Surgical protocol

SKY
IMPLANT SYSTEM


SKY
IMPLANT SYSTEM
SKY
Implantatsystem
DENTAL INNOVATIONS
SINCE 1974
bredent group

bredent medical is synonymous with high-quality, compatible instruments produced in Germany. Our systems will help you to make insertions as gently and successfully as possible for your patients.

The key objective is to offer the optimum solution for each individual patient case. To attain this goal, we are able to rely on scientifically sound, long-term results for our implant systems, which exhibit optimum primary stability and soft tissue attachment.

We have designed the shape of the implants and the matching drills so that high primary stability can be achieved through bone condensation. The reason why we offer two types of drill for each diameter is that bone preparation needs to be adapted to the patient’s specific bone density.

- In the case of hard bone, the larger diameter drill bits are essential for atraumatic insertion of the implant.
- Smaller diameter drills improve bone preparation for medium bone.
- In the case of soft bone, the drill bit should be chosen based on the bone situation and the drilling protocol.

Care should be taken with soft tissue to ensure long-term success. The thickness of soft tissue can vary between less than one millimetre to 7 to 8 millimetres . Studies have shown that a minimum soft tissue thickness of at least 3 millimetres is necessary for a successful outcome. The thickness of the soft tissue determines the depth of implant placement.
The surface on our implants and abutments is carefully matched to the combination of biological structures.

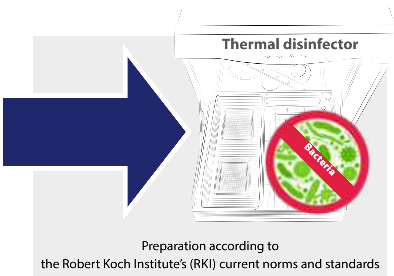
One for all ***OP tray***

One system for all implant lines. All instruments and drills are arranged systematically by implant lines and adhere to our surgical protocol. This tray gives you the freedom to work either freehand or guided.

Removable and swivelling

Detachable drill stops

Clear organisation by implant system



Reprocessing in the thermal disinfector

Validated re-preparing of the OP Tray 100 in the thermal disinfector. The insert serves as a carrier for drills and instruments.

Please observe the detailed processing instructions!

*Illustration shows fully loaded tray and may differ from the scope of delivery.

Pro Guide ***OP tray***

One system for all SKY implants from Ø 3.5 -4.5 mm. The shaft guide is highly precise and guarantees predictable results. This tray is designed specifically for guided implantology.

Removable and swivelling

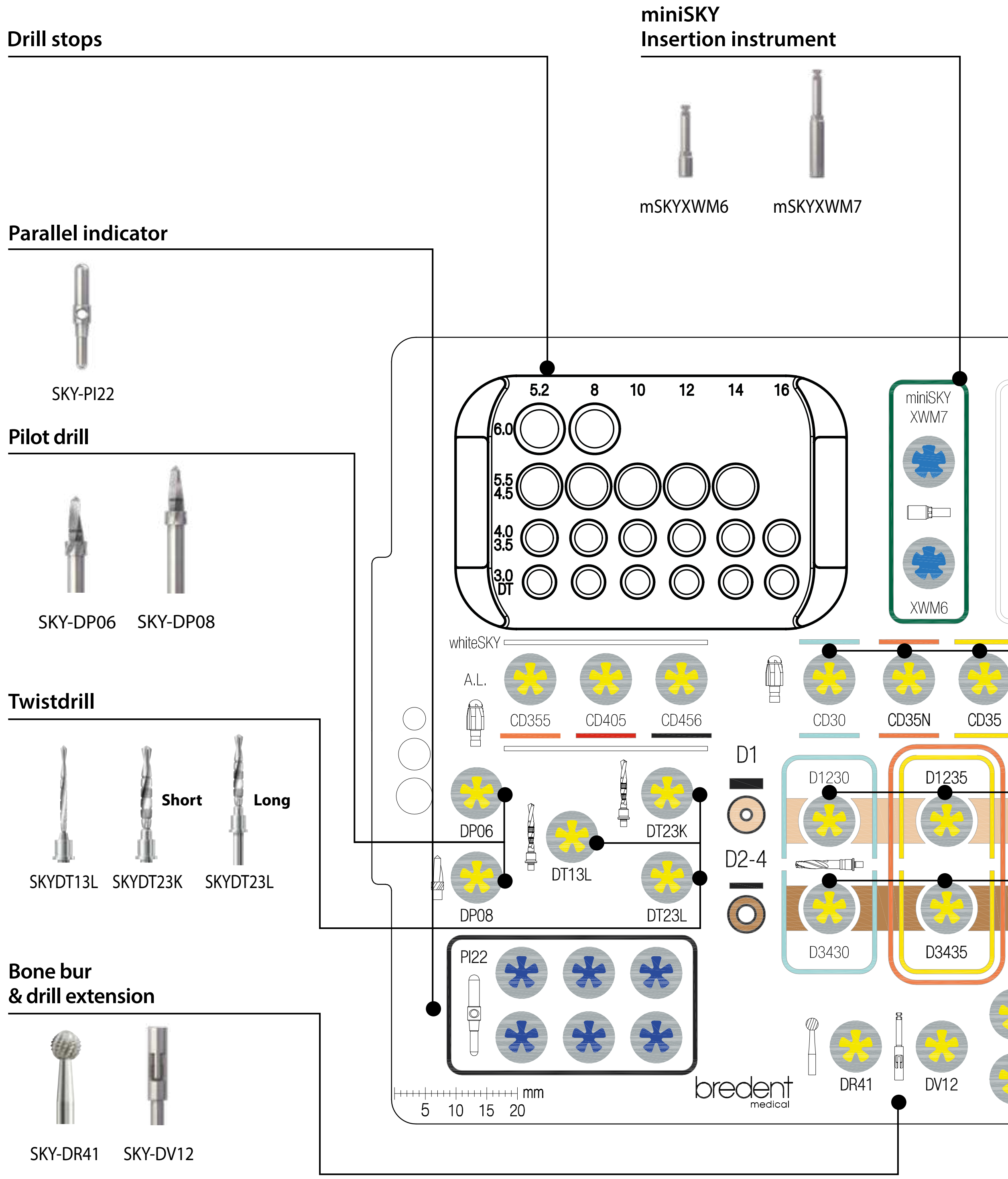
Shock-resistant material

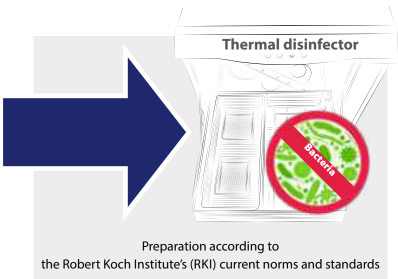
Clear organisation by implant system

*Illustration shows fully loaded tray and may differ from the scope of delivery.

Instruments

OP–Tray – one for all





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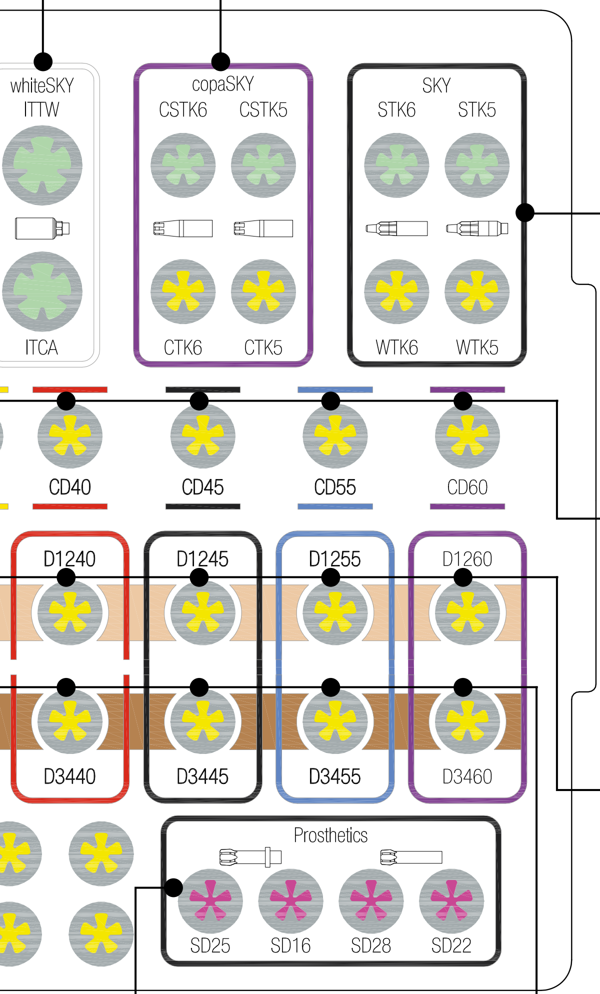


whiteSKY implant driver

wSKYITTW wSKYITCA

copaSKY insertion instrument

COPACTK5 COPACTK6 copaSTK5 copaSTK6

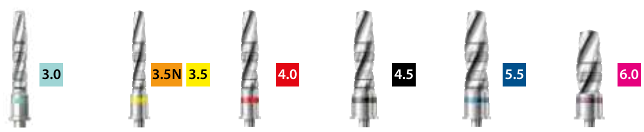
SKY insertion instrument

SKY-WTK1 SKY-WTK5 SKY-STK5 SKY-STK6

Crestal drill

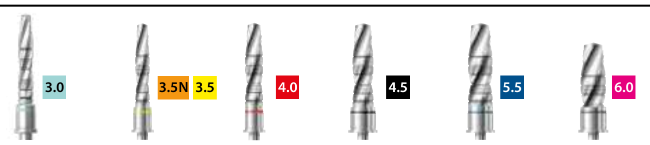
COPACD30 SKYCD35n SKYXCD35 SKYXCD40 SKYXCD45 SKYXCD55 COPACD60

Final drill for hard bone



COPD1230 SKYD1235 SKYD1240 SKYD1245 SKYD1255 COPD1260

Final drill for soft and medium-hard bone



COPD3430 SKYD3435 SKYD3440 SKYD3445 SKYD3455 COPD3460

Adapter for machine inserter & prosthetic key

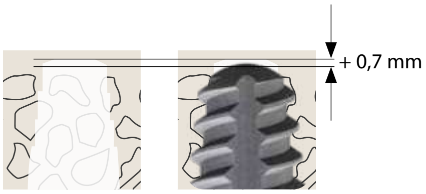
SKY-SD16 SKY-SD25 SKY-SD22 SKY-SD28

*Image shows fully loaded tray and may differ from the scope of delivery.

Surgical protocol *Freehand*

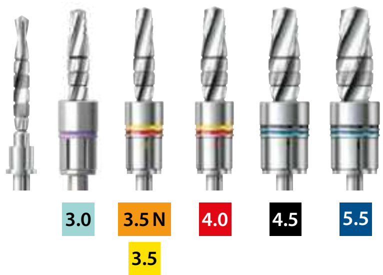
SKY drill

The SKY drills are slightly undersized in cancellous bone compared to the corresponding implants. The compression in the cancellous bone delivers a high primary stability so that immediate restoration is possible in more than 90% of cases.



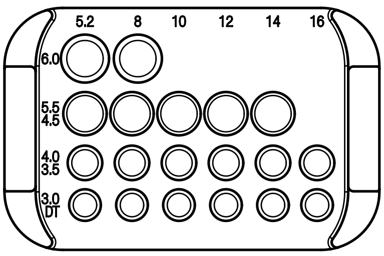
Drilling depth

The drilling depth is 0.7 mm lower than the implant length, unless stated otherwise.



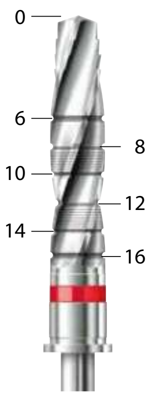
Detachable drill stops

The removable drill stops are sorted by size so that they can be easily picked up with the drill and fastened with one hand using the holes in the OP tray liner.



The drill stops can be easily removed from the OP tray and also reinserted again.

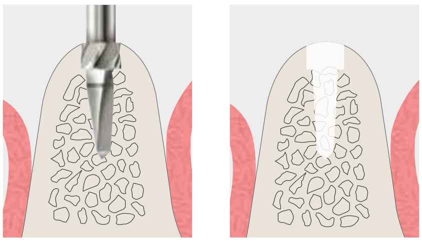
Implant lengths in mm



Length markings

Clear length markings also allow use without drill stops.

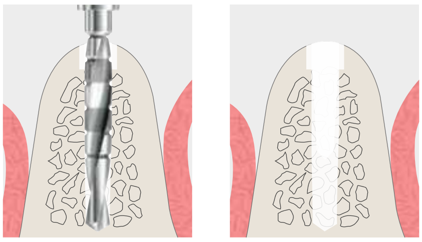
When using the SKY surgical protocol, we recommend always keeping in mind that preparing the implant bed is a medical procedure, which is why you must use your clinical judgement during the surgical sequence. Please note that over-preparing the bone may compromise the implant's primary stability.



SKY pilot drill

Maximum recommended speed
1,000 rpm with cooling

The pilot drill determines the position of the implant. The sharp tip minimises the risk of slipping. The crestal bur removes 3 mm cortical bone.



SKY Twistdrill

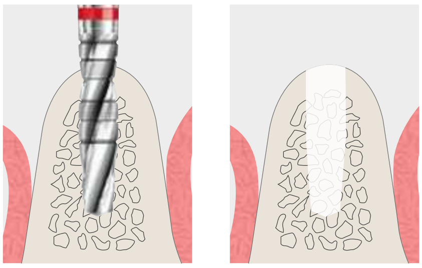
Maximum recommended speed
1,000 rpm with cooling

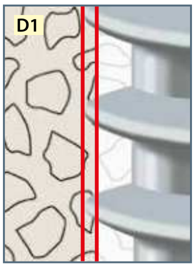
The Twistdrill sets the angulation and depth of the cavity. 2.25 mm in diameter, it is much smaller than the cortical space created by the pilot drill to ensure there is enough clearance to optimally align the axial direction.

SKY final drill

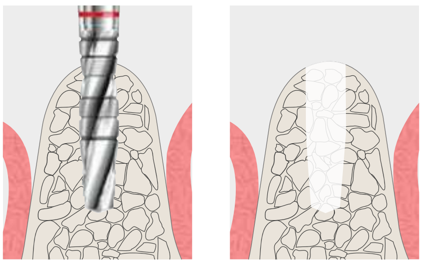
Maximum recommended speed
300 rpm with cooling

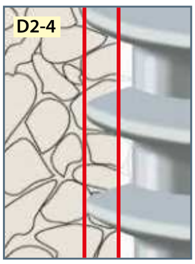
The final drill is available per diameter in two lines. The hard bone diameter is larger than that for soft and medium-hard bones.





Hard bone
Atraumatic thread tapping thanks to reduced contact area.





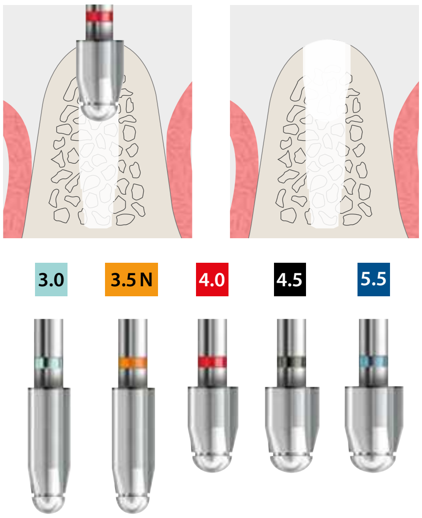
Soft and medium-hard bone
Apical compression due to increased contact area.

Consistently high primary stability

Surgical protocol *Freehand*

SKY drill

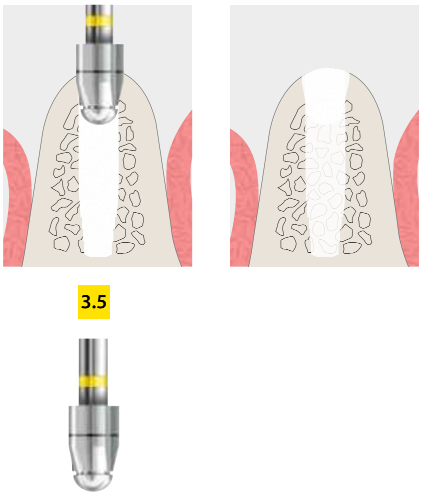
Maximum recommended speed
300 rpm with cooling



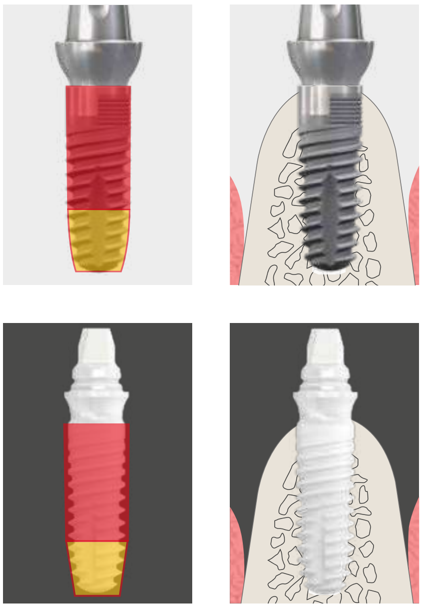
SKY crestal drill

Crestal drills are required to avoid pressure on the cortical bone since compression in the cortical bone may lead to bone loss. This drill can only be omitted in the case of very thin cortical bone in the upper jaw.
A laser marking indicates the maximum insertion depth, i.e. up to the end of the working range.

SKY crestal drill blueSKY 3.5

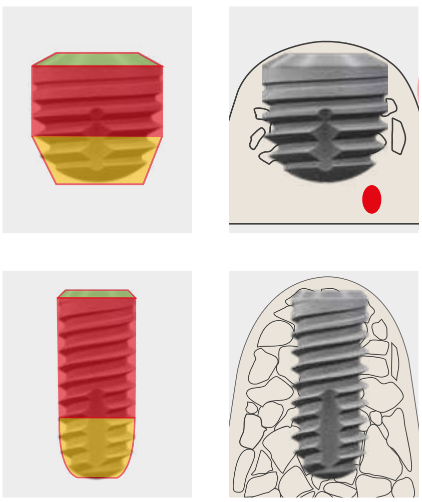


For blueSKY 3.5 and SKY classic 3.5, the laser marking on the crestal drill serves as a guide for the drilling depth.



SKY crestal drill for narrowSKY, blueSKY, SKY classic and whiteSKY TL

Due to the cylindrical implant shape in the crestal section, the use of crestal drills is essential as increa-sed pressure on the crestal bone can lead to bone atrophy.



SKY crestal drill for copaSKY

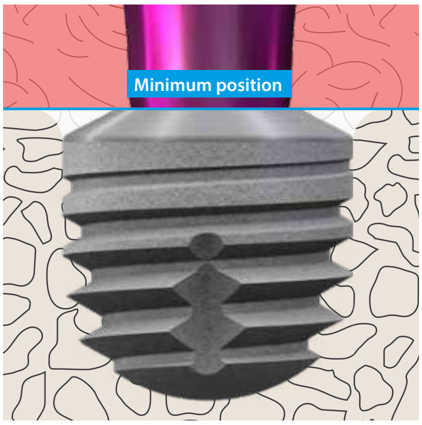
Usage of the crestal drill depends on the following factors:

- Cortical bone thickness
- Final implant position

If the final position of the implant is in the cancel-lous bone, the crestal drill is not required.
If the final position is in the cortical bone, the crestal drill is used. It usually only needs to be lowered halfway.

Positioning the implants

Implants with Backtaper (copaSKY, blueSKY 4.5/5.5)



The starting point for the Backtaper should always be subcrestal. This makes it easier to place bone grafts and promotes bone growth, as clinical experience and scientific studies have shown.

The maximum position depends on the implant diameter and the choice of abutment to avoid bone collisions.
The risk of bone collisions is highest with the narrowest copaSKY 3.5 implant. Depending on the abutment height, the following subcrestal positions are possible:

Abutment 1.5: 1 mm subcrestal
Abutment 3.0: 2 mm subcrestal

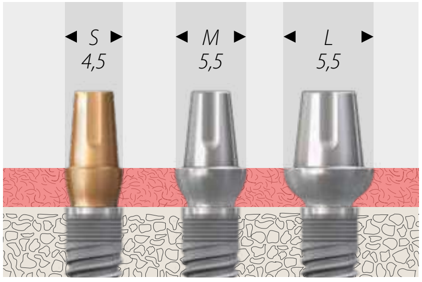
Recommendation

Ø Implant	Drill stop	Subcrestal
5.2	8	8.7
8.0	10	10.7
10.0	12	12.7
12.0	14	14.7
14.0	16	16.7

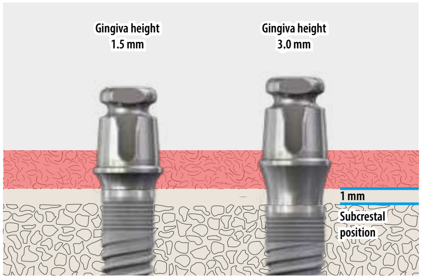
To ensure safe preparation of the subcrestal position, we recommend using the next shorter drill stop, e.g. the 10 mm drill stop for an 8 mm implant.

Please take the deeper hole into account when planning the implant.

Cylindrical implants (narrowSKY blueSKY 4.0)



If you plan to use SKY esthetic abutments or SKY standard abutments, an iso-crestal implant position is required.



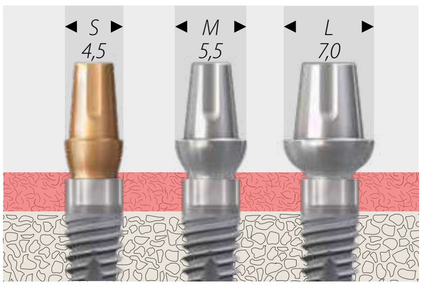
If you plan to use SKY exso abutments, the implants can be placed in both an iso-crestal and subcrestal position.

SKY exso abutment height 1.5 mm:
An iso-crestal implant position is recommended

SKY exso abutment 3.0 mm:
a subcrestal position is possible up to max. 1 mm.

Supracrestal position (SKY classic)

SKY classic is a supracrestal implant. The following information must be observed when positioning the implant.

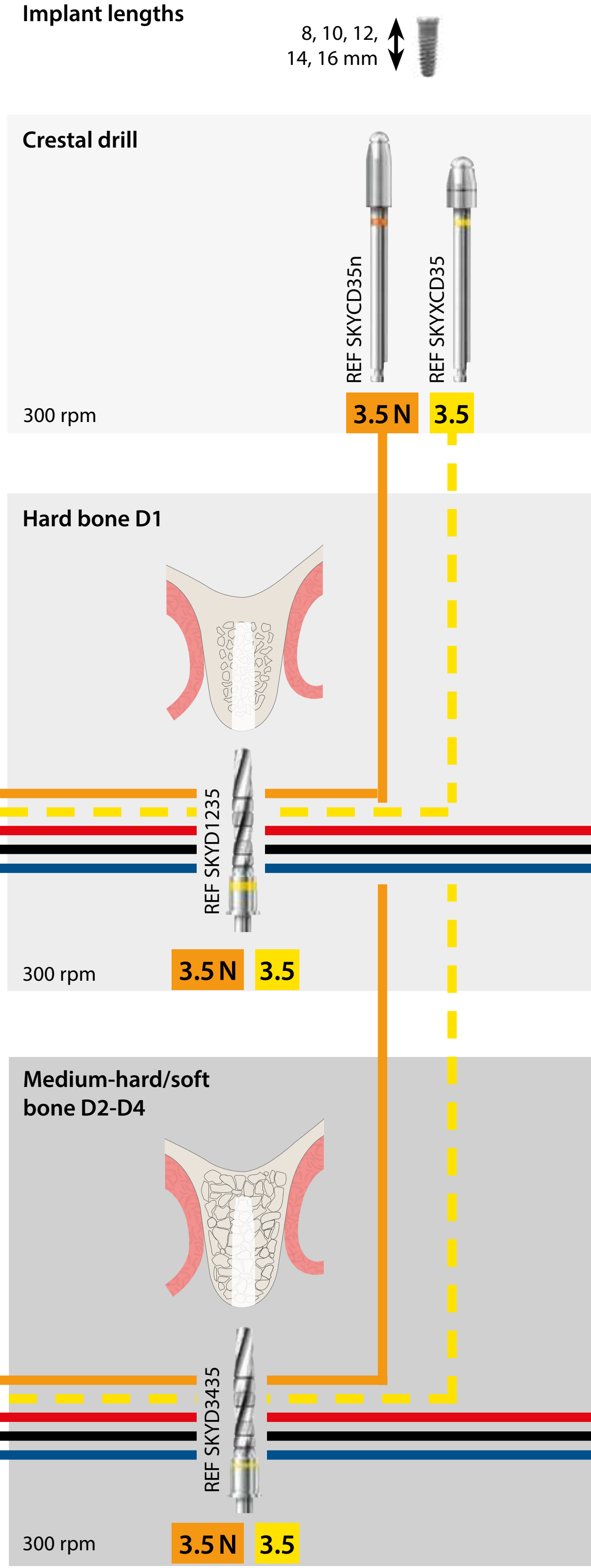


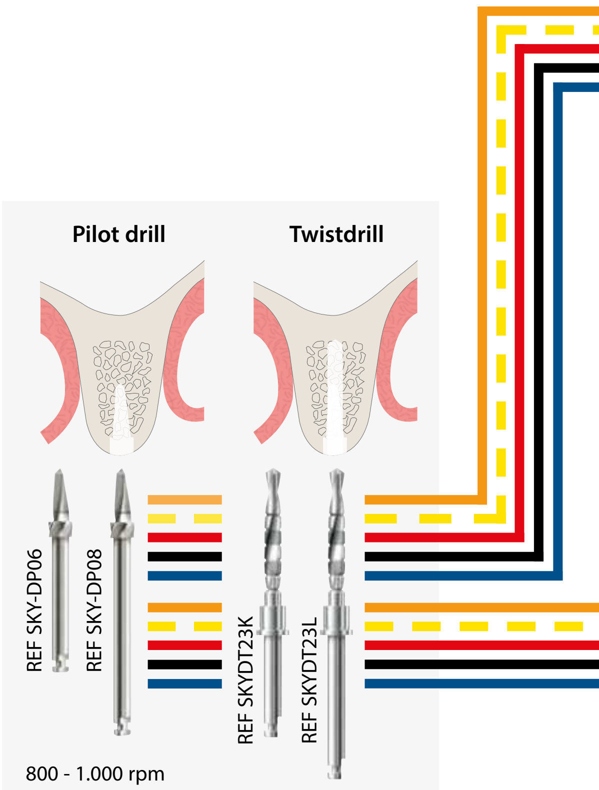
Ø Implant	Bohrtiefe supracrestal	Drill stop
8.0	6.7	-
10.0	8.7	8
12.0	10.7	10
14.0	12.7	12
16.0	14.7	14

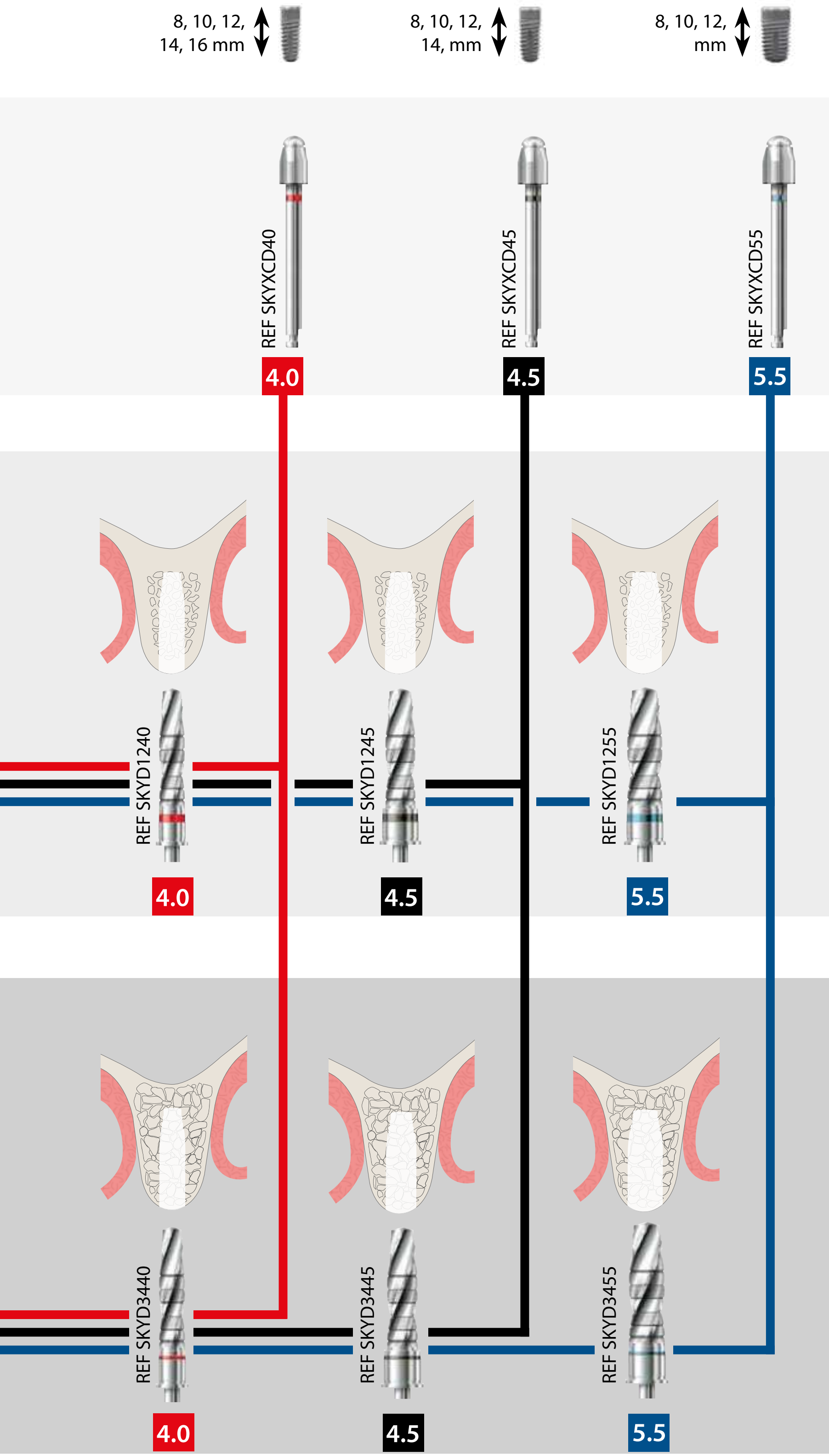
Surgical protocol *Freehand*

SKY surgical protocol

- Optimised, bone quality-orientated instrument set and surgical protocol for primary stability
- Drills with detachable drill stops
- Reducing the number of drills improves clarity and safety during surgery

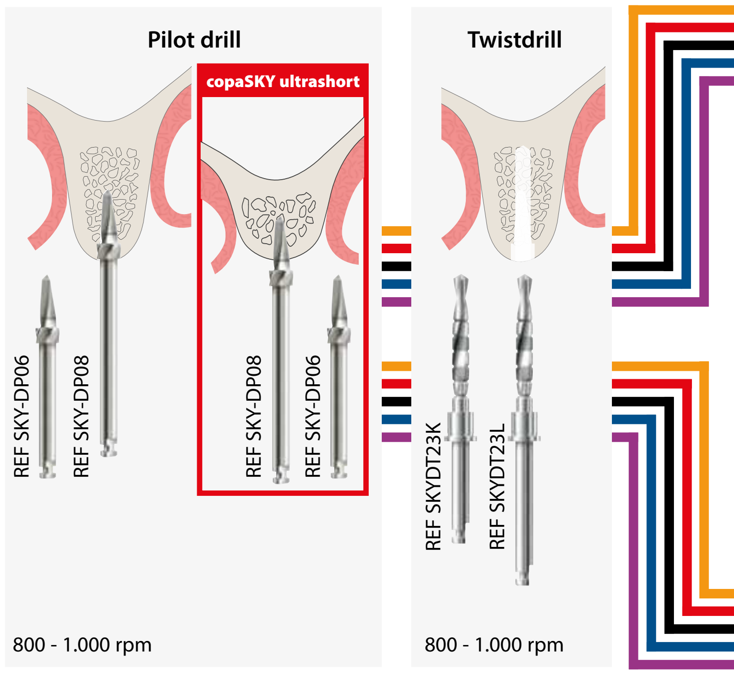


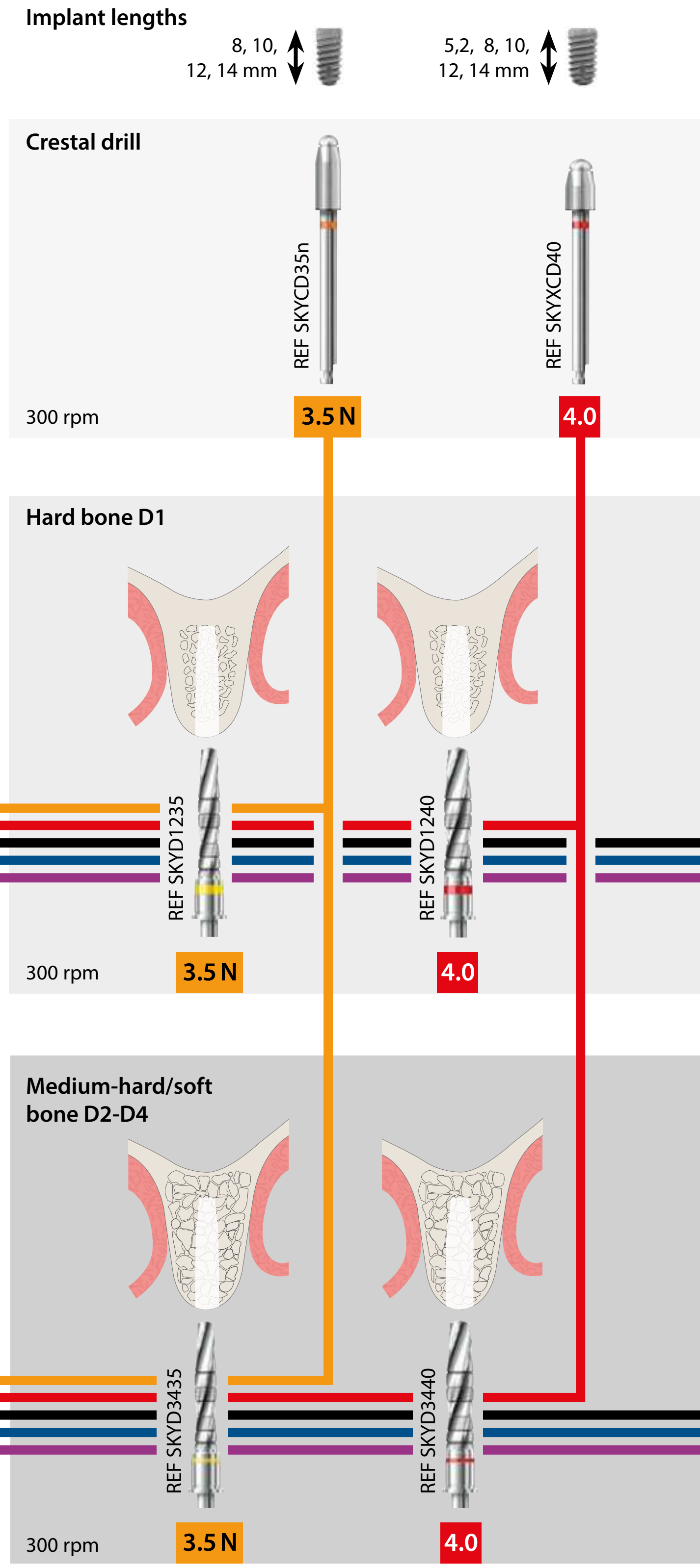


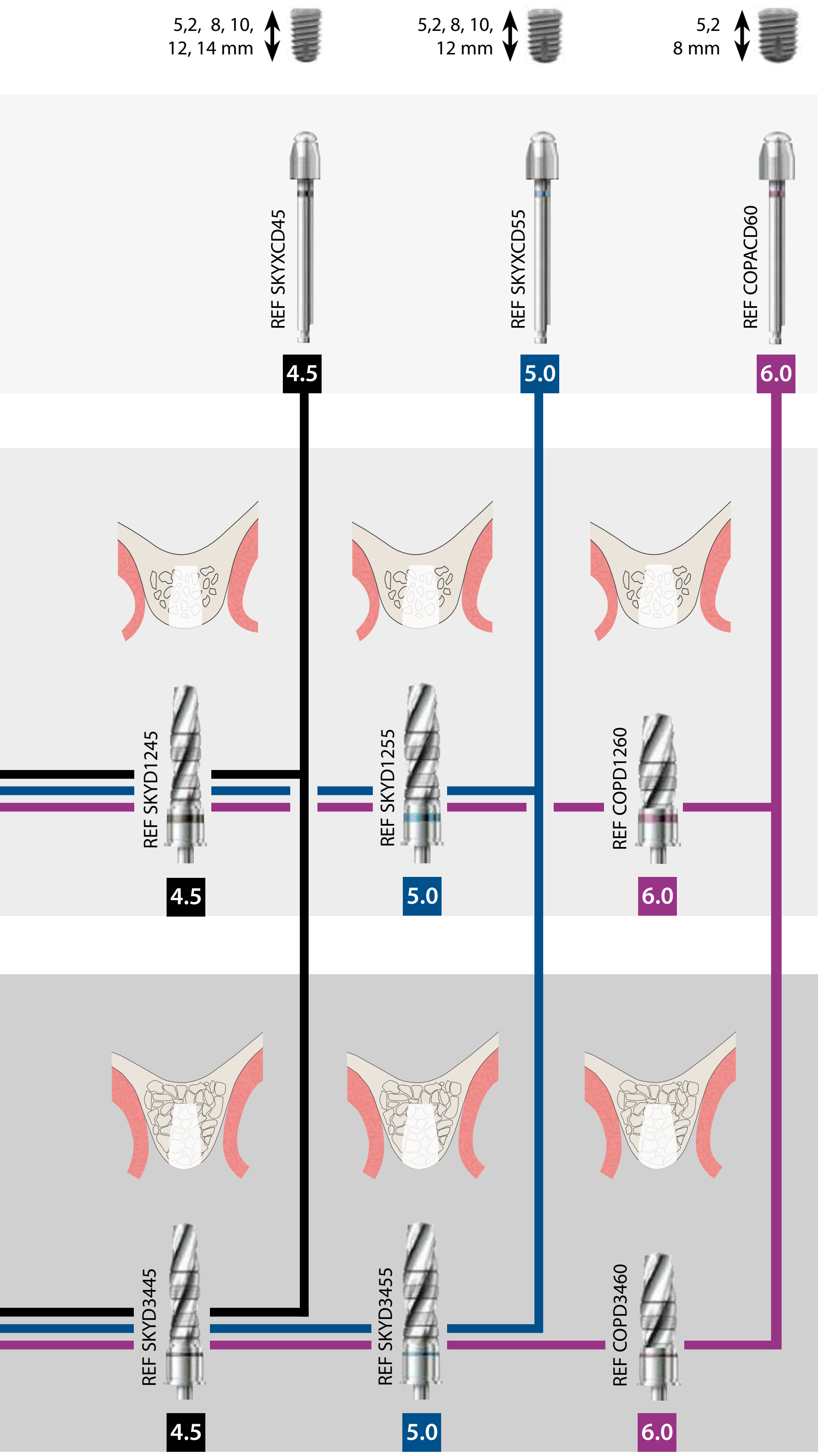

8, 10, 12, 14, 16 mm
8, 10, 12, 14, mm
8, 10, 12, mm
REF SKYXCD40
4.0
REF SKYXCD45
4.5
REF SKYXCD55
5.5
REF SKYD1240
4.0
REF SKYD1245
4.5
REF SKYD1255
5.5
REF SKYD3440
4.0
REF SKYD3445
4.5
REF SKYD3455
5.5

Surgical protocol *Freehand*

copaSKY surgical protocol

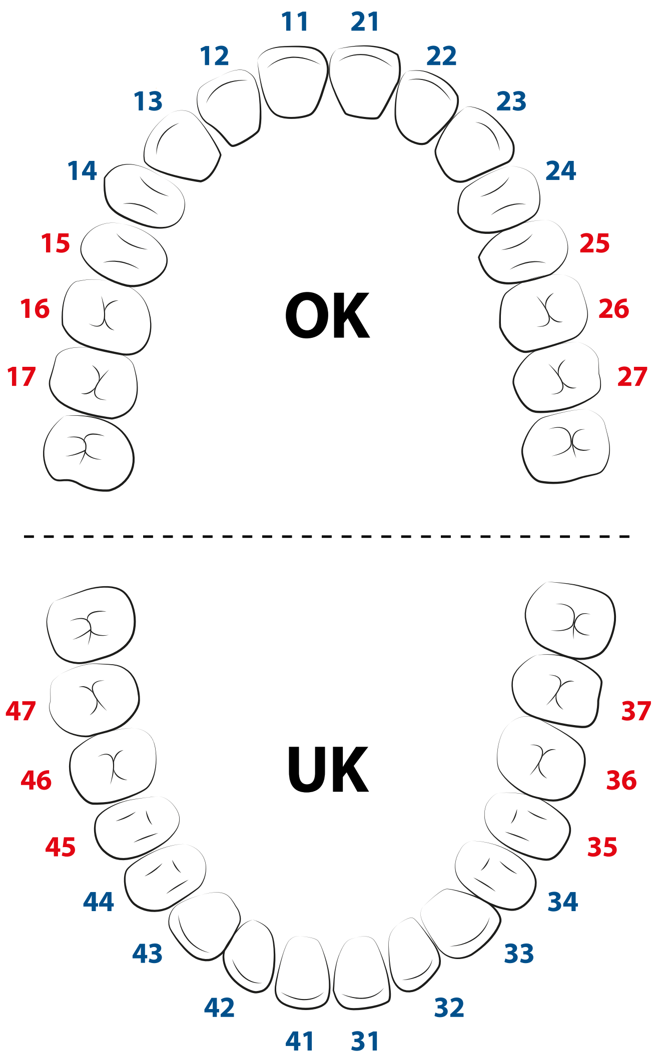





5,2, 8, 10,
12, 14 mm
5,2, 8, 10,
12 mm
5,2
8 mm
REF SKYXCD45
4.5
REF SKYXCD55
5.0
REF COPACD60
6.0
REF SKYD1245
4.5
REF SKYD1255
5.0
REF COPD1260
6.0
REF SKYD3445
4.5
REF SKYD3455
5.0
REF COPD3460
6.0

Surgical protocol

Special features of copaSKY ultra short



Recommendations when using ultra short implants:

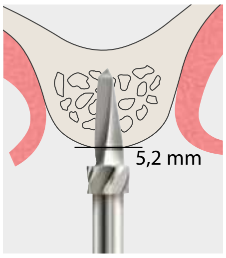
Positions 5, 6, 7:

- Tooth-by-tooth restoration, i.e. h. every lost tooth is replaced by an implant
- Prosthetic restoration may become blocked or emerge as individual crowns
- In case of blocked restorations, a passive fit must be observed.
  We thus recommend using copaSKY uni.cone abutments

Positions 1, 2, 3, 4:

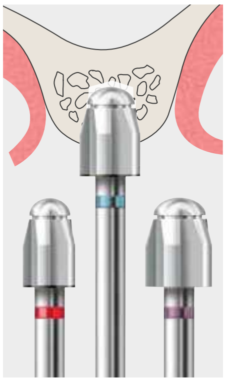
- Tooth-by-tooth restoration
- Small bridges possible with an intermediate link
- No extensions on bridges

Special features of copaSKY ultra short

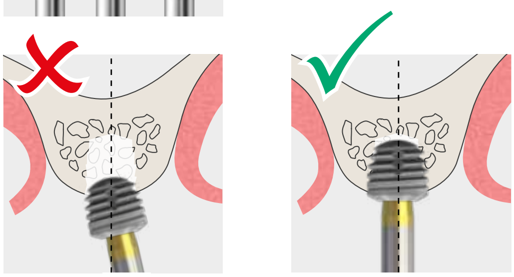


The drilling depth for the ultra-short copaSKY implants (REF copa4005, copa5005, copa6005) only as far as the laser marking on the pilot drill.

The drilling depth when using drill stops for 5.2 mm is 5.7 mm. The clearance under the implant is 0.5 mm.



The crest drill is inserted as far as the stop.

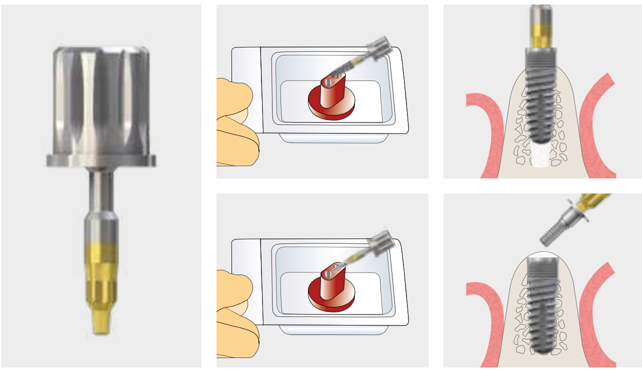


Attention
The implant axis may deviate slightly from the cavity axis.

Attention
When screwed in, the implant axis deviates slightly from the drilling axis of the cavity as the implant is very short. When inserting the implant with an contra-angle handpiece, the axis can be controlled more effectively.

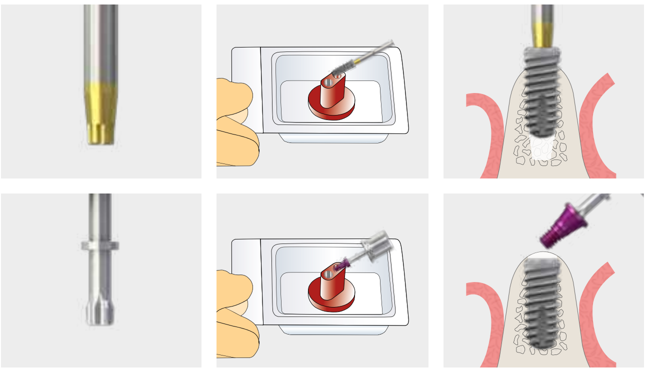
Surgical protocol

Placement of the implant



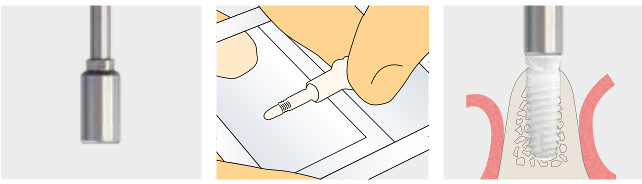
SKY insertion
The SKY implant is removed from the holder with the insertion instrument and screwed into the cavity.

The cover screw is removed from the holder with the insertion instrument and screwed in.



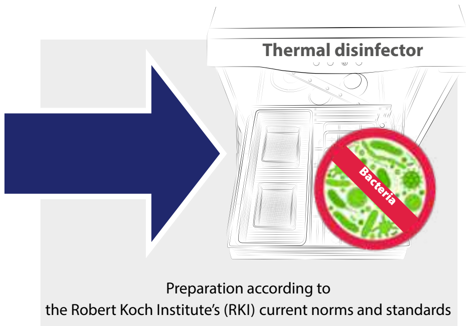
Inserting copaSKY
The copaSKY implant is removed from the holder with the insertion instrument and screwed into the cavity.

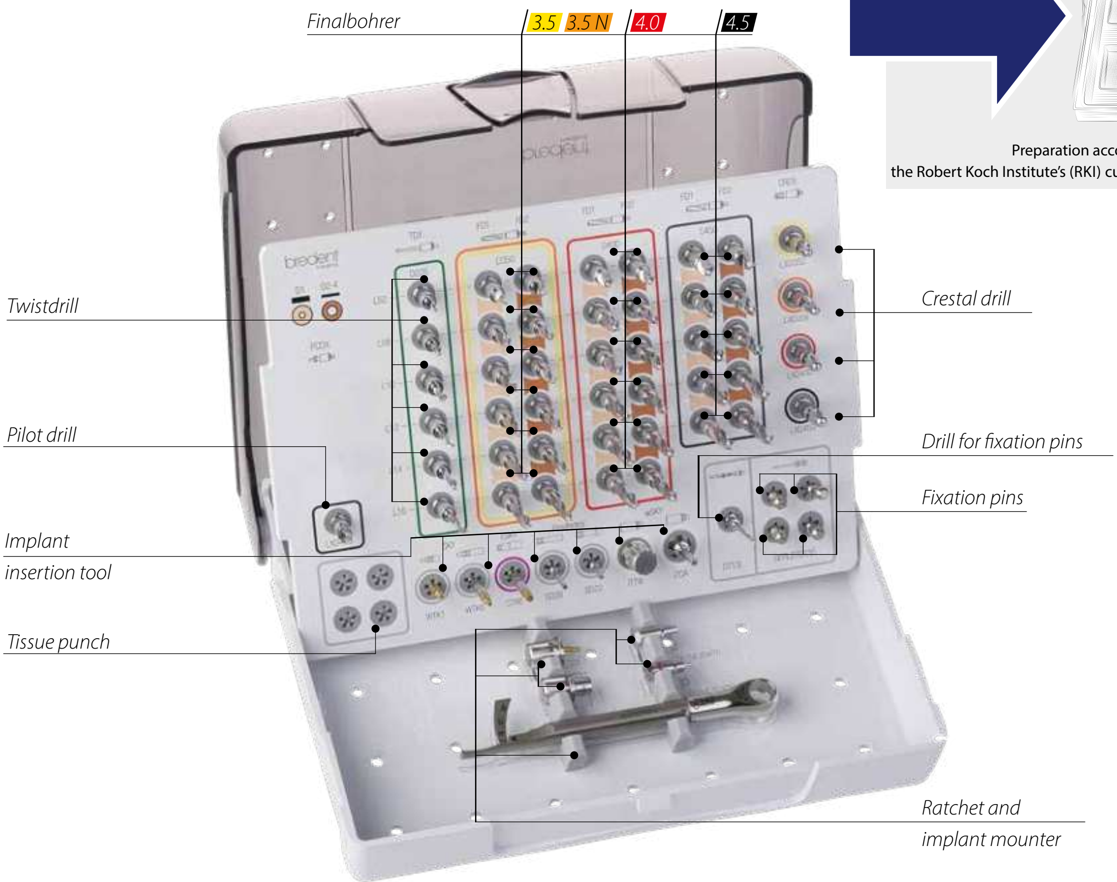
The cover screw is removed from the holder with prosthetic screwdrivers and screwed in.



Inserting whiteSKY
The implants are removed from the blister packaging with the holder, inserted into the cavity and screwed into place by turning the implant once or twice.
The Implant driver is screwed in completely with the implant mounter.

SKY pro guide – precisely guided implantology





SKY pro guide surgical tray (loaded)
REF SKYPROGST1

Instruments for all SKY implants with Ø 3.5, Ø 4.0 and Ø 4.5.

Implant mounter screws
The screws are a single-use product for approval reasons and are therefore supplied separately with the tray.

SKY pro guide OP-Tray

SKY Twistdrill, guided

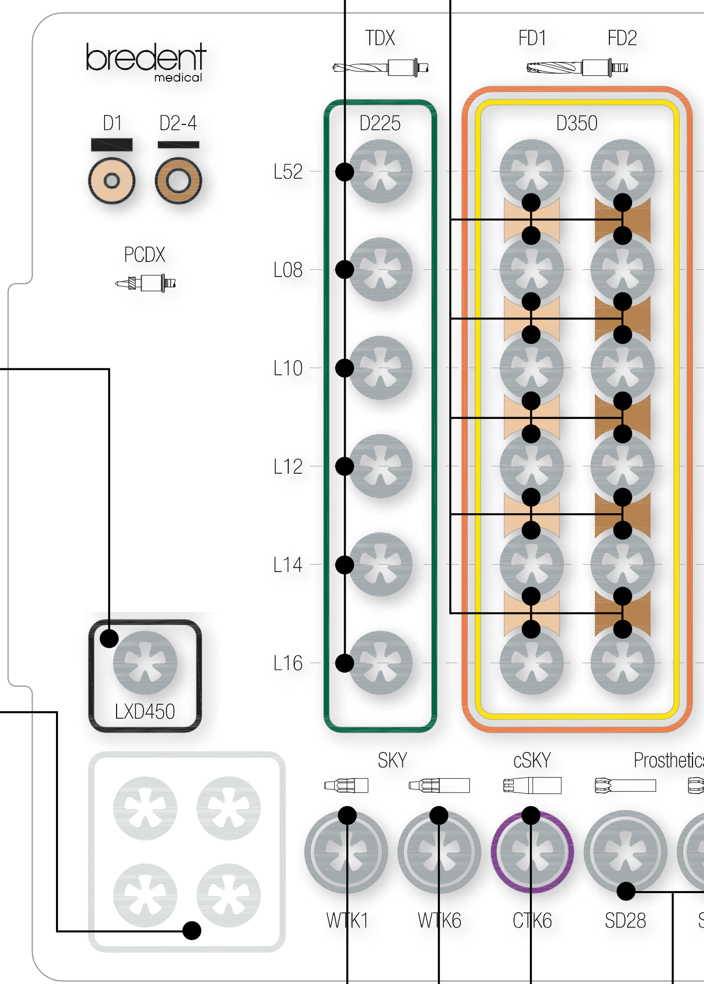
TDXL52D225 TDXL08D225 TDXL10D225 TDXL12D225 TDXL14D225 TDXL16D225

SKY final drill, guided

hard bone D1
medium-hard/
soft bone D2, D3, D4

3.5 | 3.5 N

L 5.2 mm
L 8 mm
L 10 mm
L 12 mm
L 14 mm
L 16 mm



SKY pilot drill, guided

PCDXLXD450

Tissue punch, guided

TPGXLXD400

Implant insertion tools

SKY-WTK1 SKY-WTK6 COPACTK6

Prosthetic key

SKY-SD28 SKY-SD22

SKY final drill, guided

hard bone D1
medium-hard/
soft bone D2, D3, D4

4.0
L 5.2 mm
L 8 mm
L 10 mm
L 12 mm
L 14 mm
L 16 mm

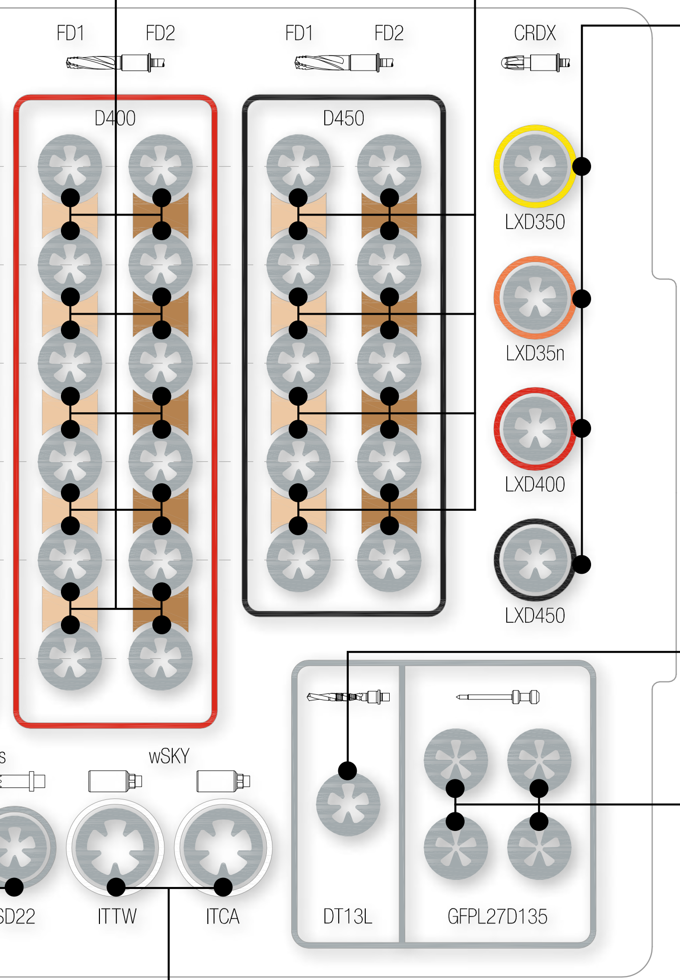
SKY final drill, guided

hard bone D1
medium-hard/
soft bone D2, D3, D4

4.5
L 5.2 mm
L 8 mm
L 10 mm
L 12 mm
L 14 mm
L 16 mm

SKY crestal drill, guided

CRDXLXD35n CRDXLXD350 CRDXLXD400 CRDXLXD450



Twistdrill for fixation pin, guided

SKYDT13L

Implant insertion tools

wSKYITTW

wSKYITCA

Fixation pin

4x GFPL27D135

Must also be documented as a follow-on part:

SKY torque wrench Pro 1

SKYTWPR1

or

SKY torque wrench 100

SKY-SD50

SKY Connector Pro 1

SKYTWCO1

copaSKY implant mounter (guided)

COPMLXDSET

copaSKY implant mounter (guided)

COPMLXDSET

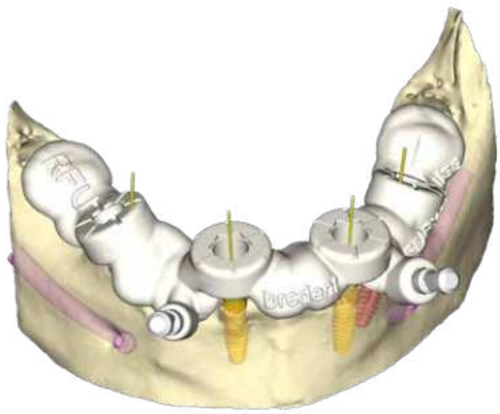
Surgical protocol, guided

SKY pro guide – Fixing the drilling template in edentulous jaws

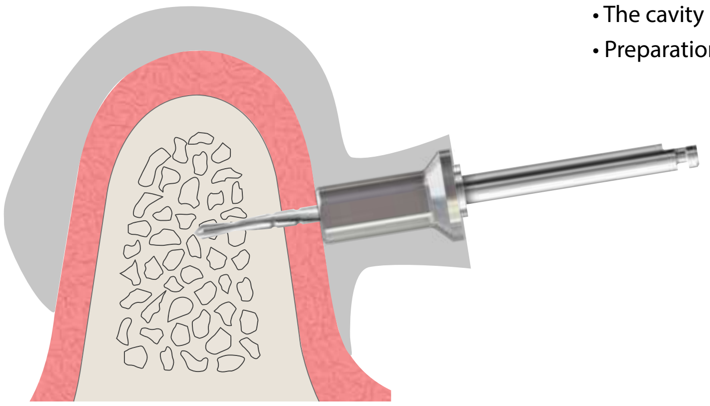
SKY guided fixation pin
Ø 1.35 mm L 27mm
REF GFPL27D135

SKY guided fixation pin sleeve
Ø 1.35 mm L 6mm
REF GFSL06D135

The SKY guided fixation pin and its associated sleeve can be used to securely attach the drilling template, which can also be easily removed again.

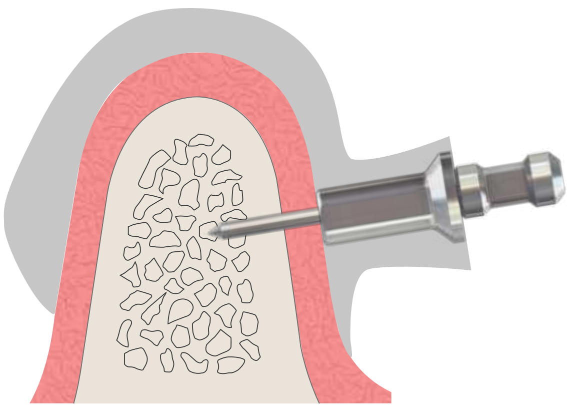


The drilling template is inserted
and checked to ensure it is in the right position.



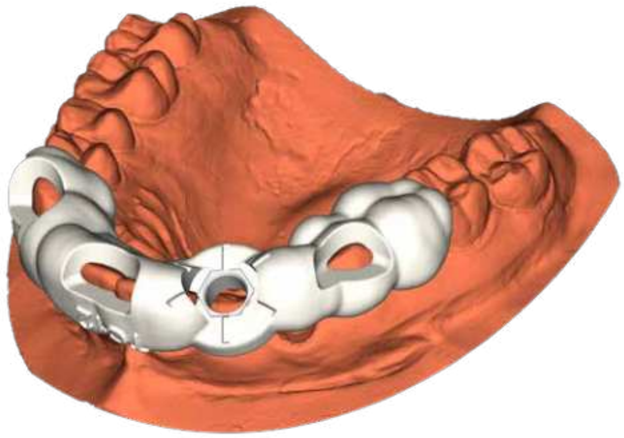
Maximum recommended speed
1,000 rpm with cooling

- The cavity is prepared with the 1.3 mm Twistdrill.
- Preparation is carried out as far as the stop in the drill sleeve.



- Gently tap in the fixation pin.
- After inserting the first fixation pin, recheck that the drill guide is correctly seated.
- Then insert the remaining fixation pins.
- Re-check.

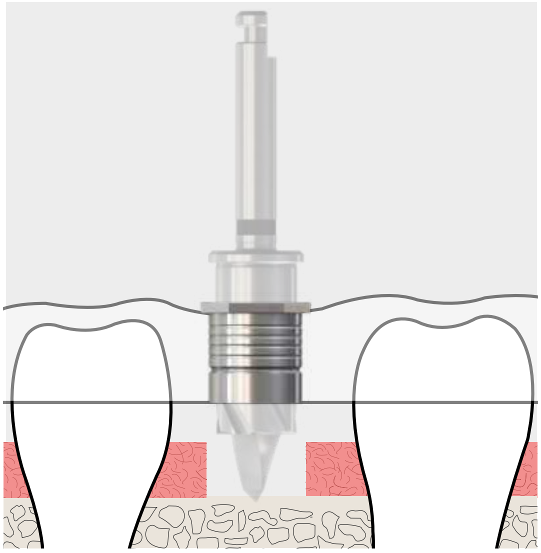
Pro guide in the partially edentulous jaw



The drilling template is supported by the existing residual dentition. The correct position of the drilling template is checked through window openings.

Surgical protocol, guided

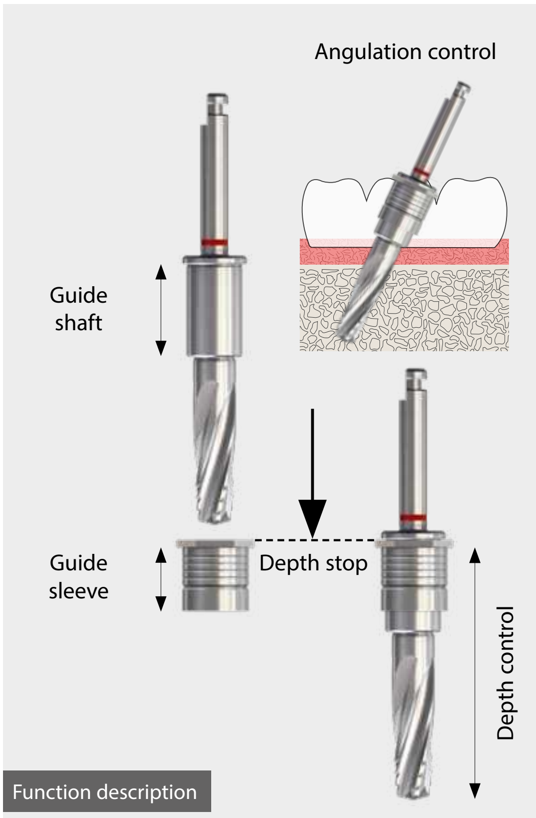
SKY pro guide – operating principle



Two different long versions of the SKY pro guide sleeve are available for guiding:

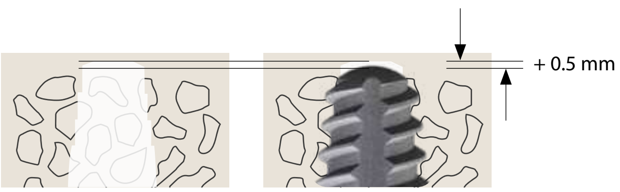
- 4 mm – REF GDSL04D475
- 6 mm – REF GDSL06D475

The guide shaft
is 8 mm long.



Angular implants can also be placed precisely in this way.

The fixed depth stop prevents injury to sensitive anatomical structures.



Drilling depth 0.5 mm

The drilling depth is always 0.55 mm lower than the implant length, unless specified otherwise.

Fully guided from 3.5 to 4.5 mm

The SKY narrowSKY, blueSKY and SKY classic implants can be completely guided up to 4.5 mm, i.e. not only preparation of the implant bed but also insertion of the implant is guided.

Guided preparation

Guided implant bed preparation is also possible with whiteSKY T.L. implants. Insertion is done freehand.

Partially guided preparation

Guided implant bed preparation is possible up to the final drill.
• whiteSKY A.L. crestal finishers are used freehand
• Insertion is also performed freehand

Surgical protocol, guided

SKY pro guide – surgical procedure

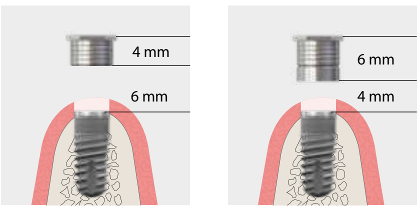
SKY tissue punch guided

SKY tissue punch guided

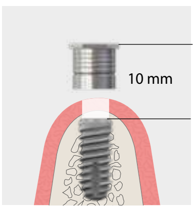
- This punch removes the mucous membrane accurately and with minimal invasion
- Safe use if the mucosal punch is guided with the SKY Pro Guide

Recommended speed range
Speed between 40 rpm – max. 100 rpm

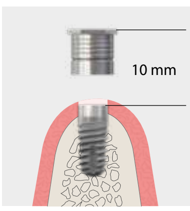
Positioning the implant



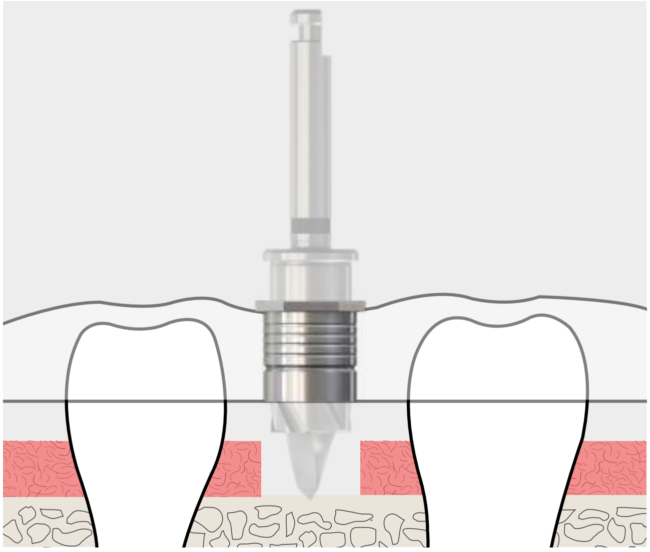
The implant position is determined with the virtual implant. The sleeve gap is always 10 mm from the implant shoulder to the upper edge of the sleeve.



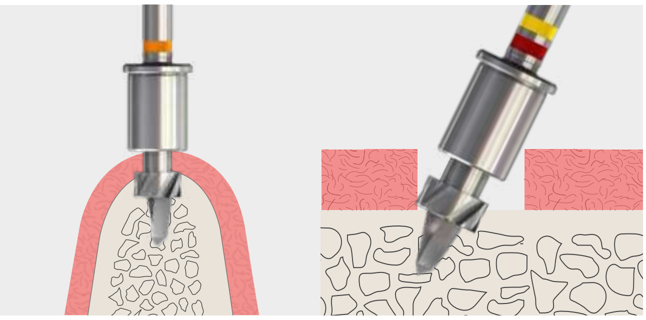
In a subcrestal implant position, the sleeve is therefore closer to the bone edge, meaning the 4 mm sleeve is often used here.



In a supracrestal implant position, the sleeve is positioned away from the bone level accordingly.

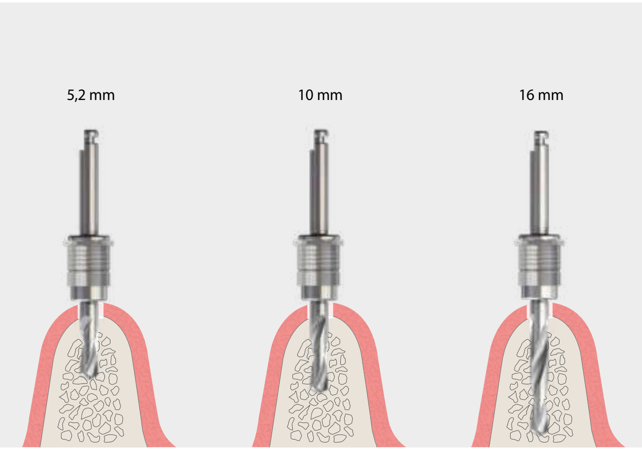


The sharp tip of the pilot drill combined with the guided shaft prevents the drill from slipping when preparing cavities for angular implants.
Inserted in full length, the pilot drill creates a small platform around the implant to prevent bone collision of the prosthetic restoration.



In the case of a subcrestal implant position and angular implants, the implant platform is correspondingly situated deeper within the bone.

Attention
Make sure that drill rotation is not started until there is contact with the bone. If contact is already made before the pilot drill shaft is guided, the drill guide must be removed and the bone smoothed

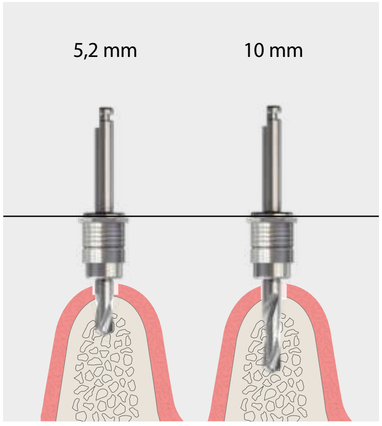


We recommend preparing a cavity with a length of 16 mm in 3 steps:
- 5.2 mm
- 10 mm
- 16 mm

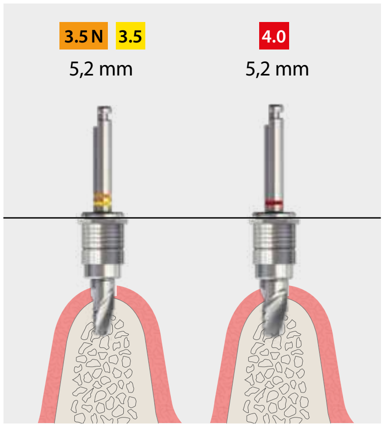
Surgical protocol, guided

SKY pro guide

Drill sequence as demonstrated by an implant 4.0, 10 mm in length

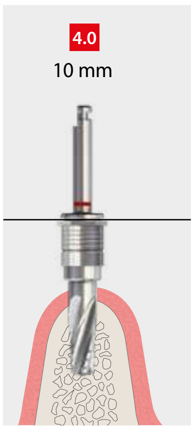


The preparation is initially carried out as far as the final depth with the Twist-drill.
To reduce the number of drilling operations, the cavity is prepared with the 5.2 mm drill to the required implant diameter.
This diameter is then prepared as far as the final depth.

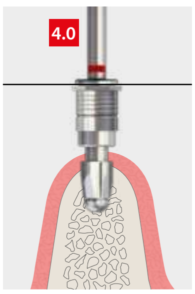


Final Drill 3.5, 5.2 mm in length
The crestal area is expanded with the final drill.

Final Drill 4.0, 5.2 mm in length
The crestal area is expanded with the final drill.



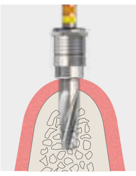
Final Drill 4.0, 10 mm in length
The final drill prepares the cavity for the final depth.

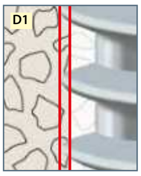


Crestal drill 4.0
With the crestal drill in the implant diameter, the cortical bone is prepared in such a way that no pressure is applied on the cortical bone.

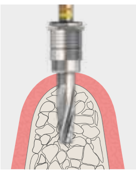
SKY final drill, guided

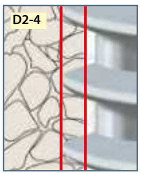
The SKY final drill is available in two lines per diameter. The hard bone diameter is 0.14 mm larger than that for medium-hard and soft bones.





Hard bone
Atraumatic thread tapping thanks to reduced contact area.





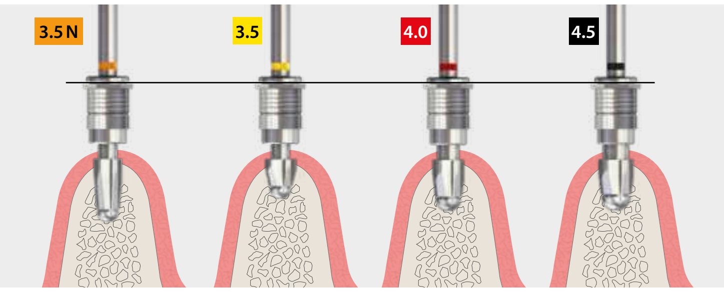
Soft and medium-hard bone
Apical compression due to increased contact area.

Consistently high primary stability

SKY final drills guided prepare the diameter of the cavity.

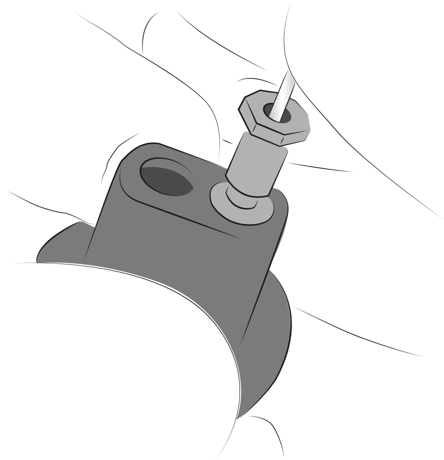
There is a drill for hard, medium and soft bone in any length and diameter for every implant.

Crestal drill guided



There is a guided crestal drill for each implant diameter. This is important to prevent tension in the cortical bone, which can lead to bone loss.

SKY pro guide



copaSKY and SKY implants can also be inserted using a guide.
The respective mounter features a stop and is screwed into place with the implant so that the intended vertical height of the implant is reliably reached.

The implant screwed into place with the mounter is inserted with

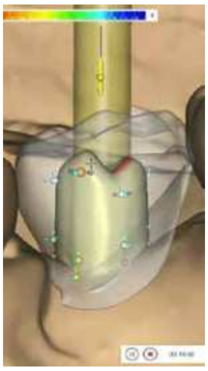
- SKY-WTK1 with the contra-angle handpiece
- SKY-STK1 with the ratchet

The very low design height also makes it easier to use in the molar region.

The hexagon integrated in the sleeve and the hexagon on the insertion instrument are matched and align with the Torx position of the implants.
This makes it possible to manufacture individual abutments before surgery based solely on the planning data. The abutments can then be immediately restored afterwards.*

* Not all software on the market supports this option.

Dr Burzin Khan, ZT Danish Vazifdar, Mumbai, India



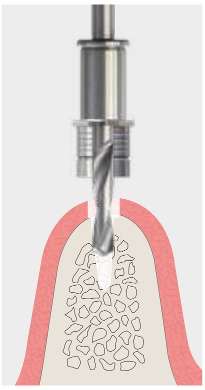
Based on implant planning, it is already possible to prepare the prosthetic restoration before implantation and thus provide the implant with immediate restoration when there is sufficient primary stability.

The procedure we use is as follows:
- DVT/CT image of the patient's situation
- Intra-oral scan of the clinical situation
- 3D plan of implant positions
- Production of the drilling template
- Export of 3D planning data to a CAD programme*
- Structural design of the individual abutment
- Structural design of the prosthetic restoration
- CAM production of the individual abutment and prosthetic restoration

*Export from the planning software and import into a CAD software that supports our libraries.

Bredent CAD library

https://bredent-group.com/bredent-group-cad-library/



The clinical procedure is as follows:
- Cavity prepared with proGuide
- The implant is inserted with the screwed-in insertion tool
- The implant is aligned using the hexagon on the sleeve and on the mounter
- Primary stability is measured with Penguin
- If there is sufficient primary stability of at least 65 ISQ or 30 Ncm, the implant can be restored immediately.
- If primary stability is insufficient, healing takes place under cover. The prefabricated prosthetics are then used on opening.

Surgical protocol, guided

SKY pro guide

Implant lengths

8, 10, 12, 14, 16 mm

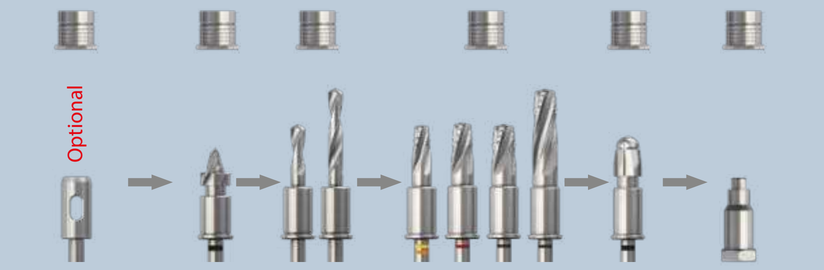
3.5 N 3.5

Implant mounter guided

Crestal drill guided

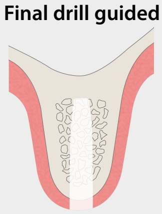
300 rpm

Case study: bSKY4514



Hard bone D1

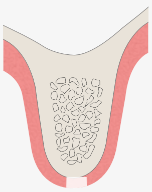
Final drill guided



REF GDSL06D475

300 rpm 3.5 N 3.5

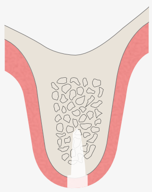
SKY tissue punch guided 4.0



REF GDSL06D475

40 - 100 rpm

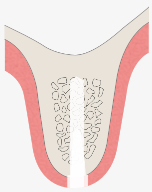
Pilot drill guided



REF GDSL06D475

800 - 1.000 rpm

Twistdrill guided

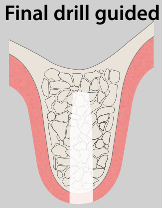


REF GDSL06D475

800 - 1.000 rpm

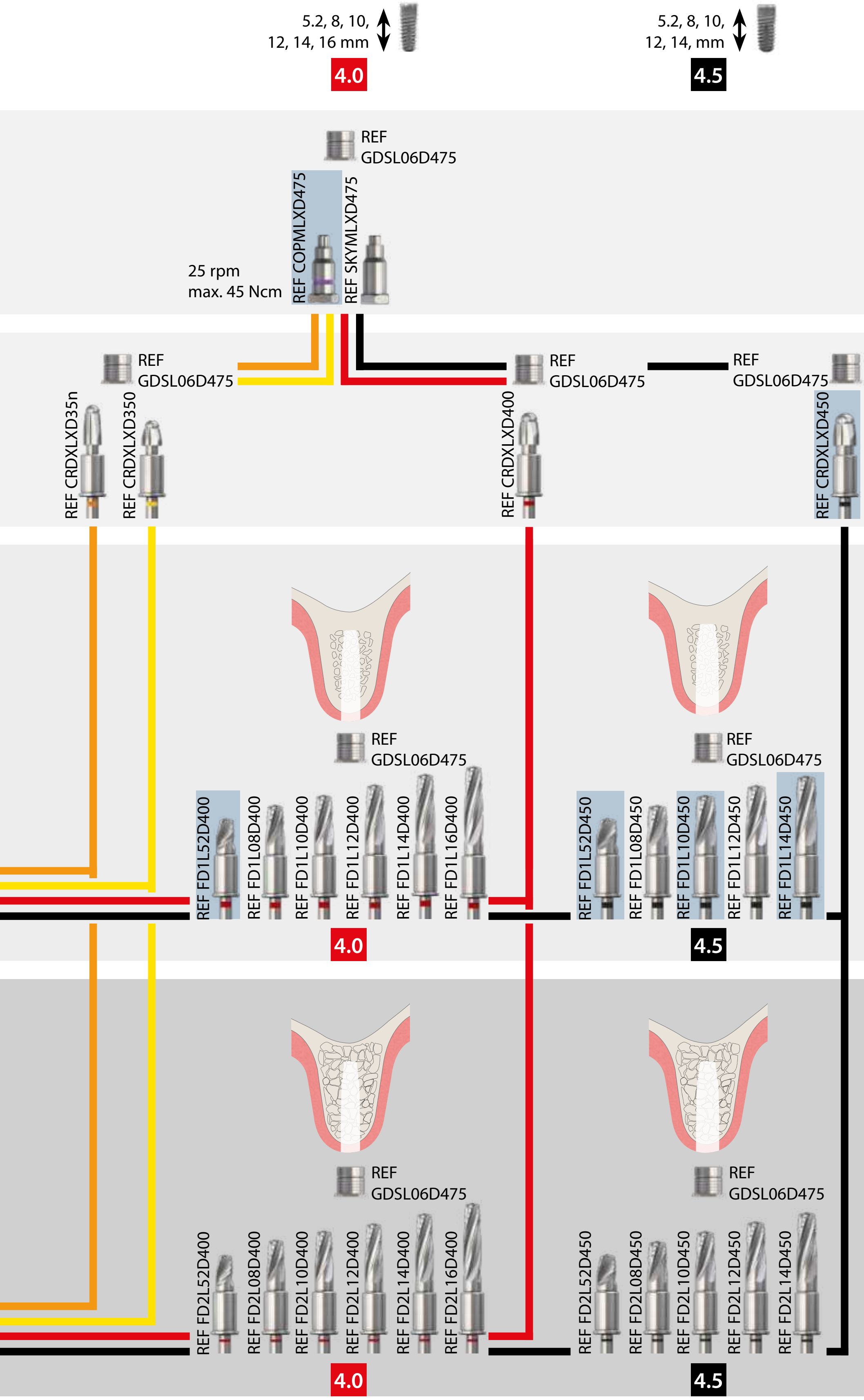
Medium-hard/ soft bone D2, D3, D4

Final drill guided



REF GDSL06D475

300 rpm 3.5 N 3.5



To use the drills:
First insert the drill into the sleeve
and then start to use it.

SKY pro guide Overview of drill application

Implant		Pilot drill	Twistdrill	Final drill		Crestal drill	Implant mounter	
Length	Ø			Hard bone D1	Medium-hard/ soft bone D2, D3, D4		SKY	copaSKY
5.2 mm 	4.0	PCDXLXD450	TDXL52D225	1. FD1L52D350 2. FD1L52D400	1. FD2L52D350 2. FD2L52D400	CRDXLXD400	n.a.	COPMLXD475
	4.5		TDXL52D225	1. FD1L52D350 2. FD1L52D400 3. FD1L52D450	1. FD2L52D350 2. FD2L52D400 3. FD2L52D450	CRDXLXD450	n.a.	COPMLXD475
8 mm 	3.5 N	PCDXLXD450	1. TDXL52D225 2. TDXL08D225	1. FD1L52D350 2. FD1L08D350	1. FD2L52D350 2. FD2L08D350	CRDXLXD35n	SKYMLXD475	COPMLXD475
	4.0		1. TDXL52D225 2. TDXL08D225	1. FD1L52D350 2. FD1L52D400 3. FD1L08D400	1. FD2L52D350 2. FD2L52D400 3. FD2L08D400	CRDXLXD400	SKYMLXD475	COPMLXD475
	4.5		1. TDXL52D225 2. TDXL08D225	1. FD1L52D350 2. FD1L52D400 3. FD1L52D450 4. FD1L08D450	1. FD2L52D350 2. FD2L52D400 3. FD2L52D450 4. FD2L08D450	CRDXLXD450	SKYMLXD475	COPMLXD475
10 mm 	3.5 N	PCDXLXD450	1. TDXL52D225 2. TDXL10D225	1. FD1L52D350 2. FD1L10D350	1. FD2L52D350 2. FD2L10D350	CRDXLXD35n	SKYMLXD475	COPMLXD475
	3.5		1. TDXL52D225 2. TDXL10D225	1. FD1L52D350 2. FD1L10D350	1. FD2L52D350 2. FD2L10D350	CRDXLXD350	SKYMLXD475	n.a.
	4.0		1. TDXL52D225 2. TDXL10D225	1. FD1L52D350 2. FD1L52D400 3. FD1L10D400	1. FD2L52D350 2. FD2L52D400 3. FD2L10D400	CRDXLXD400	SKYMLXD475	COPMLXD475
	4.5		1. TDXL52D225 2. TDXL10D225	1. FD1L52D350 2. FD1L52D400 3. FD1L52D450 4. FD1L10D450	1. FD2L52D350 2. FD2L52D400 3. FD2L52D450 4. FD2L10D450	CRDXLXD450	SKYMLXD475	COPMLXD475

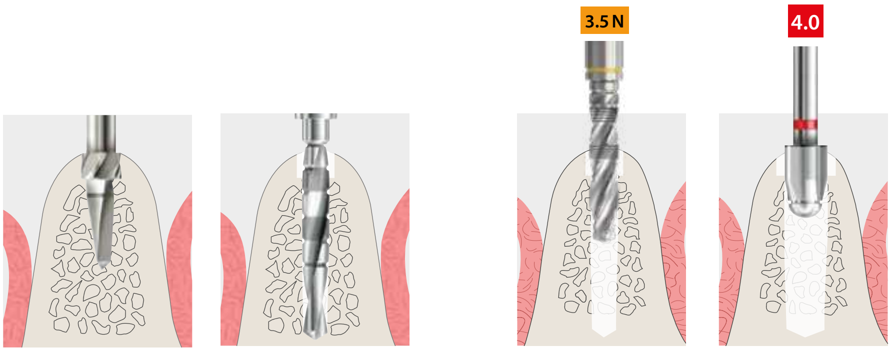
Implant		Pilot drill	Twistdrill	Final drill		Crestal drill	Implant mounter	
Length	Ø			Hard bone D1	Medium-hard/ soft bone D2, D3, D4		SKY	copaSKY
12 mm 	3.5 N	PCDXLXD450	1. TDXL52D225 2. TDXL12D225	1. FD1L52D350 2. FD1L12D350	1. FD2L52D350 2. FD2L12D350	CRDXLXD35n	SKYMLXD475	COPMLXD475
	3.5		1. TDXL52D225 2. TDXL12D225	1. FD1L52D350 2. FD1L12D350	1. FD2L52D350 2. FD2L12D350	CRDXLXD350	SKYMLXD475	n.a.
	4.0		1. TDXL52D225 2. TDXL12D225	1. FD1L52D350 2. FD1L52D400 3. FD1L12D400	1. FD2L52D350 2. FD2L52D400 3. FD2L12D400	CRDXLXD400	SKYMLXD475	COPMLXD475
	4.5		1. TDXL52D225 2. TDXL12D225	1. FD1L52D350 2. FD1L52D400 3. FD1L52D450 4. FD1L12D450	1. FD2L52D350 2. FD2L52D400 3. FD2L52D450 4. FD2L12D450	CRDXLXD450	SKYMLXD475	COPMLXD475
14 mm 	3.5 N	PCDXLXD450	1. TDXL52D225 2. TDXL10D225 5. TDXL14D225	1. FD1L52D350 2. FD1L10D350 3. FD1L14D350	1. FD2L52D350 2. FD2L10D350 3. FD2L14D350	CRDXLXD35n	SKYMLXD475	COPMLXD475
	3.5		1. TDXL52D225 2. TDXL10D225 5. TDXL14D225	1. FD1L52D350 2. FD1L10D350 3. FD1L14D350	1. FD2L52D350 2. FD2L10D350 3. FD2L14D350	CRDXLXD350	SKYMLXD475	n.a.
	4.0		1. TDXL52D225 2. TDXL10D225 3. TDXL14D225	1. FD1L52D350 2. FD1L52D400 3. FD1L10D400 4. FD1L14D400	1. FD2L52D350 2. FD2L52D400 3. FD2L10D400 4. FD2L14D400	CRDXLXD400	SKYMLXD475	COPMLXD475
	4.5 *		1. TDXL52D225 2. TDXL10D225 3. TDXL14D225	1. FD1L52D350 2. FD1L52D400 3. FD1L52D450 4. FD1L10D450 5. FD1L14D450	1. FD2L52D350 2. FD2L52D400 3. FD2L52D450 4. FD2L10D450 5. FD2L14D450	CRDXLXD450	SKYMLXD475	COPMLXD475
16 mm 	3.5 N	PCDXLXD450	1. TDXL52D225 2. TDXL10D225 3. TDXL16D225	1. FD1L52D350 2. FD1L10D350 3. FD1L16D350	1. FD2L52D350 2. FD2L10D350 3. FD2L16D350	CRDXLXD35n	SKYMLXD475	n.a.
	3.5		1. TDXL52D225 2. TDXL10D225 3. TDXL16D225	1. FD1L52D350 2. FD1L10D350 3. FD1L16D350	1. FD2L52D350 2. FD2L10D350 3. FD2L16D350	CRDXLXD350	SKYMLXD475	n.a.
	4.0		1. TDXL52D225 2. TDXL10D225 3. TDXL16D225	1. FD1L52D350 2. FD1L52D400 3. FD1L10D400 4. FD1L16D400	1. FD2L52D350 2. FD2L52D400 3. FD2L10D400 4. FD2L16D400	CRDXLXD400	SKYMLXD475	n.a.

Recommendations from our users

Improving primary stability in soft bone

Dr Florian Obadan, Romania

To improve bone-to-implant contact and increase primary stability, the drill protocol can be adapted in soft bone , where less intense preparation is carried out in the medullary region of the bone.

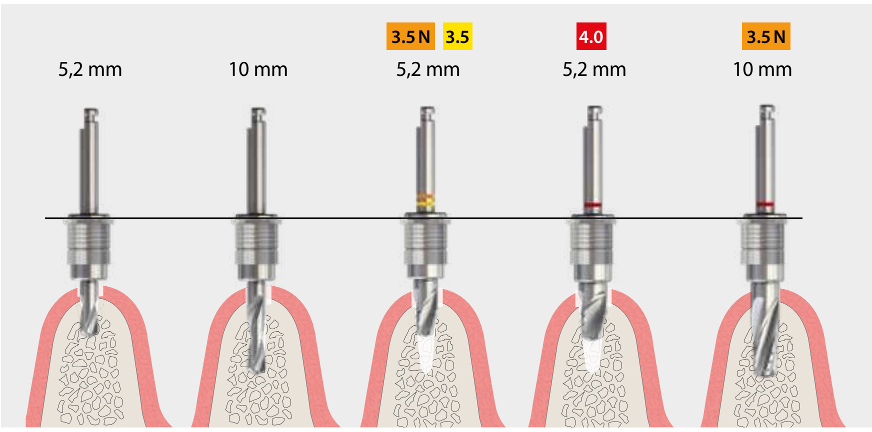


Example:

Implant 4.0 mm

- Pilot drill
- Twistdrill
- Final drill 3.5
- Crestal drill 4.0
- Placement of the implant

Improved bone-implant contact is achieved as follows during guided placement of the implant:



Example:

Implant 4.0 x 10 mm

- Pilot drill
- Twistdrill 5.2 mm
- Twistdrill 10 mm
- Final drill 3.5 L 5.2
- Final drill 4.0 L 5.2
- Final drill 3.5 L 10
- Crestal drill 4.0
- Placement of the implant

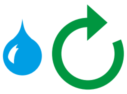
Improving primary stability and preventing necrosis

Professor J. Neugebauer, Landsberg

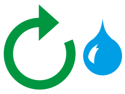
In soft bone, I want to increase primary stability and prevent necrosis in hard bone at high torques when screwing in the implants. I have been using the following simple techniques to do this for years:

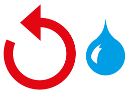
Improved primary stability – for very soft bone

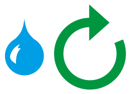
If I notice very soft bone while drilling the first holes, I use the final drills as an instrument to compact the bone by rotating them counter-clockwise. This increases primary stability.



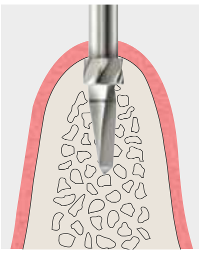
Direction of rotation



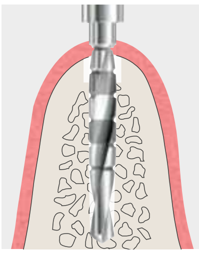




800-1.000 rpm

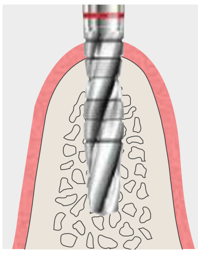


800-1.000 rpm



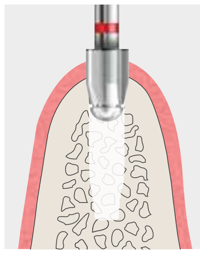
The pilot drill and the Twistdrill are used as described in the SKY surgical protocol.

50-100 rpm



The final drills are used slowly at 50–100 rpm.

300 rpm



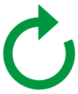
The crest drill is only inserted halfway.

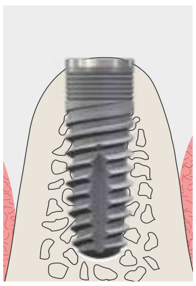
Preventing necrosis at high torques

There is a risk of necrosis if high torques are applied when screwing in the implants. In these cases, I reduce the stress on the bone by turning the implant back a little and waiting for a short time.

Torque during placement of the implant > 45 Ncm.

Direction of rotation

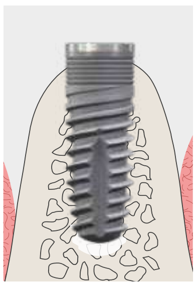




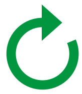
Turn the implant approx. 1 turn backwards.

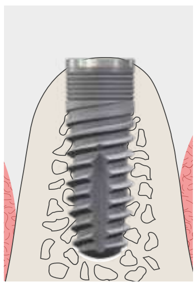
Wait approx. 10 seconds

180° - 360°



Turn the implant back to its final position.





References:

Neugebauer J. Habilitationsschrift: Design- und Behandlungsparameter für die erfolgreiche Sofortversorgung von Zahnimplantaten (Habilitation document: Design and treatment parameters for successful immediate restoration of dental implants). University of Cologne 2009.

Recommendations from our users

Extraction of bone with the drills

Dr Florian Obadan, Romania

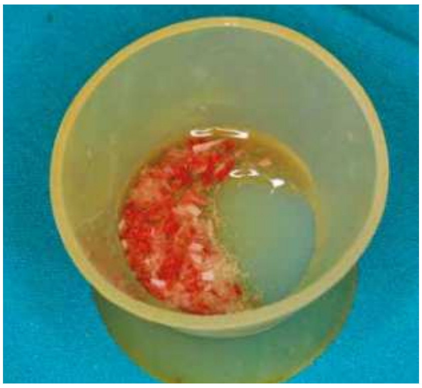
Bone grafts are an important raw material for tissue management. They are particularly suitable for covering exposed implant surfaces. Here you will find important information on how to collect bone grafts with the SKY drills and what you should bear in mind:

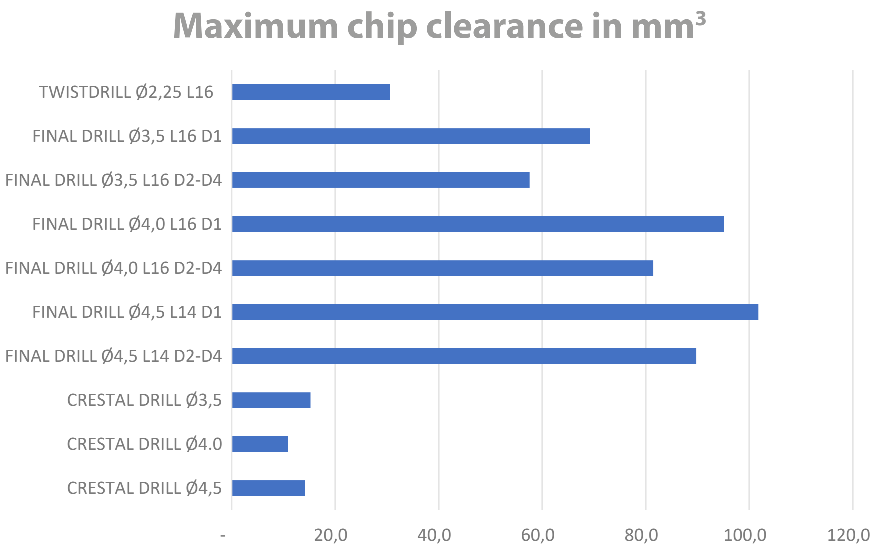
Image: Florian Obadan

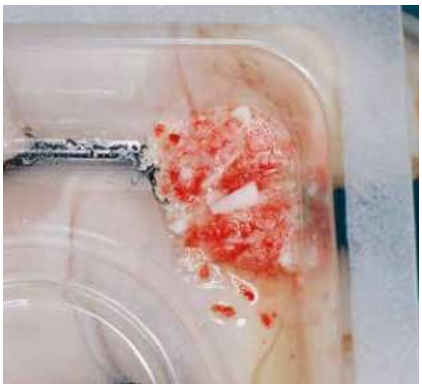
Collecting bone grafts

The Twistdrill and final drills are ideal for collecting bone grafts.

- The drill is used at maximum of 50 rpm for this purpose
- Work without cooling since the coolant can wash away the bone. There is no risk of necrosis at this low rate.





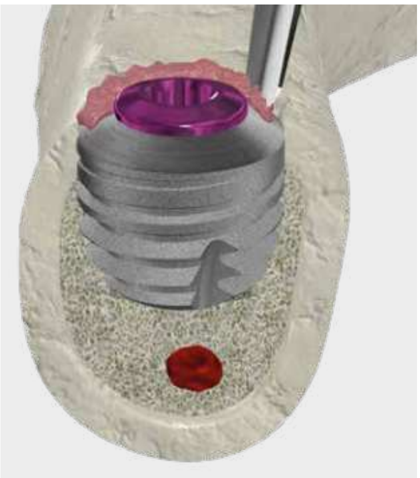


Instructions on collecting bone grafts

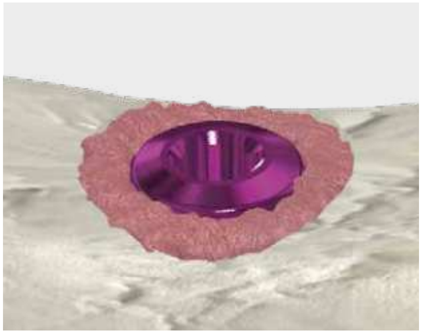
- Do not use compression instruments to collect natural bone
- Avoid contaminating the harvested bone with saliva
- Try to keep the bone moist with saline solution
- Handle the bone gently, reduce the drill speed and try to find the path of least resistance in the bone to prepare safely for longer implants
- If the quantity of bone grafts obtained is not sufficient, it is possible to mix the harvested bone with TIXXU bone substitute material

Gaining bone height with copaSKY

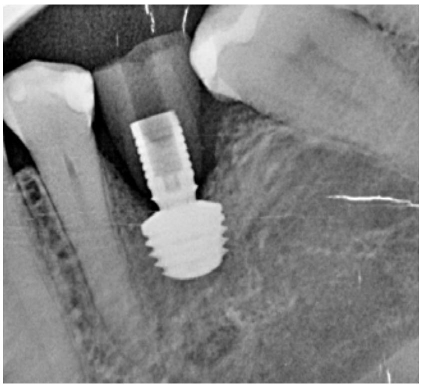
Prof. Dr. Jörg Neugebauer, Landsberg



The bone grows onto the copaSKY backtaper. This positive factor can be improved by placing bone grafts on the backtaper. The etched surface aids this effect.



Cover the backtaper around the cover screw with bone grafts.



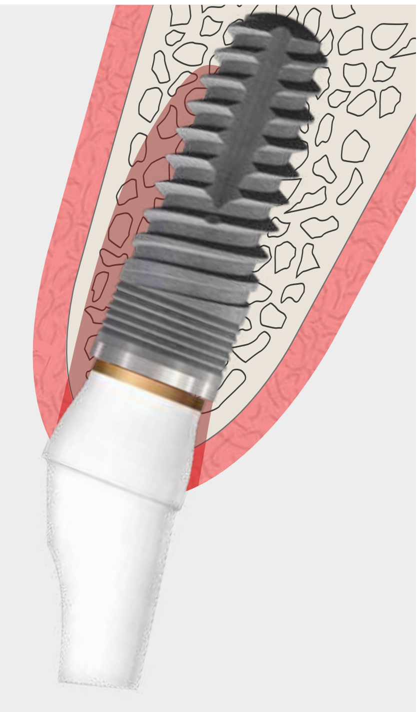
Source: Dr Zafer Kazak, Istanbul (Turkey)

I also cover the closure screw with bone grafts to place more bone over the implant. When reopening, I have noticed that the bone on the cover screw can be removed easily but remains securely on the backtaper. It is easy to remove thanks to the anodized closure screw.
In this case, it is important to measure the distance to the adjacent teeth in order to find the implant easily.

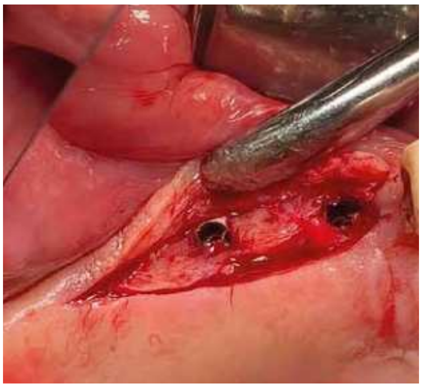
Tissue management in thin gingival phenotype

Dr Florian Obadan, Romania

"To place an immediate implantation for thin gingiva, I follow the drilling protocol and use a blueSKYimplant in the aesthetic zone. This allows me to achieve perfect results."



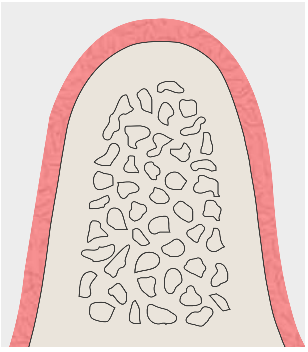
- Implant position slightly palatal
- The blueSKY implant inserted 1.0 - 1.5 mm below bone level.
- The abutments used with the platform switch suitable for immediate restoration, i.e. BioHPP SKY elegance S abutment
- The abutment is adapted
- Temporary crown



- Clinical case with thin gingiva and late restoration
- Implants placed in slight subcrestal position

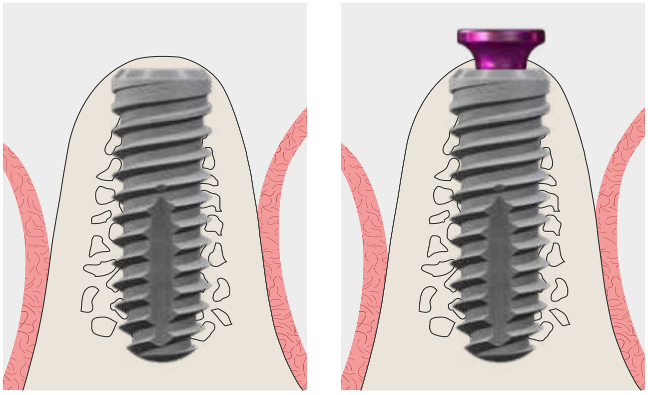
- Bone has grown over the cover screw
- Remove bone carefully to avoid loss of periimplant bone when removing the cover screw

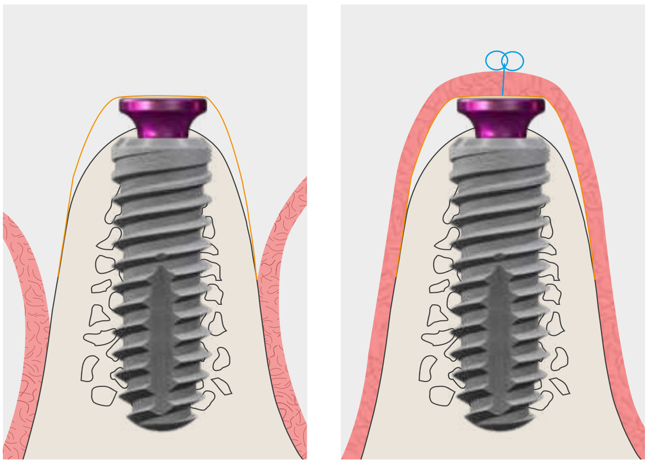
Tissue management in thin gingival phenotype



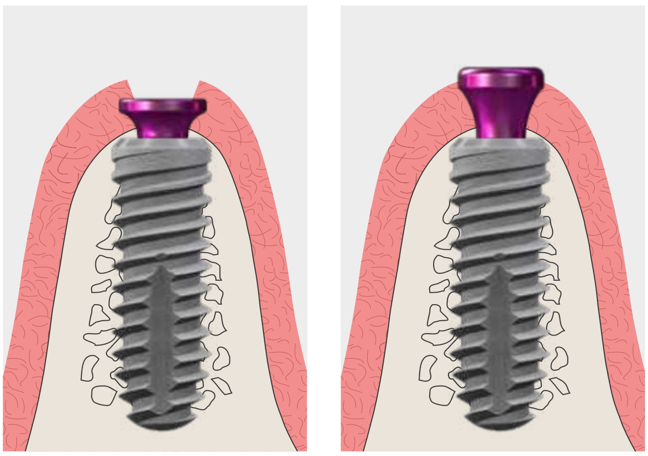
Dr Florian Obadan, Romania

"There are situations where immediate restoration is not indicated and the conventional procedure is used either due to a contraindication or due to the dentist's preference. For example, thin gingival phenotypes exhibit a pronounced recession in immediate implants and restorations. The gingiva and all periimplant soft tissue have been shown to make a significant impact on peri-implant bone preservation. As a result, we present a method below on how to improve the quantity and quality of periimplant soft tissue easily and reliably."



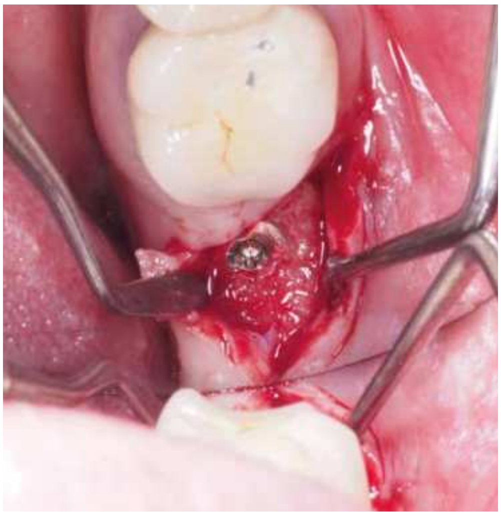


- The implants are placed approx. 1 mm subcrestally
- The copaSKY gingiva former is screwed in 2 mm
- The gingiva former is covered with a square piece of collagen fleece
- The gingiva is closed over the gingival former free of any tension



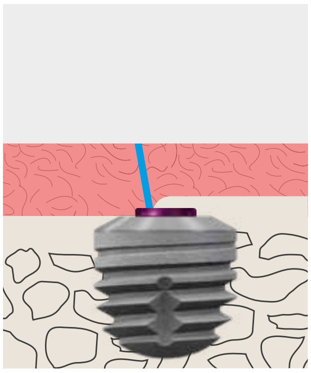
- After being open for 3 months: Replace the gingiva formers with a height of 2 mm with gingiva formers with a height of 6 mm
- Implant restoration is complete after 14 days

Implant opening and bone preservation

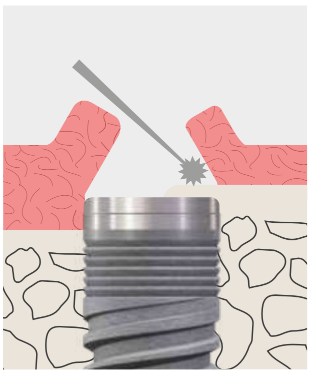


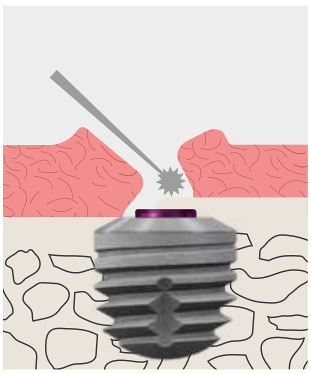
Dr Florian Obadan, Romania

After making a great effort during surgery to preserve or harvest soft and hard tissue, we need to continue this approach in the reopening phase as well.
Thanks to the effort, we often see bone growing over the closure screw. A bone profiler would destroy a great deal of valuable bone. We thus recommend taking time to carefully remove the bone using the following technique.



To obtain maximum soft and hard tissue, open the gingiva with an incision and carefully remove the soft tissue with a spatula.





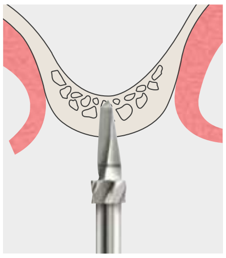
I remove the bone on the closure screw with a small rose drill on the contra-angle handpiece at low speed with cooling.

Collision with the bone is prevented with the different systems
- With the SKY system, use abutments with platform switch
- With copaSKY, use a cover screw with a larger diameter than the implant mounting connection

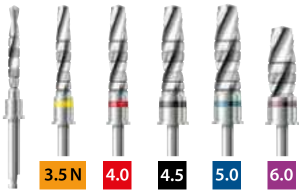
Caution:
With narrowSKY, a little more bone must be removed due to the matching abutments without a platform switch.

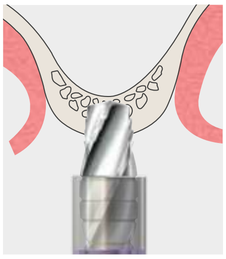
Internal sinus floor elevation with copaSKY ultra short

Prof. Dr. Jörg Neugebauer, Landsberg



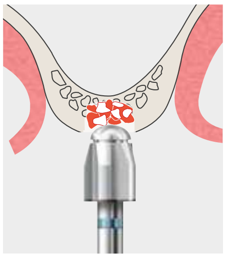
Prepare the cavity carefully as far as the bony margin of the sinus floor.



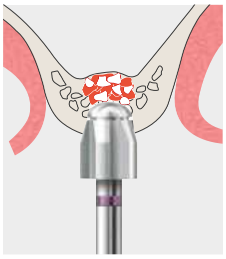


Preparation is
carried out step-by-step according to the copaSKY drill protocol:

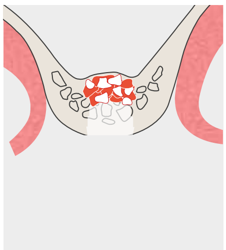
- Pilot drill
- Twistdrill
- Final drill as far as implant diameter



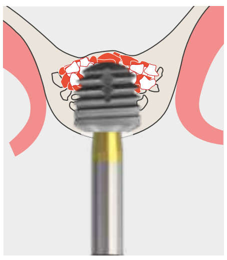
Before using the crestal drill, insert bone reconstruction material into the cavity. Do not use any sharp-edged bone reconstruction material. With the rounded tip of the crestal drill on the bone reconstruction material, the bony margin of the sinus floor is gently pressed.



The process can be repeated several times until the required depth of the cavity is attained.



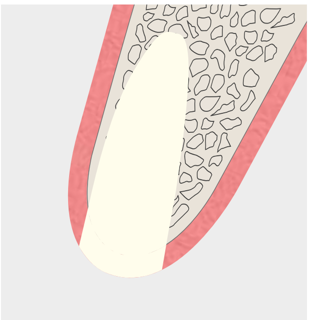
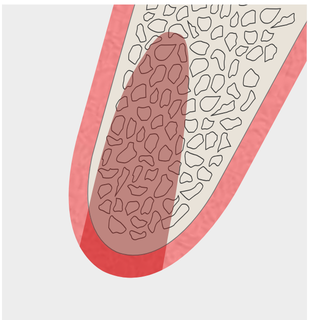
Before inserting the implant, make sure that the bone reconstruction material has been introduced evenly, so as to avoid an axial misalignment of the implant.



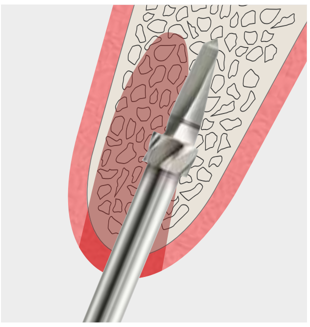
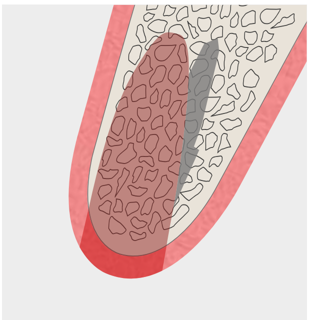
The final step of lifting the sinus floor is to insert the implant with the introduction of the bone reconstruction material.

Surgical protocol *Freehand*

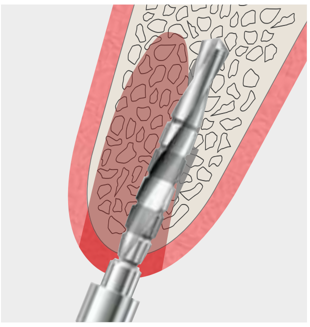
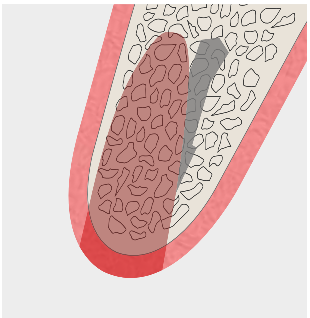
Immediate implantation

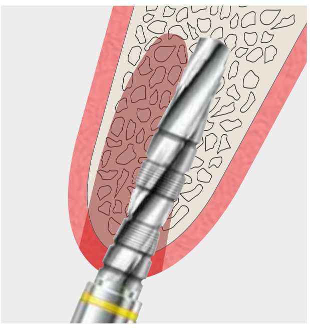
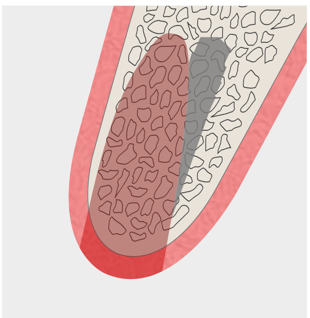
- Carefully remove the tooth root without damaging the vestibular bone lamella.
- After extracting the tooth, thoroughly remove any granulation tissue and disinfect the cavity with Helbo aPDT.

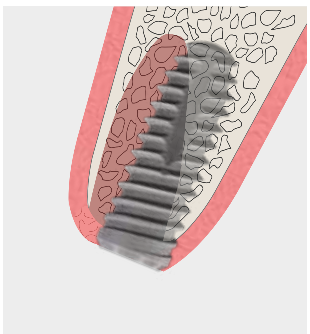
- The axial direction of the implant deviates from the axial direction of the alveolus.
- The sharp tip of the pilot drill makes it very easy to adjust the axial direction of the oblique alveolar wall.

- The Twistdrill is used to extend the new axis to its final depth.

- The final drills simply increase the diameter of the cavity according to the bone quality.
- With whiteSKY T.L., preparation is complete after the last final drill.

- There is no need to use the crestal drill for immediate restoration. When placing the implants, ensure that there is no contact with the vestibular bone lamella. This procedure can also be combined with partial extraction therapy (socket shield).

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