MANUAL EN

LASAK

Surgery

Easy and effective

BioniQ

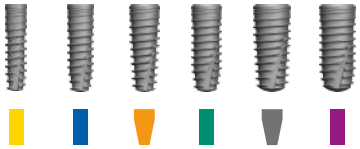
Implant bed preparation

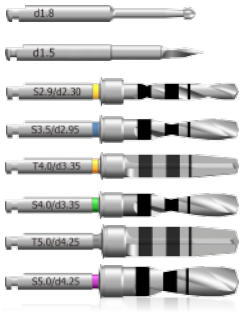
IMPLANT CHARACTERISTICS

Tapered implants: Conical – tapered implants (T) designed for lower density bone (D3 and D4), after teeth extraction, or whenever high primary stability is required. It is necessary to use a threadformer in high density bone (D2).

Straight implants: Screw-shaped implants with cylindrical design (S) designed especially for dense bone (D1 and D2), for mandibles or whenever a cylindrical shape of implant is preferred. For replacing individual teeth in the molar area, it is recommended to use implants of as large diameter as possible.

BASIC PREPARATION





Instrument	Ref. No.	S2.9	S3.5	T4.0	S4.0	T5.0	S5.0
Roundburr	2443.00	■	■	■	■	■	■
Pilot drill d1.5	2446.00	■	■	■	■	■	■
Final drill S2.9 – short, drill stop compatible (DS/C)	2467.00	■	■	■	■	■	■
Final drill S3.5 – short, drill stop compatible (DS/C)	2468.00		■				
Final drill T4.0 – short, drill stop compatible (DS/C)	2471.00			■			
Final drill S4.0 – short, drill stop compatible (DS/C)	2469.00				■	■	■
Final drill T5.0 – short, drill stop compatible (DS/C)	2472.00					■	
Final drill S5.0 – short, drill stop compatible (DS/C)	2470.00						■

After marking the implantation site, the bone bed is prepared using drills with a diameter corresponding to that of the implant selected. The procedure for using drills is clearly printed on the surgical instrument organizer. Adhering to the recommended drilling procedure is obligatory and minimises the risks of excessive mechanical or thermal damage to the bone tissue. During preparation, use sufficient external cooling of drills with cold sterile saline (5 °C, 41 F) and drill intermittently. The maximum speed of all drills for basic preparation is 800 rpm. The actual length of the final drills measured from the drill's tip to the given mark is 1.0 mm longer than the length of the implant.

SUBSEQUENT PREPARATION

Instrument	Ref. No.	rpm	S2.9	S3.5	T4.0	S4.0	T5.0	S5.0
Countersink S2.9	2422.00	500	■					
Threadformer S2.9	2421.00	20	✕					
Countersink S3.5	2427.00	500		■				
Threadformer S3.5	2426.00	20		✕				
Countersink S4.0/T4.0	2433.00	500			■	■		
Threadformer S4.0/T4.0	2431.00	20			✕	✕		
Countersink S5.0/T5.0	2439.00	400					■	■
Threadformer S5.0/T5.0	2438.00	20					✕	✕

■ obligatory use ✕ optional use

Subsequent preparation involves use of countersinks and threadformers. All instruments are laser-marked to indicate the implant line, for which they should be used.
The countersink is used for all bone types (D1–D4). In D4 density bone, it is possible to perforate a thin section of cortical bone with partial use of the countersink.
The threadformer is used in D1 and D2 density bones to the total length of the implant. It is not necessary to use the threadformer in lower density bones (D3 and D4), or it can be used to cut the cortical bone.
The instruments included in a surgical instrument organizer are sufficient for the bone bed preparation for all implant lines. **The cutting instruments should not be used more than 20 times.**

IMPLANT INSERTION

Implants may be inserted manually using the insertion wrench/Unigrip and the ratchet, or mechanically using the mechanical insertion wrench and a surgical unit. Do not exceed the speed of 20 rpm. It is appropriate to use a long insertion wrench in the anterior region and a short insertion wrench in the posterior region.

Instrument	Ref. No.	
Insertion wrench – long	2403.00	
Insertion wrench – extra short	2402.00	
Unigrip	2459.00	
Insertion wrench BioniQ – mechanical, short	2412.00	
Insertion wrench BioniQ – mechanical, long	2444.00	
Extend driver	4214.3	
Guide wrench	2410.00	
Ratchet	2408.00	

The BioniQ implant package contains a sterile cover screw. The BioniQ Plus implant package contains a sterile 2.0 mm bridge gingiva former Ⓑ. To remove the implant from the inner blister, peel off the paper from the back of the inner blister to about three quarters of its length to prevent the cover screw / gingiva former falling out of the package (Fig. 1).
Attach the insertion wrench or Unigrip to the implant carrier and use it to pull out the implant from the plastic holder using a twisting motion (Fig. 2). The implant is now ready for insertion.
After inserting the implant, peel off the rest of the paper cover from the blister and remove the cover screw/gingiva former (Fig. 3)

It is recommended to tighten the cover screws and the gingiva formers manually using a screwdriver (5–10 Ncm).

Fig. 1

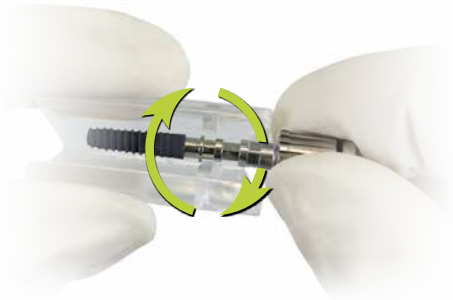


Fig. 2

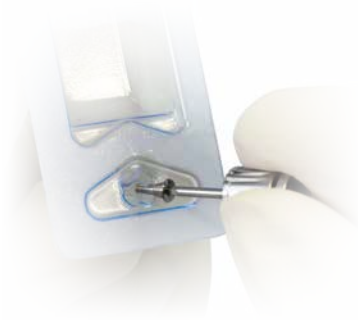


Fig. 3

Implant bed preparation

Using a countersink

If the implant insertion requires a torque that is too high, this may be due to not using a countersink. The countersink must be used because of the shape of the implant, which is not completely cylindrical, even the straight implants. Part of the neck section of the implant is conical (Fig. 4), while the implant bed prepared using only a drill is not (Fig. 5), until a countersink is used (Fig. 6). Proper use of a countersink ensures optimum stress distribution in the area of the marginal bone and prevents an excessive mechanical load on the bone in the area of the implant neck.

Fig. 4

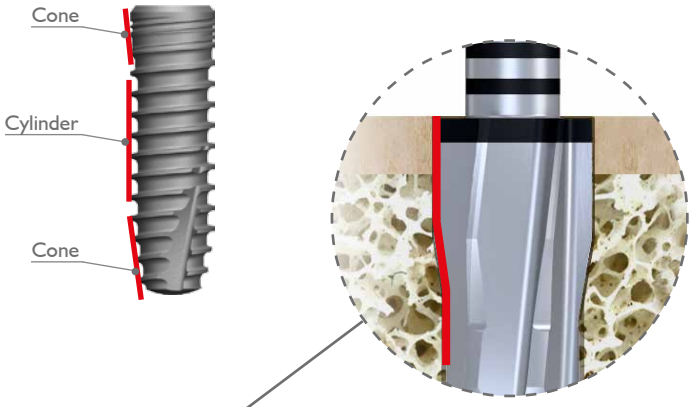


Fig. 5

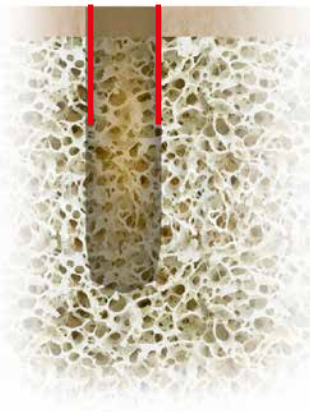
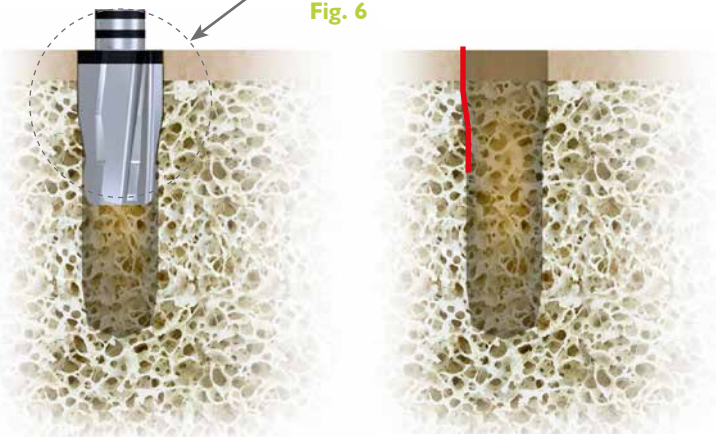


Fig. 6



Using a countersink – BioniQ implant

The countersink has three black lines. The first two lines are intended for BioniQ implants. When inserting the BioniQ implant into the standard depth, the prepared implant bed is drilled with a countersink up to the upper edge of the first line on the countersink (Fig. 7). If the implant is inserted below the level of the bone (submersion of the implant including the cover screw), the prepared implant bed is drilled with a countersink up to the upper edge of the second line on the countersink (Fig. 8).

Fig. 7

Insertion of the implant into the standard depth

Fig. 8

Insertion of the implant below the level of the bone

Using a countersink – BioniQ Plus implant

BioniQ Plus implants enable the use of various depths of implant submersion, depending on the indication and gingiva width. When preparing the implant bed, it is necessary to adjust appropriately the depth of preparation to achieve the required depth of submersion. During the subsequent use of the countersink, orientation should be made according to the black lines on it, see the figures below.

Basic implant insertion

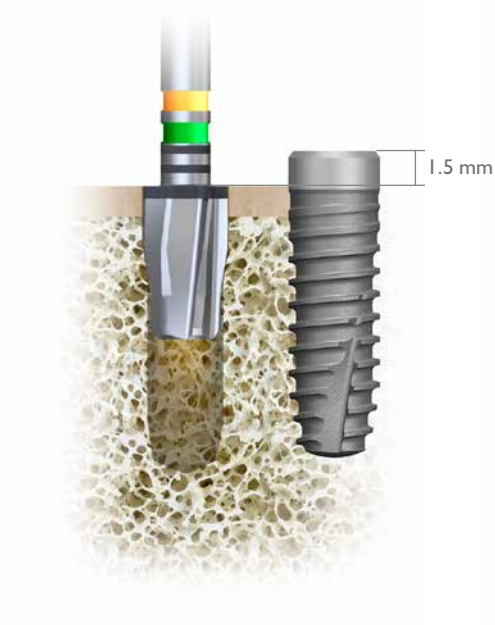


Fig. 9

Submersion of a half of the collar

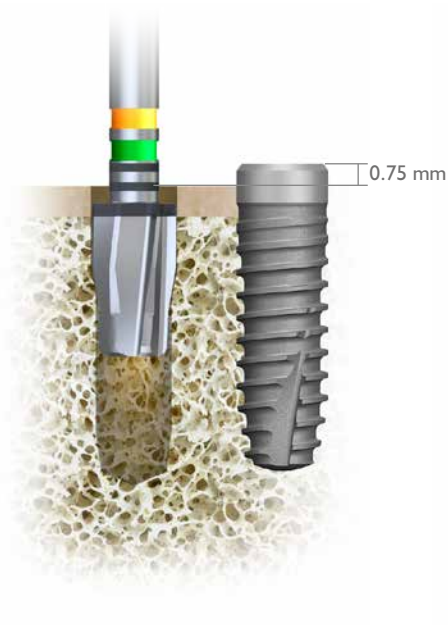


Fig. 10

Submersion of the whole collar

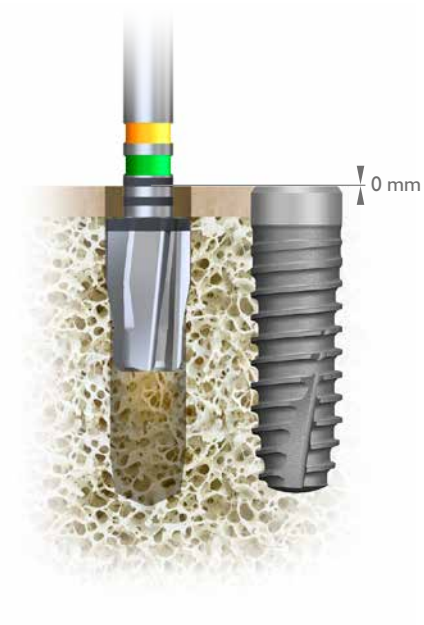


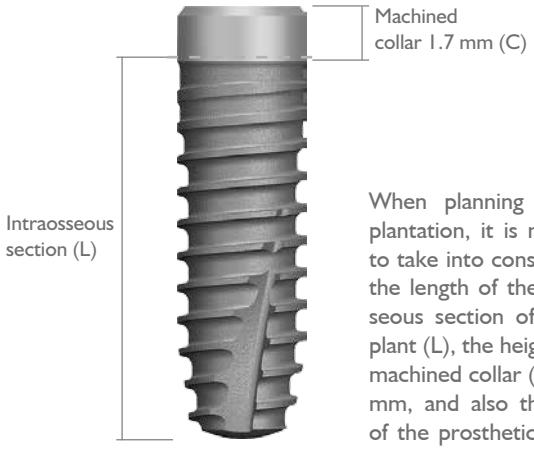
Fig. 11

BioniQ Plus implant submersion

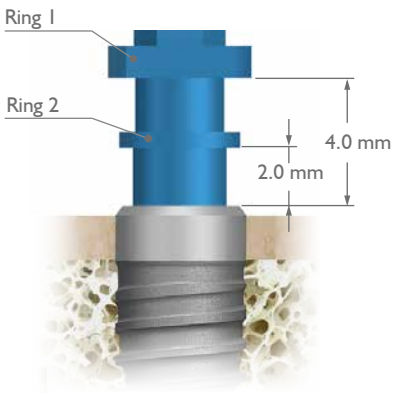
The smooth collar of the BioniQ Plus implant with a height of 1.7 mm enables optimum positioning in the vertical direction without risk of excessive compression of the marginal bone. BioniQ Plus implants are inserted to at least a depth at which the total intraosseous section is submerged, and the BIO-surface is, thus, covered with alveolar bone.

In cases of **a thick parodontal biotype**, the machined collar is usually not submerged.
In cases of **a thin parodontal biotype** or in areas with high esthetic demands, the machined collar can be submerged as appropriate, potentially entirely up to the level of the bone.

Fig. 12



When planning the implantation, it is necessary to take into consideration the length of the intraosseous section of the implant (L), the height of the machined collar (C) of 1.7 mm, and also the height of the prosthetic components.

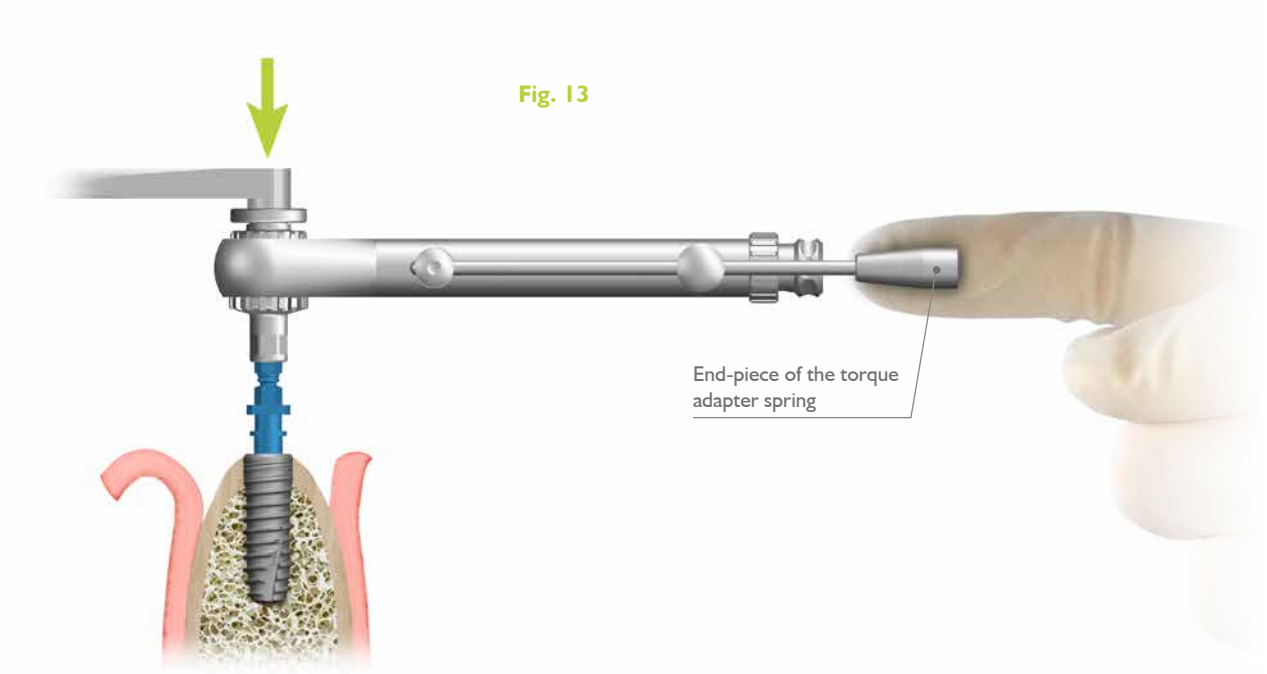


The implant carrier rings can be used as indicators of the implant submersion depth

Insertion of the implant

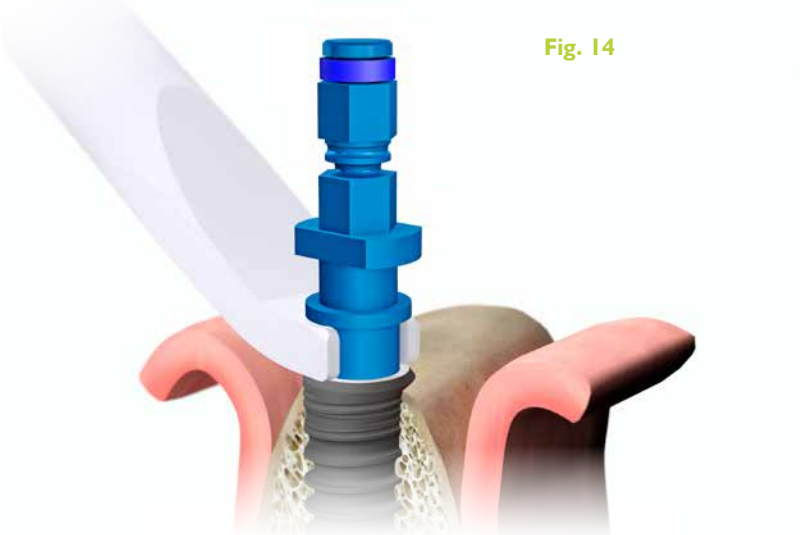
Always use your finger, or the guide wrench, as a stabilizer to maintain the direction of the implant insertion (see arrow in Fig. 13). During use, the ratchet has to be held only at the end of the spring indicator wire (see Fig. 13).
The maximum recommended insertion torque of BioniQ implants is 60 Ncm. Repeatedly exceeding the torque of 60 Ncm may result in damage to the torque adapter.

Fig. 13



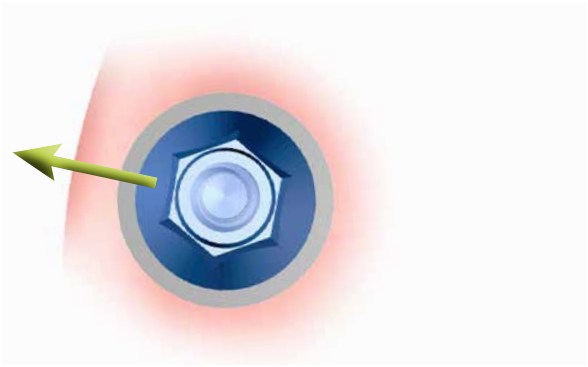
After inserting the implant, remove the insertion wrench/Unigrip and then pull off the carrier from the implant. In case of insufficient stability of the implant in the bone bed, fit the fork of the guide wrench under the lower ring of the implant carrier (Fig. 14) and remove it from the implant. If the insertion torque of 60 Ncm is exceeded – a situation that can be caused, e.g. by not using a threadformer or a countersink in higher density bone – it is recommended to unscrew the implant using a reverse motion of the ratchet and to prepare the implant bed completely using the threadformer, countersink or/and final drill. Higher insertion torques may cause sticking of the implant carrier in the implant. In such a case, place the insertion wrench/Unigrip onto the implant carrier and, by turning it slightly counter clockwise, release the implant carrier from the implant.
If the defined torque is exceeded (90 Ncm for the S2.9 implants and 110 Ncm for other BioniQ implants), the upper part of the implant carrier breaks off for safety purposes.
The fragment of the implant carrier can be easily removed from the insertion wrench/ Unigrip and the insertion wrench/Unigrip can be placed onto the remaining part of the implant carrier. It is recommended to unscrew the implant using a reverse motion of the ratchet and to prepare the implant bed completely using the threadformer, countersink or/and final drill. Then insert the implant again.

Fig. 14



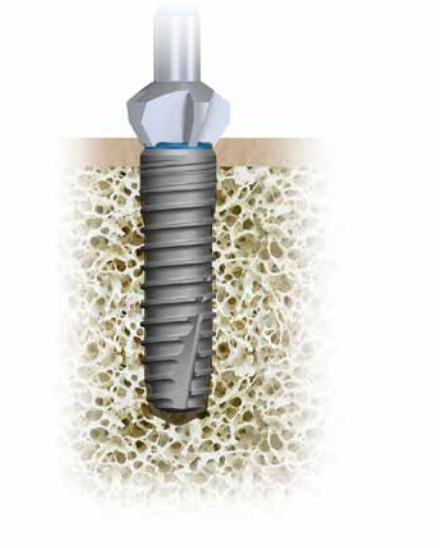
Turning the indexed component

When inserting the implant, ensure to orientate the flat part of the internal hexagon in the vestibular direction to obtain the maximum esthetic effect.



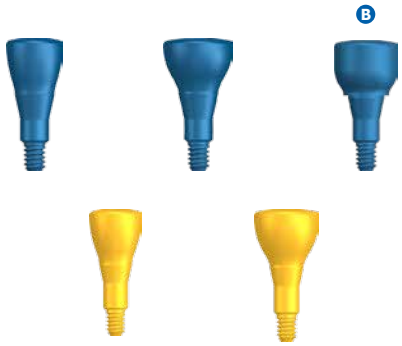
Using a cover screw mill

The cover screw mill is used to remove the bone grown over the implant cover screw submerged into the level of the bone or below it during the healing phase. After removing soft tissues, the mill pin is inserted into the internal hexagon of the cover screw. The mill can be used manually with a Unigrip. The cover screw mill with a blue mark, Ref. No. 2512.00, is intended for use with the QR platform (S3.5, S4.0, T4.0, S5.0 and T5.0 implants). The cover screw mill with a yellow mark, Ref. No. 2511.00, is intended for use with the QN platform (S2.9 implants).



Using gingiva formers

Suitable gingiva formers are selected based on the type and anatomy of the future restoration and the gingiva height. Hybrid prostheses usually require narrow gingiva formers and cemented solo implants, narrow or wide gingiva formers depending on the anatomical conditions. When treating significantly disparallel implants or an extensive screw-retained restoration, a bridge gingiva former Ⓑ often represents a suitable solution. Besides the inner geometry of the implant, the gingiva former also covers the implant's external platform. The gingiva former should extend over the edge of the adapted soft tissue by 1.0 to 2.0 mm, thus preventing the gingiva former becoming covered by edematous tissue during the post-operative period. The gingiva former's diameter must match the diameter of the abutment to be used for the final restoration.



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