery and prosthetics. Contact your Thommen Medical representative for details of any current programs.

Customer service

Your main contact for Thommen Medical products and services is your field sales representative.

For any additional information, please refer to the information on the Thommen Medical website: www.thommenmedical.com.

Scientific documentation

Thommen Medical invests heavily in Research and Development. The goal of these endeavors is to scientifically confirm and document the successful use of Thommen Medical products within preclinical and clinical studies. You will find extensive overviews of Thommen Implant System studies on the Thommen Medical website.
Care, maintenance and sterilization of instruments

The products of the Thommen Implant System are manufactured with the highest precision from high-quality materials.

Inappropriate or insufficient care or lack of diligence can quickly lead to damage.

Each instrument must be used only for its intended purpose. Country-specific regulations for reprocessing medical products must be observed. This applies particularly to regulations concerning the effective inactivation of prions.

It is the responsibility of the individual performing the rehabilitation to ensure that the equipment, materials, and staff of the rehabilitation facility used in the actual rehabilitation process are adequate to achieve the desired results.

Please comply with the following procedures and working instructions.

1. Notes concerning sterile-packaged products
   The following notes for cleaning and sterilization do not apply for products that are supplied in sterile packaging.
   Sterile products must not be re-sterilized.
   Non-sterile products must be cleaned, disinfected, and sterilized prior to their first use.
   Whether a product is sterile or non-sterile is indicated on the package (label) (see page 8).

2. Important general information
   All used instruments and any instruments that have been laid out openly, must be considered contaminated and must undergo thorough hygienic preparation (cleaning and sterilization).

   It is important to use adequate protective clothing (gloves, goggles, etc.) for all work involving contaminated instruments.

   Instruments or components manufactured from different materials should never be cleaned or placed together in an ultrasonic bath.

   For cleaning, disinfection and sterilization, sort out instruments and components according to their materials. The products of the Thommen Implant System are manufactured from the following materials:
   - titanium
   - ceramic materials
   - stainless steel
   - plastic materials
   - aluminum
   - precious metal alloys

   For information regarding the materials used in the various products, please consult the product label and the product catalog.

   Cleaning and disinfection agents suited for the materials listed above are available commercially. Please comply with the manufacturer’s instructions regarding the suitability for each material, dosage, concentration, exposure time and temperature.

   The following substances are not suitable for the cleaning of stainless steel instruments (risk of corrosion):
   - cleaning and disinfection solutions with a high chlorine content
   - cleaning and disinfection solutions containing oxalic acid

   The following substances are not suitable for the cleaning of titanium instruments (risk of discoloration):
   - all oxidizing acids (nitric acid, sulfuric acid, oxalic acid) and H2O2 hydrogen peroxide containing oxalic acid

   The following substances are not suitable for anodized aluminum (surface degradation):
   - alkaline cleaning agents (bases) with a pH > 9. Agents with a pH of 5-9 are suitable.
   - Instruments must never be left or stored moist or wet for an extended period.

3. Notes for the cleaning of new instruments and components
   All surgical instruments, the surgical cassette, and surgical components delivered in non-sterile form (including non-sterile sette, and surgical components delivered sette, and surgical components delivered) must be cleaned, disinfected, and sterilized prior to their first use.

   The product packaging of instruments with a shaft is unsuited for sterilization. This packaging is only intended for storage and shipping.

4. General notes for the processing of instruments and components after use
   4.1. Cleaning immediately after use
   Blood, secretions, tissue or bone residues must be removed during or immediately after the surgical use. Do not allow these to dry on the instrument.

   4.2. Disinfection
   Instruments and components must be sorted by component materials immediately after their application; if possible, they must be disassembled and placed in a suitable disinfection agent to prevent residues from drying on the instruments.

   Instruments must never be left or stored moist or wet for an extended period.

   Disinfection can be performed manually or using a machine.

4.3. Cleaning
   After use, clean instruments and components thoroughly by running under cold water to remove any contamination.

   It is particularly important to clean any hollow spaces and cavities. Multi-part instruments may need to be disassembled.

   Persistent contamination (e.g. tissue residues) must be removed completely using a nylon brush (do not use small wire brushes, hard cleaning agents or steel wool).

   Rinse off all cleaning and disinfection residues thoroughly.

   Strongly contaminated instruments should also be cleaned in an ultrasonic bath, since the effect of chemical procedures is enhanced by the application of ultrasound.

   When cleaning with a machine, ensure that the instruments are not in contact with one another to avoid being damaged in the cleaning process.

   Ultrasonic cleaning cassette
   Thommen Medical offers a specialized cassette for cleaning in an ultrasonic bath. Its knobbled silicone mat allows instruments to be placed so that they will not contact each other. This is essential for all cutting instruments and for ceramic drills in particular.

   In order to enhance the cleaning effect, we recommend removing the lid from the cassette during the cleaning in the ultrasonic bath.

4.4. Inspection
   All instruments and components must be subjected to visual inspection or functional testing after cleaning. Damaged instruments, even if they are only showing damage of the surface, must be replaced.

4.5. Drying
   Instruments and components must be dried (preferably with clean compressed air), paying special attention to the areas that are difficult to access.
4.6. Sterilization
Finally, sterilize instruments and components in accordance with the following procedures:

Sterilization inside sterile bag
Place each instrument in a separate sterile bag, place the filled sterile bags in a perforated container, and then place the perforated container in the autoclave.

The sterilization follows the same guidelines for sterilization as for the surgical cassette (see below).

Instruments should only be removed from sterile bags immediately before use.

Sterilization of instruments in the surgical cassette
Place the instruments in the dedicated holders of the surgical cassette. Then place the surgical cassette in sterilization packaging suited for steam sterilization and place it in the autoclave.

Guidelines for sterilization:

<table>
<thead>
<tr>
<th>Steam sterilization</th>
<th>With prevacuum</th>
<th>With vacuum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>134°C/274°F</td>
<td>134°C/274°F</td>
</tr>
<tr>
<td>Sterilization time</td>
<td>18 minutes</td>
<td>40 minutes</td>
</tr>
<tr>
<td>Drying time</td>
<td>20-80 minutes</td>
<td>20-80 minutes</td>
</tr>
</tbody>
</table>

The integrated screw organizer can be sterilized alone or together with the surgical cassette.

Remove the surgical cassette from the sterile packaging immediately before use and place at a sterile location.

5. Notes for the sterilization of the SPI® Surgical cassette/Prosthetic cassette
The sterilization information is printed on the lid of the cassette. Please comply with the regulations governing sterilization parameters in the country of use.

Important: The cassettes must not touch the inner wall of the autoclave or they may be damaged by heat.

The cassettes are not suitable for:
· Chemical sterilization, since this would damage the plastic material.
· Hot-air sterilization, since the plastic cassette melts at the high temperature (180°C) used.

When exchanging/ replacing the silicone holders of the surgical cassette, it is important to use the proper size of silicone holder for each recess. Unless the correct silicone holder is used, there is a risk of instruments not being retained properly.

6. Information on instruments
MONO torque ratchet and MONO auxiliary instruments
· The cleaning of intervening spaces of the MONO torque ratchet using an interdental brush (max. wire diameter of 0.7 mm) is recommended. Especially the fine spring at the head of the ratchet must be cleaned only with fine nylon brushes.
· The finger rest (material: PEEK) of the MONO instruments must be removed prior to cleaning if the instruments are strongly contaminated.

VECTOdrill ceramic drills (reusable)
· VECTOdrill ceramic drills may be cleaned with cleaning agents for rotating instruments (e.g. Komet DC1).
· For manual cleaning, use only cleaning brushes with nonmetallic bristles, since these will not produce abrasion-related discoloration on the instrument and will not damage the drills.
· Disinfection and/or cleaning must not be performed in a thermal disinfection device, since the aggregate effect of high temperature and cleaning agent may damage the VECTOdrill ceramic drills.
· Drills which have been exposed to a sudden stress (e.g. drills that were dropped or exposed to bending or similar forces) are more likely to break and must therefore not be reused.
· For safe storage and sterilization, we recommend storing the drills inside the surgical cassette. If VECTOdrill ceramic drills are stored elsewhere, it is important to ensure that the individual drills do not come into contact with each other.

Important: VECTOdrill ceramic drills must not be stored in disinfection cabinets with ultraviolet radiation or be exposed to strong ultraviolet radiation, since this might lead to discoloration on the surface.

7. Cutting instruments, defined for reuse
Blunt or damaged cutting instruments that are intended for reuse must be disposed of or replaced after a maximum of 20 applications.
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<th>PF Ø 4.0 mm</th>
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<th>PF Ø 5.0 mm</th>
<th>PF Ø 6.0 mm</th>
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* Abutment screw in combination with customizable gingiva former immediately after implantation ≤ 10 Ncm.

This overview can be ordered in the form of a laminated sheet under article no. Fo_22d123. See website for current version www.thommenmedical.com
EXPLANATION OF SYMBOLS

- **LOT** Batch code
- **Use by date**
- **Date of manufacture**
- **Sterilized using irradiation**
- **Sterilized using ethylene oxide**
- **Sterilized using steam or dry heat**
- **Temperature limitation**
- **Do not re-use**
- **Non-sterile**
- **Caution**
- **Conformity symbol as specified by EU Directive MDD 93/42/EEC**
- **Consult instructions for use**
- **Do not re-sterilize**
- **Do not use if package is damaged**
- **Atmospheric pressure limitation**
- **Manufacturer**
- **Keep away from sunlight**
- **May only be sold to and prescribed by physicians (USA)**

COLOUR CODE Each implant platform diameter has a colour code, which can be found on all implant packs, on the impression items and on most diameter-specific instruments.

- **Yellow** = platform Ø 3.5 mm
- **Green** = platform Ø 4.0 mm
- **Blue** = platform Ø 4.5 mm
- **Grey** = platform Ø 5.0 mm
- **Violet** = platform Ø 6.0 mm

RESPONSIBILITY/LIABILITY As part of an overall scheme, Thommen implants may be used only with the original components and instruments in accordance with the manufacturer’s instructions. The use of unapproved components from other systems can cause malfunctioning of the implants and abutments and lead to implant failure. The use of the product is the responsibility of the user and, as such, beyond the control of Thommen Medical AG. We refuse to accept any responsibility or liability for any damage due to incorrect utilization of the product.

Products labeled “Do not re-use” may not be refurbished and/or reused. The refurbishment and/or reuse of these products can affect their function (fitting and/or cutting properties) as well as their safe use (risk of infection, disease transmission, fading of the laser or colour marks, corrosion). Detailed information about the possible consequences, which may result from negligence to follow this information, is available from your dealer. Caution: Federal law (USA) restricts this device to sale by or on the order of a dentist or physician.

GUARANTEE OF STERILITY OF STERILE PRODUCTS Products of the Thommen Implant System supplied in sterile packaging must not be re-sterilized. If the sterile packaging is damaged during transport or storage, the product must not be used. Products that have been opened and have not been immediately used for the intended operation must not be used thereafter. After re-sterilization, the safety, function and efficacy of the product cannot be guaranteed by the manufacturer.

STORAGE Please note the specifications on all labels and package leaflets regarding transportation, storage and instructions for use.

INSTRUCTIONS FOR USE The following information is not intended as comprehensive for the Thommen Implant System. New customers are advised to undergo training by a specialist experienced in the use of this system.

VALIDITY This product catalogue replaces all previous editions.

PRODUCT DOCUMENTATION You can find detailed information on the handling of Thommen implants in our brochures. Ask our national representatives for product brochures and instructions for use.

AVAILABILITY NOTE Not all products shown in this brochure are available in all countries. For further information please contact our subsidiary or distributor in your country.

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COLOURED WARNING STICKER Application was changed – follow the instructions in the corresponding documentation.

NEW HANDLING

New design – the application has not been changed.
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