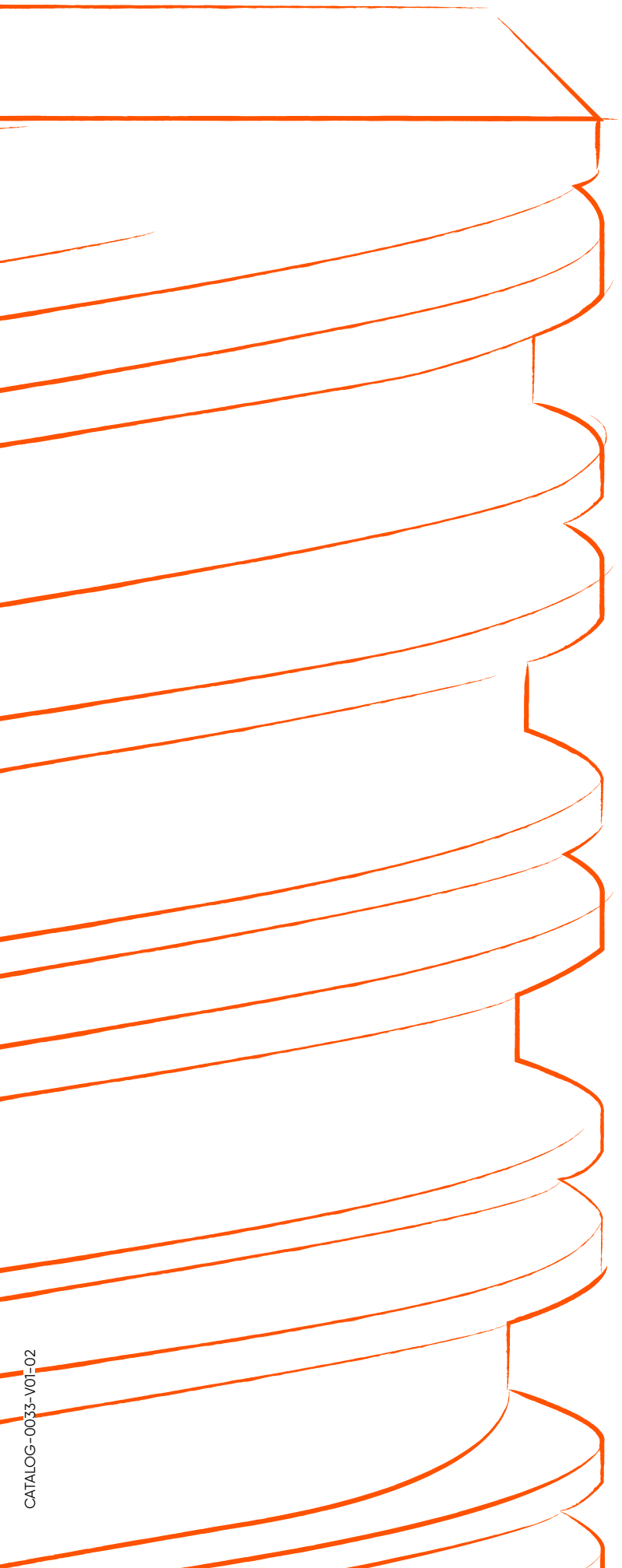
EN



In-Kone®

Surgery Manual

CATALOG-0033-V01-02

In-Kone®

Surgery Manual

Introduction

The instructions in this document describe the various stages of the surgical procedure to be used with the In-Kone® implant system.

This document cannot under any circumstances be treated as a general teaching aid on implant practice or give right to any claim.

Warning:

The insertion of In-Kone® implants is intended for practitioners who have already been trained in dental implantology and who have an infrastructure suitable for this type of procedure.

The In-Kone® system must only be used in combination with original brand components and in accordance with the recommendations in this document. Global D will not be liable for any insertion which does not comply with this manual.

General precautions:

Before using any product from the In-Kone® range, please read the dematerialized instruction manual and accessible via the QR code below. This QR code is also present on the product labeling. Please also be aware of the aspects regarding patient eligibility, organization of the room, the preparation of the operating staff, the preparation of the material, the preparation of the patient, the cleaning and decontamination of equipment. The prosthetic components as well as the ancillaries are delivered non-sterile. They must be cleaned, decontaminated and sterilized before any use. Refer to the instructions for the cleaning and sterilization protocol.

Practical information:

The instructions for use given in this document can only be copied or distributed with the prior authorisation of Global D, which reserves the right to modify the technical characteristics of the products and/or make changes or improvements to the In-Kone® system without notice.

This manual supersedes all previous versions.

Link to the instructions
of the In-Kone® implant (doc-globald.com/0197.html)

Contents

A. Quick start guide

1. Protocols

1. Flap

2. Foret pointeur
(Optional)
Speed 1200 tr/min
max. 1500 tr/min

3. Pilot drill
(600-800 rpm)

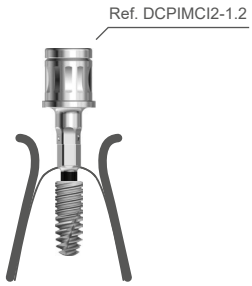
4. Drill the site
(800-600 rpm)

Max 50 N.cm

5a. Screw the implant in using the motor (25 rpm)

or

Max 70 N.cm



5b. Screw in the implant

a- 2-stage surgery

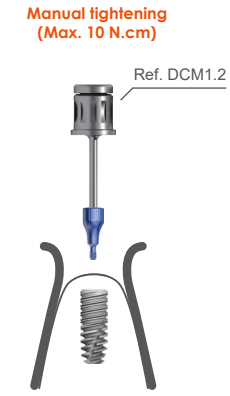
Manual tightening (max. 10 N.cm)

6a. Close the implant

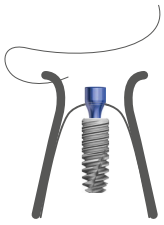
7a. Hermetic suture

* Key manufactured and CE marked by Josef Ganter Gmbh. Observe the cleaning, decontamination and sterilization recommendations provided by the manufacturer.

b- 1-stage surgery



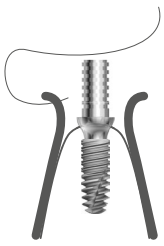
6b. Healing screw



7b. Close the flap

c- Aesthetic finishing

6c. Temporary abutment



7c. Close the flap

2. Apical-coronal positioning of the implant

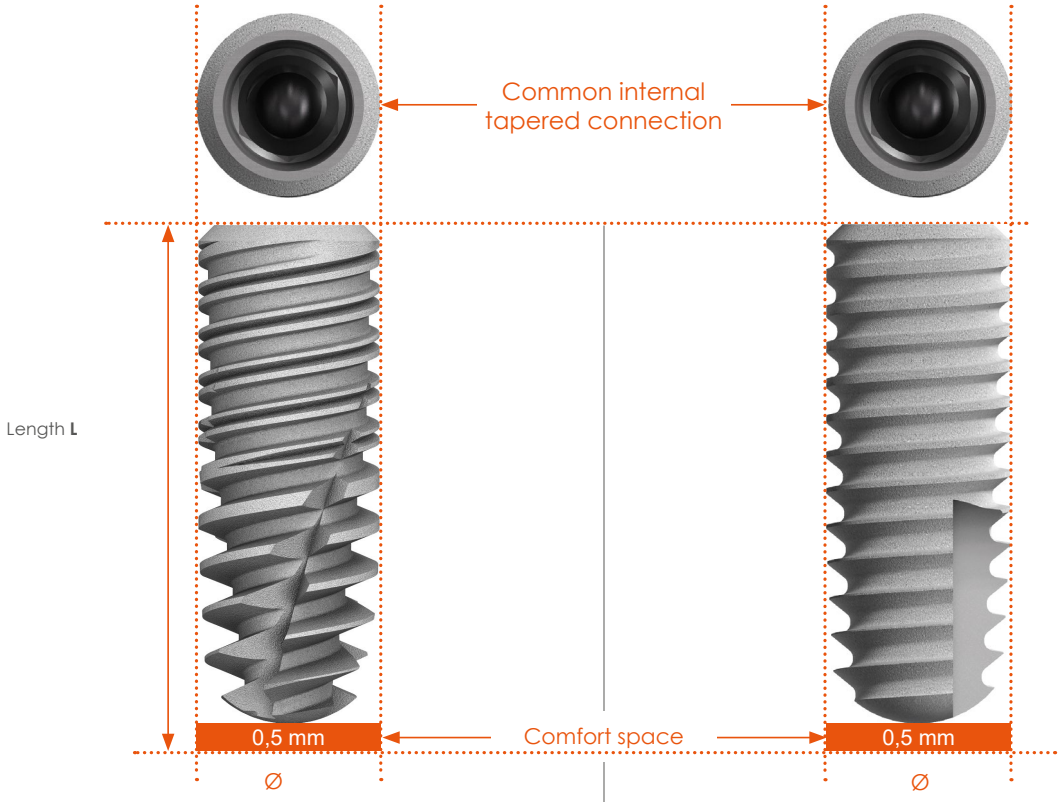
For best results, the apical-coronal positioning of the implant must consistently involve:

- **The infra-crestal positioning** of the shoulder and
- **The preparation of the prosthetic seating** for the future prosthesis.

(see pages 8 to 10)

1. General

Characteristics & formats



UNIVERSAL shape - maximum stability

- Rough chamfered shoulder
- Progressive deep double thread (2 mm thread)
- SA² acid-etched sandblasted surface
- 3 helical self-tapping grooves
- Atraumatic apex

PRIMO shape - insertion flexibility

- Rough chamfered shoulder
- Progressive regular single thread (0.6 mm thread)
- SA² acid-etched sandblasted surface
- 2 vertical self-tapping grooves
- Atraumatic apex

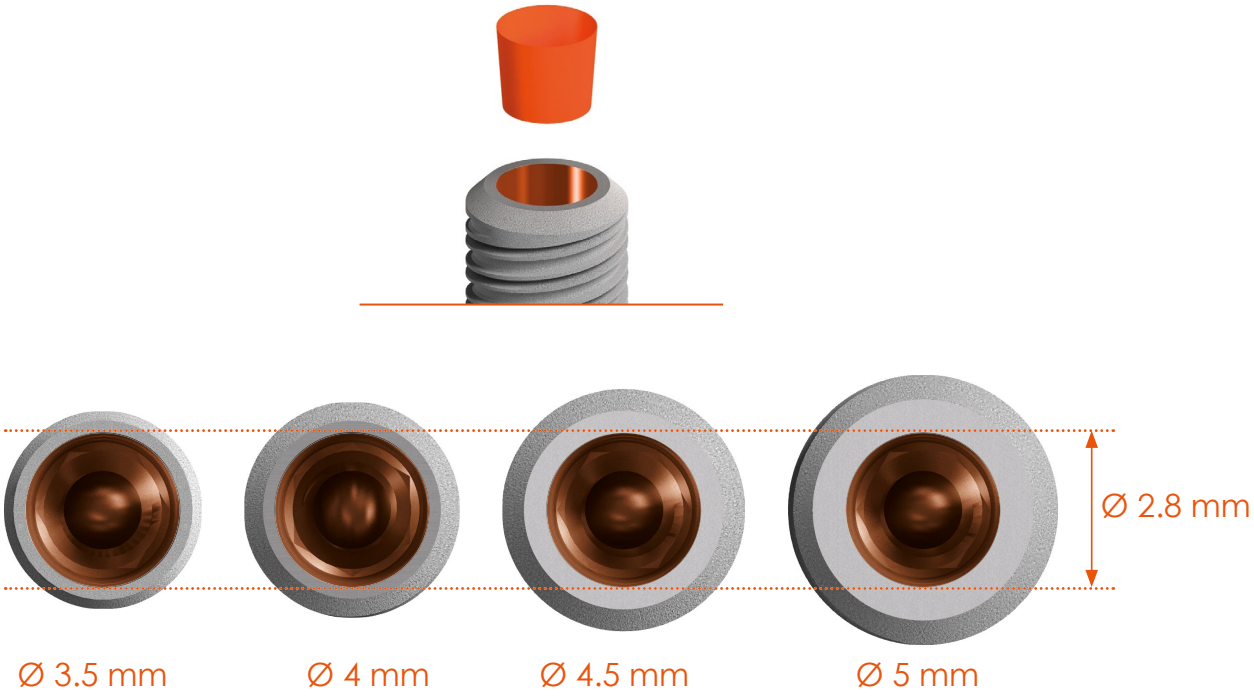
Table of references

L \ Ø	Ø 3.5 mm	Ø 4 mm	Ø 4.5 mm	Ø 5 mm
6 mm		DPINK4L6	DPINK4.5L6	DPINK5L6
8.5 mm	DPINK3.5L8.5	DPINK4L8.5	DPINK4.5L8.5	DPINK5L8.5
10 mm	DPINK3.5L10	DPINK4L10	DPINK4.5L10	DPINK5L10
11.5 mm	DPINK3.5L11.5	DPINK4L11.5	DPINK4.5L11.5	DPINK5L11.5
13 mm	DPINK3.5L13	DPINK4L13	DPINK4.5L13	DPINK5L13
15 mm	DPINK3.5L15	DPINK4L15	DPINK4.5L15	

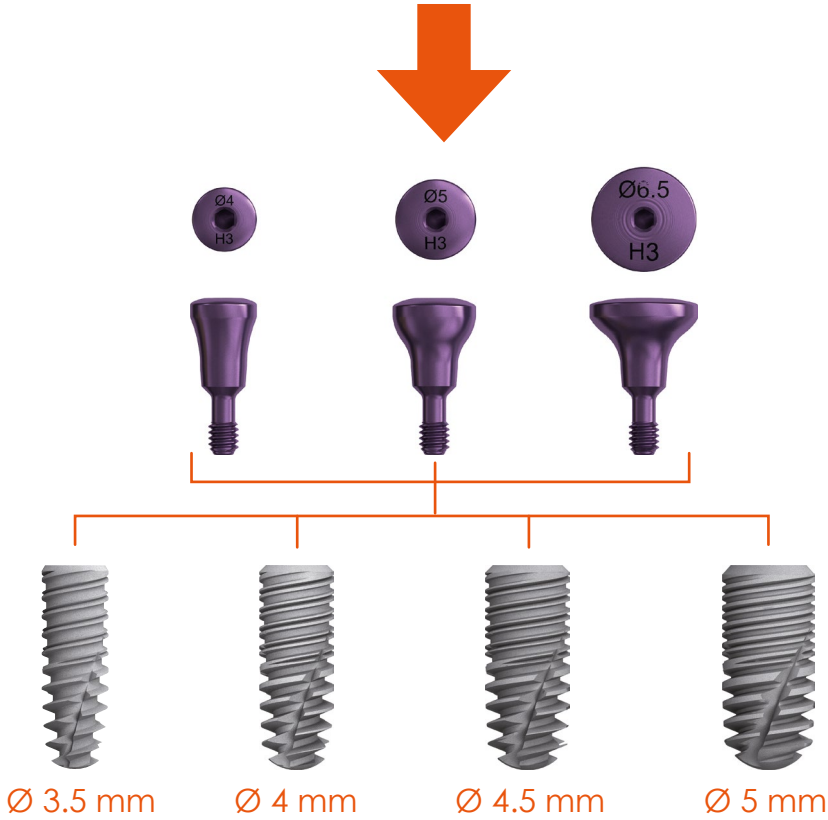
Table of references

L \ Ø	Ø 3.5 mm	Ø 4 mm	Ø 4.5 mm	Ø 5 mm
6 mm		DPINKP4L6	DPINKP4.5L6	DPINKP5L6
8.5 mm	DPINKP3.5L8.5	DPINKP4L8.5	DPINKP4.5L8.5	DPINKP5L8.5
10 mm	DPINKP3.5L10	DPINKP4L10	DPINKP4.5L10	DPINKP5L10
11.5 mm	DPINKP3.5L11.5	DPINKP4L11.5	DPINKP4.5L11.5	DPINKP5L11.5
13 mm	DPINKP3.5L13	DPINKP4L13	DPINKP4.5L13	DPINKP5L13
15 mm	DPINKP3.5L15	DPINKP4L15	DPINKP4.5L15	

Single connection principle



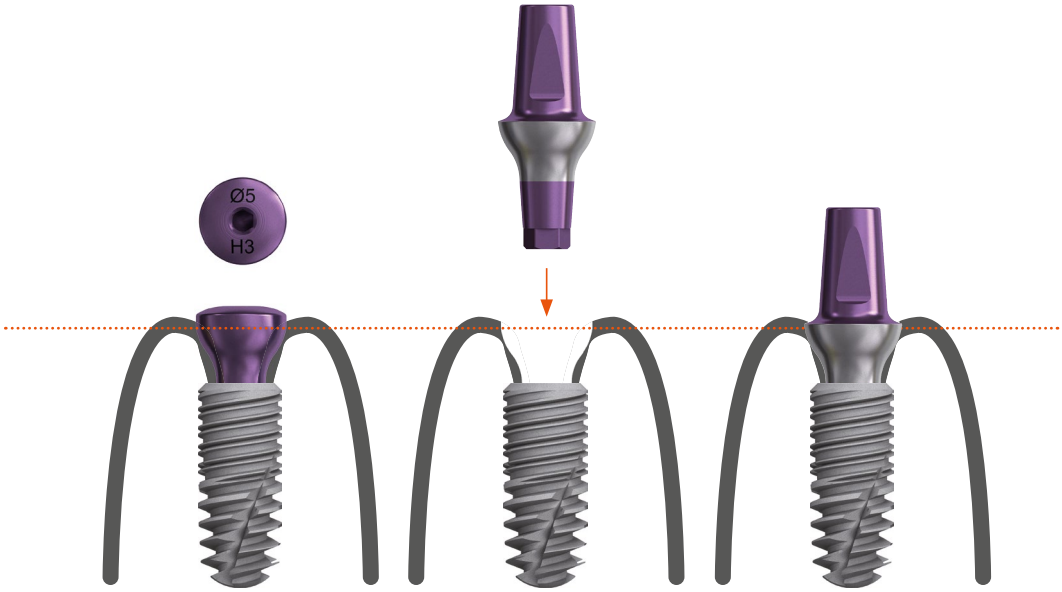
All the implants in the UNIVERSAL and PRIMO In-Kone® range have the same internal tapered connection, independently of their diameter



The healing screw diameter (emergence profile management) is independent of the implant diameter (bone volume management).

Managing emergence profiles

The healing screw creates the prosthetic seating for the future prosthesis.



Note 1:

Check that the definitive components match the healing screw by matching the characters at the end of the references:

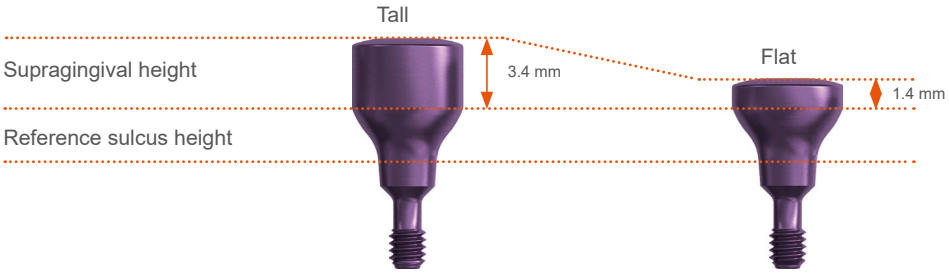
Example:

Healing screw with **5 mm** diameter and height of **3 mm** — ref. DVCICI**5H3**

Standard abutment with **5 mm** diameter and height of **3 mm** — ref. DFMLTDVCI**5H3**

Note 2:

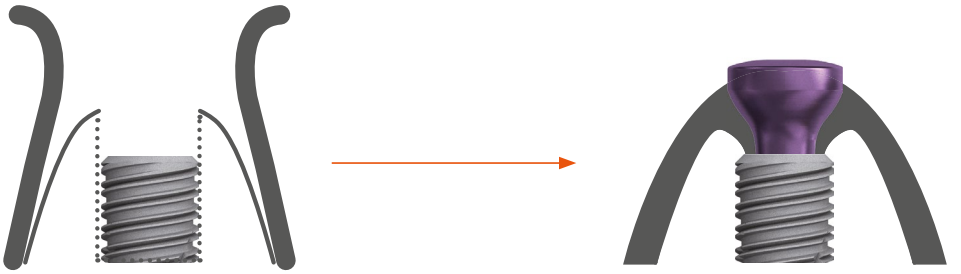
The healing screw formats are available in 2 high and flat supra-sulcular heights. It allows adaptation to the gingival profile encountered.



The healing screws are delivered non-sterile, refer to the instructions for the cleaning protocol and sterilization.

2. Sub-crestal positioning of the implant

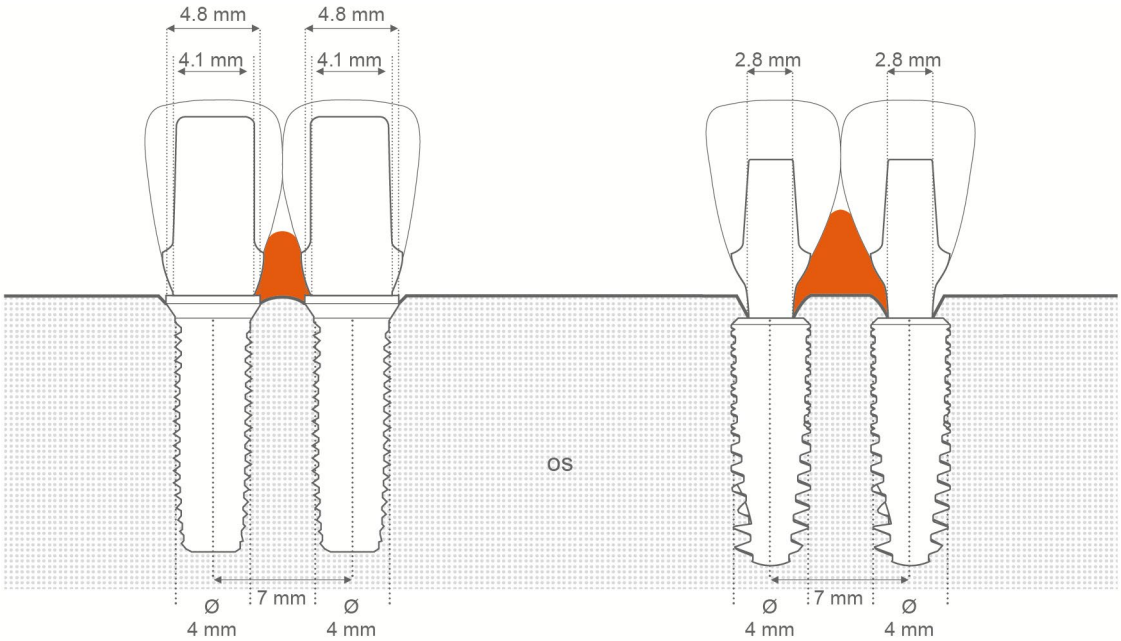
Implants in the **In-Kone®** range have a rough chamfered shoulder. This shoulder must be positioned 2 mm (+/- 0.5 mm) below the bone crest so as not to restrict the cortical bone, enabling it to crimp the implant during the healing phase.



Sub-crestal positioning

Bone crimping

Compared with a conventional juxta-crestal positioning, this positioning enables the surrounding tissue to adjust, aiding stability and the peri-implant mucosa volume.



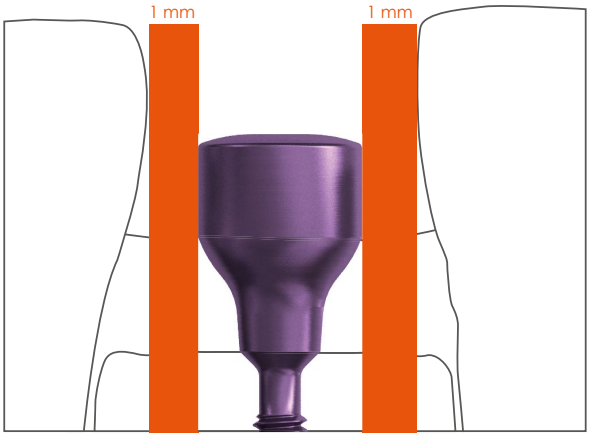
Juxta-crestal
implantology

Sub-crestal
implantology

3. Guided-prosthesis surgical approach

a- Single edentation

Choosing the healing screw diameter



Select the diameter of the healing screw to allow a minimum space of 1 mm between the edge of the screw and the point of contact with the adjacent tooth.

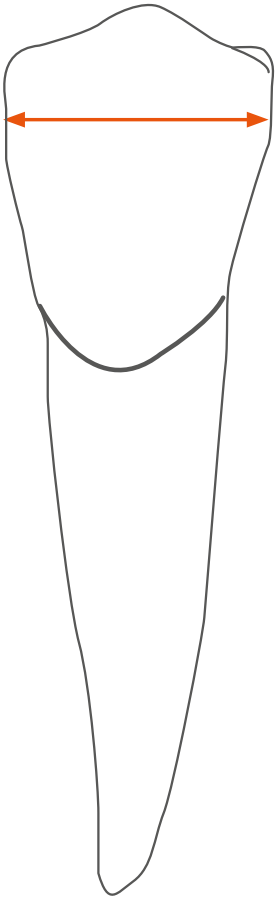


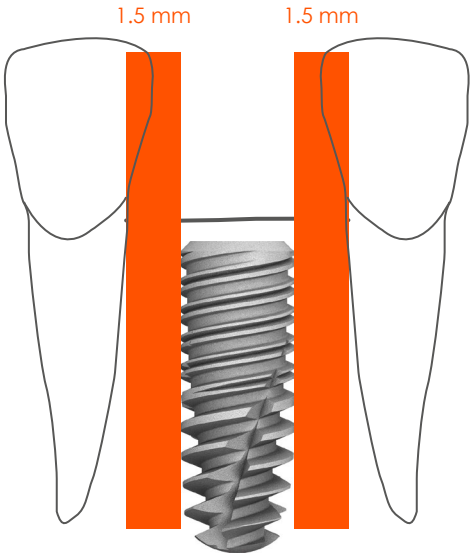
Table of screw diameters recommended for each area

	Maxilla		Mandible	
Area	d min-max* (in 1/10 mm)	Healing screw Ø (mm)	d min-max* (in 1/10 mm)	Healing screw Ø (mm)
Central incisor*	76-105	5/6.5	47-62	4
Lateral incisor*	53-83	4/5	53-70	4
Canine	69-88	5/6.5	60-81	4/5
1st premolar	60-82	4/5	60-81	4/5
2nd premolar	59-75	4/5/6.5	64-88	4/5
1st molar	97-127	6.5	97-125	6.5
2nd molar	87-114	6.5	93-119	6.5

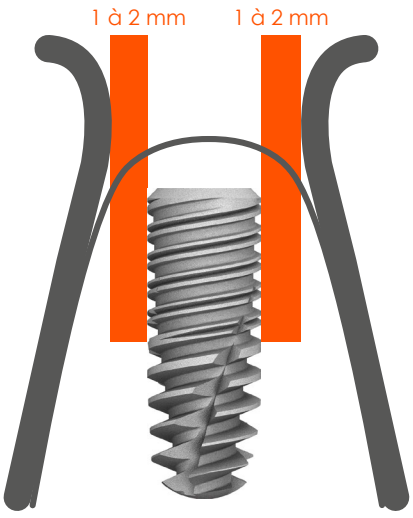
Lavergne J. Dimensions mésio-distales et vestibulo-linguales des dents humaines permanentes (Mesiodistal and vestibulo-lingual dimensions of permanent human teeth). In: Bulletins et Mémoires de la Société d'anthropologie de Paris, XIII° Series Volume 1 Part 3, 1974. pp. 351-355.
DOI: 10.3406/bmsap.1974.2096

(*) For edentulous of the incisive sector (lateral in maxilla and lateral and central in mandibular) with a mesio-distal space less than or equal to 5 mm, it is recommended to use the Implant 3.0 from the Global D therapeutic arsenal.

Choosing the implant diameter



In the **mesiodistal plane**, select the implant diameter so that there is a distance of 1.5 mm between the wall of the implant and the periodontal ligament of adjacent teeth.

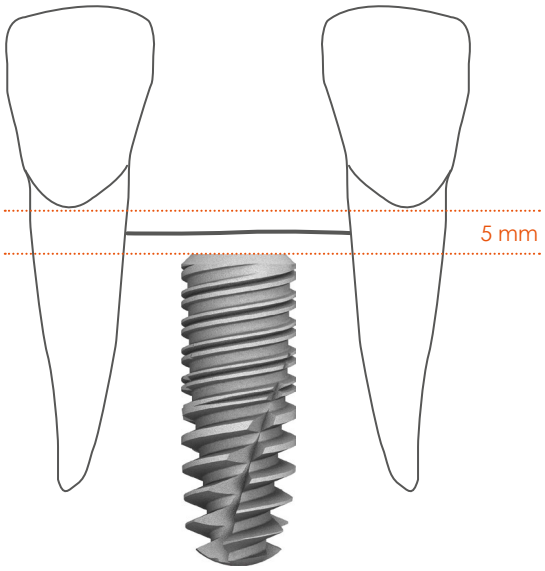


In the **vestibular-lingual or vestibular-palatal plane**, select the implant diameter so that there is a residual bone partition of at least 1 mm (2 mm is strongly recommended) at the implant shoulder.

Implant diameter	Minimum width of bone crest
Ø 3.5 mm	5.5 mm
Ø 4.0 mm	6.0 mm
Ø 4.5 mm	6.5 mm
Ø 5 mm	7 mm

For an optimal mechanical resistance when treating a single posterior case, use an implant with a diameter greater than or equal to 4.5 mm associated with an abutment, a titanium sleeve or a base of diameter greater than 4 mm.

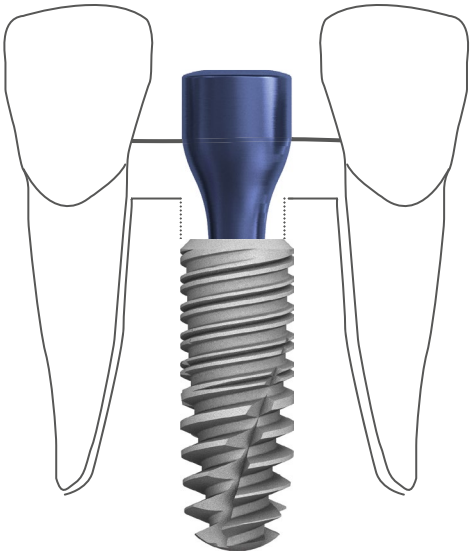
Apical-coronal positioning of the implant and choosing the healing screw height



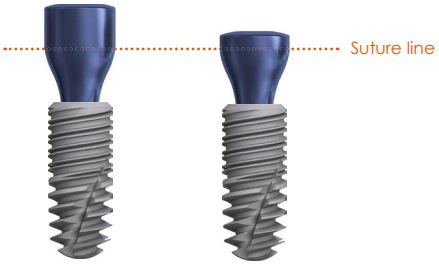
In the apical-coronal plane, position the implant 5 mm below the cementum-enamel junction of the adjacent teeth to aid the cortical crimping of the implant (H. 2 mm) then the formation of a peri-implant biological area (H. 3 mm)

N.B.

If bone atrophy is too far advanced, graft reconstruction must be performed to satisfy the insertion conditions above.

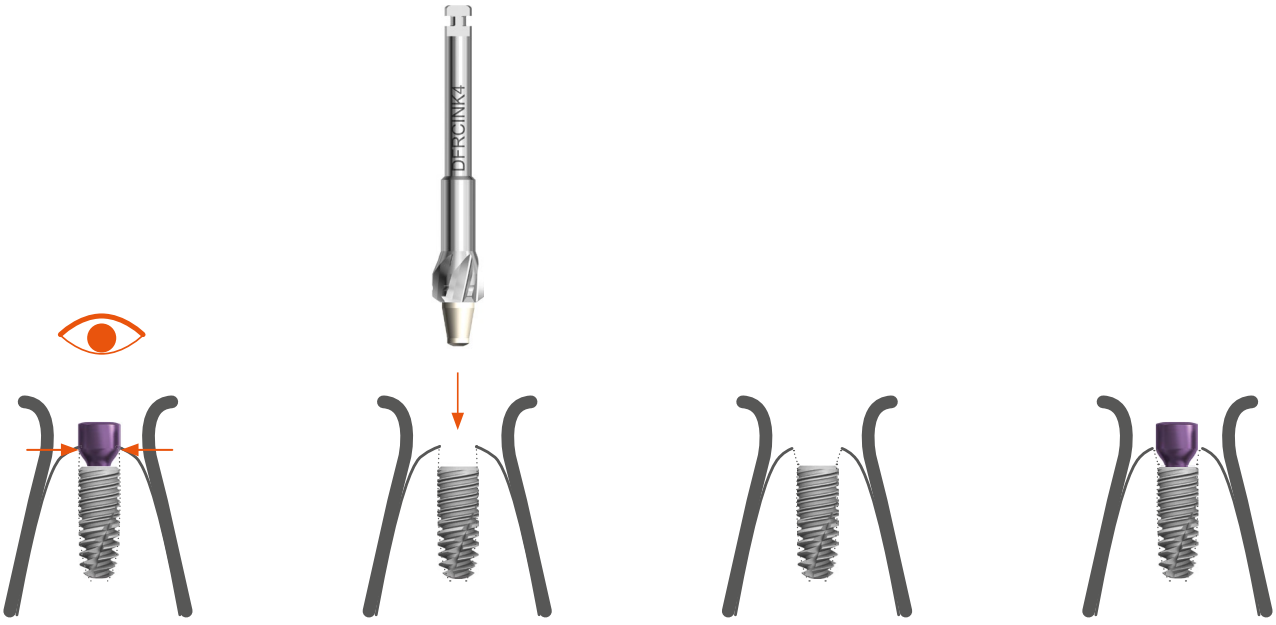


Select a healing screw and suture so that the top of the mucosa is in the supragingival section of the screw.



Option:

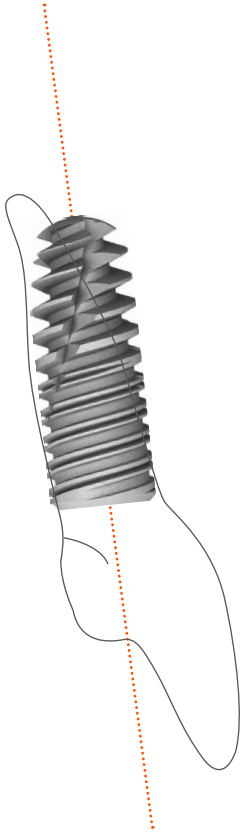
In the first or second surgical stage, check that the healing screw is screwed in fully without interfering with the edges of the bone. If not, shape the bone flaring to the required profile using the optional cortical drill. Drill at between 20 and 200 rpm after stabilising the drill by placing the PEEK centring head in the implant.



Sub-crestal implantology | Cortical drill guiding | Adjusted bone edge | Passive healing screw

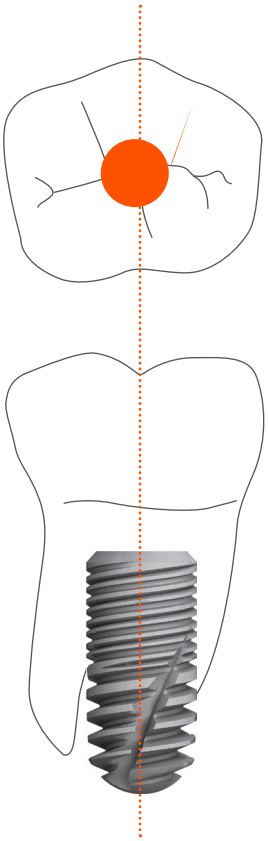
Before each use, check that the PEEK tip shown in white is in place. If this is not the case contact **Global D**.

Implant axis



Maxillary incisors

Place the implant so that the screwing shaft emerges behind the incisal edge of the future tooth.

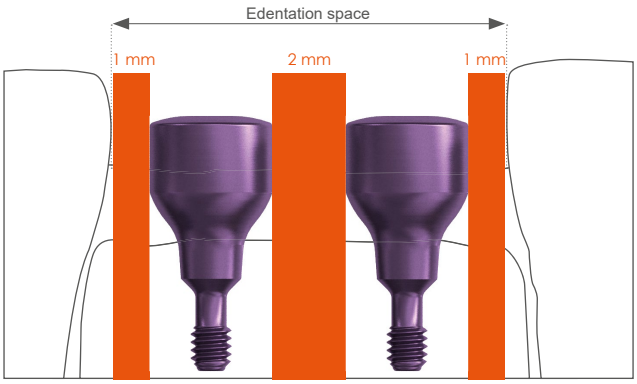


Molars

Place the implant so that the screwing shaft emerges in the middle of the occlusal surface of the future tooth.

b- Multiple edentation

Choosing the healing screw diameter

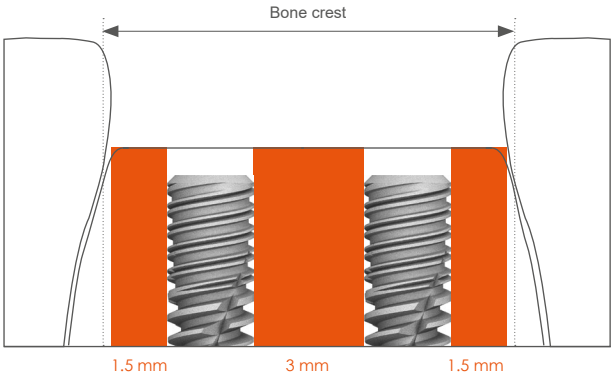


Select the **healing screw diameters** to allow the spaces indicated on the illustration on the left.

Healing screw and interdental space

Ø Screw 1 (mm)	Ø Screw 2 (mm)	Minimum space (mm)
4.0	4.0	12
4.0	5.0	13
4.0	6.5	15
5.0	5.0	14
5.0	6.5	16
6.5	6.5	17

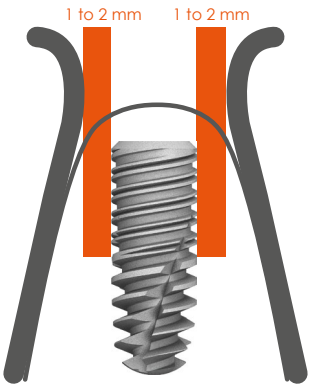
Choosing the implant diameter



In the mesiodistal plane, select the implant diameters to allow the spaces indicated on the illustration on the left: a minimum tooth-implant bone partition of 1.5 mm and a minimum inter-implant partition of 3 mm must be maintained.

Bone crest and implant diameters

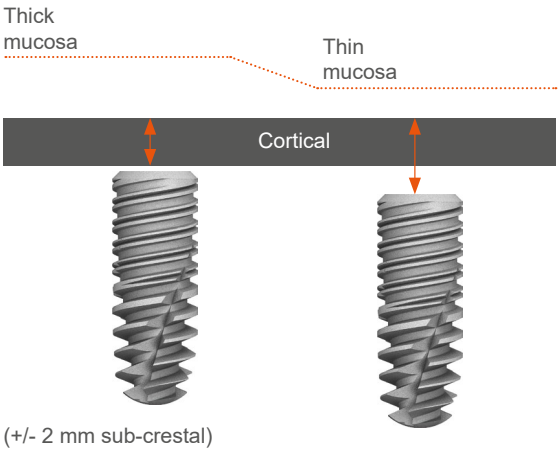
Ø Implant 1 (mm)	Ø Implant 2 (mm)	Minimum space (mm)
3.5	3.5	13
3.5	4.0	14
3.5	4.5	14
3.5	5.0	15
4.0	4.0	14
4.0	4.5	15
4.0	5.0	15
4.5	4.5	15
4.5	5.0	16
5.0	5.0	16



In the **vestibular-lingual or vestibular-palatal** plane, select the implant diameter so that there is a residual bone partition of at least 1 mm (2 mm is strongly recommended) at the implant shoulder.

Implant diameter	Minimum width of bone crest
Ø 3.5 mm	5.5 mm
Ø 4.0 mm	6.0 mm
Ø 4.5 mm	6.5 mm
Ø 5.0 mm	7.0 mm

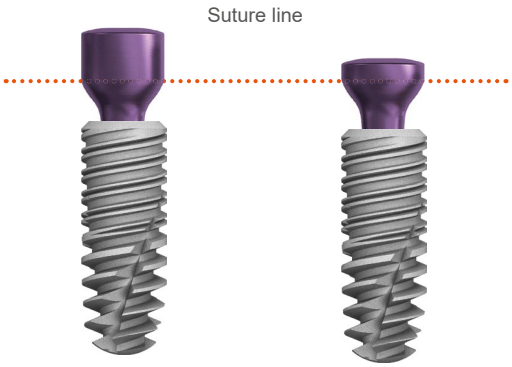
Apical-coronal positioning of the implant and choosing the healing screw height



In the case of thick mucosa (2 mm or more), place the implant 2 mm below the bone crest. In the case of thin mucosa (less than 2 mm), bury the implant by up to 3 mm.

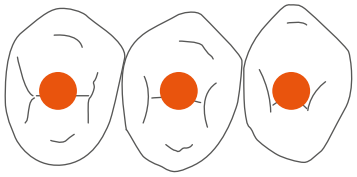
N.B.

Check the height of bone available on the X-ray beforehand and choose an appropriate implant length that takes into account the positioning of the shoulder.



Select screws with a sulcus height which allows the formation of a peri-implant biological space then suture the flap above the screw's suture line ensuring that no tension is exerted.

Implant axis



Ensure that the implant emergence axis is compatible with the prosthetic project.

1. Bone surgery

ultimate protocol

ULTIMATE
Surgery protocol

UNIVERSAL and PRIMO profile compatible with the ultimate insertion protocol:

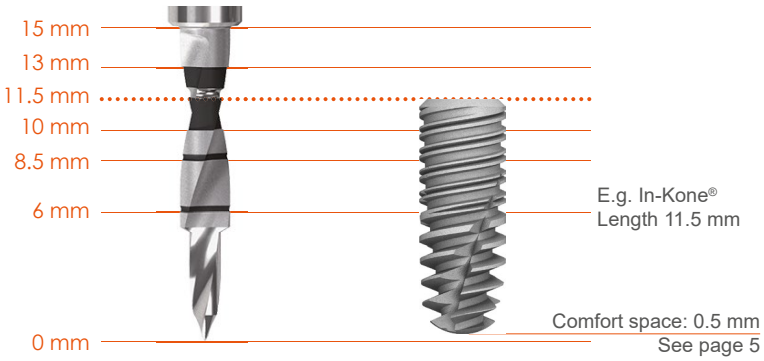
- Homothetic preparation to the implant shape
- Protocol according to bone density
- Colour code for each diameter

Kit organisation

1. Torque wrench*
2. Extension
3. Depth stop compartment for pilot drills (optional)
4. Marking drill
5. Cortical drills (optional)
6. Parallelism and spacing indicators
7. Long and short drills
8. Extension
9. Hex wrenches and mandrels
10. NR platform In-Kone® manual implant driver wrenches & contra-angle
11. ST platform In-Kone® manual implant driver wrenches & contra-angle
12. WD platform In-Kone® manual implant driver wrenches & contra-angle
13. twinKon® manual implant driver wrenches & contra-angle

*Key manufactured and CE marked by Josef Ganter Gmbh. Observe the cleaning, decontamination and sterilization recommendations provided by the manufacturer.

Reference drill lengths

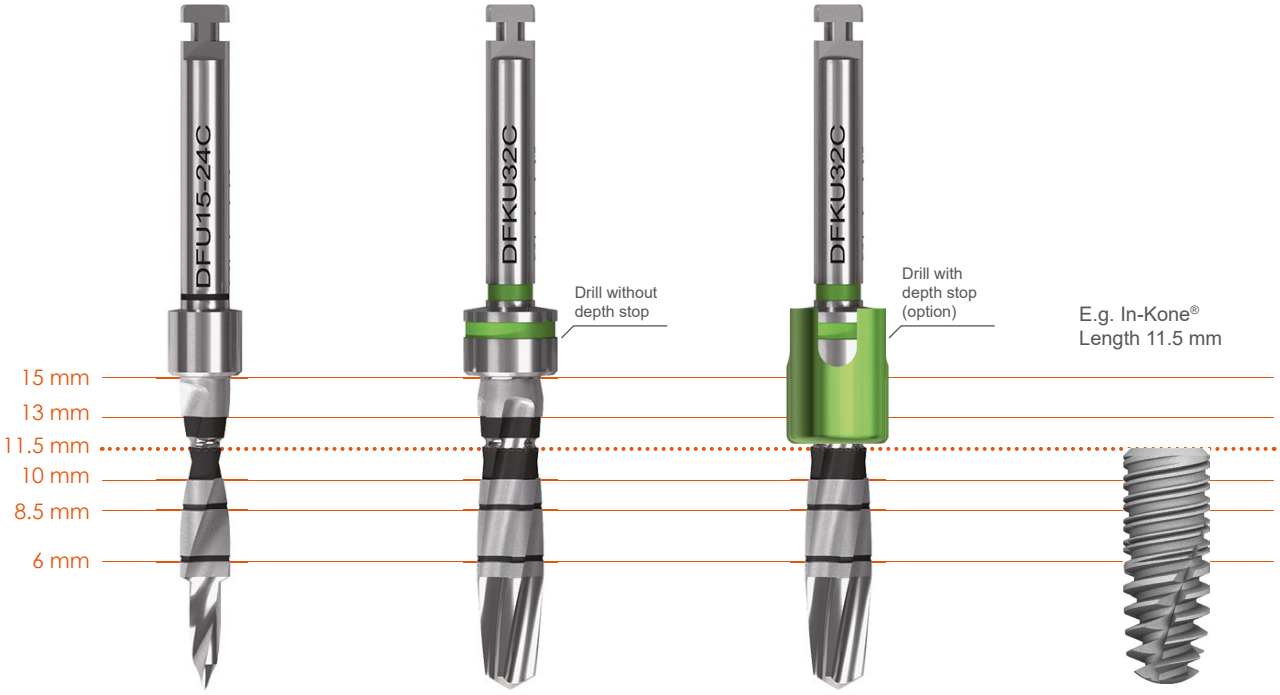


Important:

The inscriptions on the drills do not take into account the implant's recommended sub-crestal positioning.

Over-drilling must therefore be performed by the surgeon, who will exceed the reference length according to the required positioning.

Optional depth stops

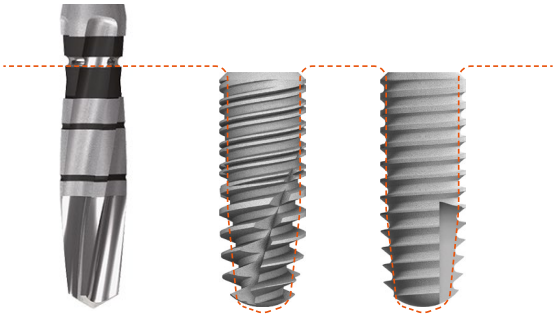


It is advisable to use depth stops when the bone crest is flat enough. Otherwise, drilling should be carried out without depth stops so that the mark on the drill is perfectly aligned with the level of the vestibular cortical bone.

N.B.

Depth stops can only be used on short drills

Homothetic preparation

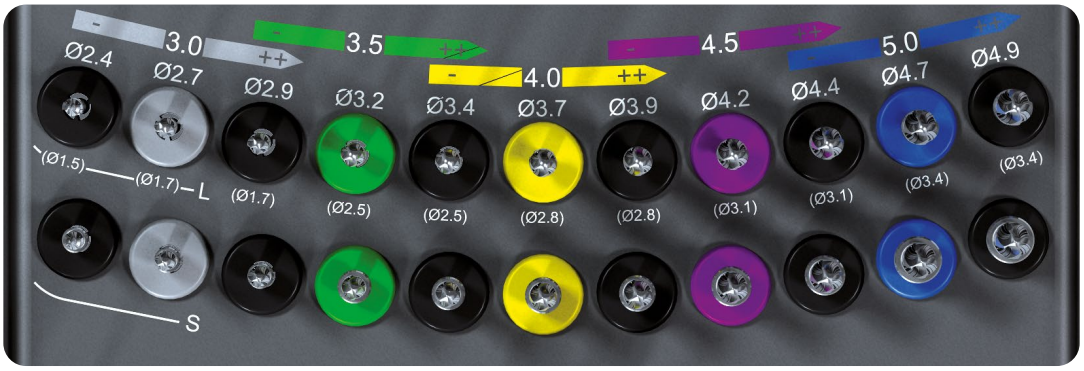


ULTIMATE® drills allow homothetic preparation to the In-Kone® UNIVERSAL and PRIMO implant shapes.

Under-sizing and over-sizing the drill diameters: homothety is maintained regardless of the final drill diameter (see "modular protocol" section on page 20).

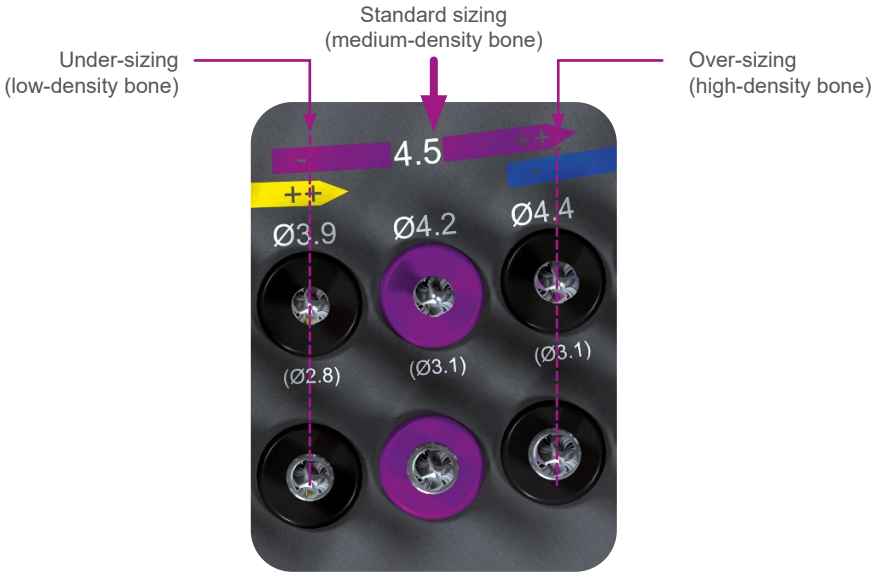
Implant site preparation drill

Presentation

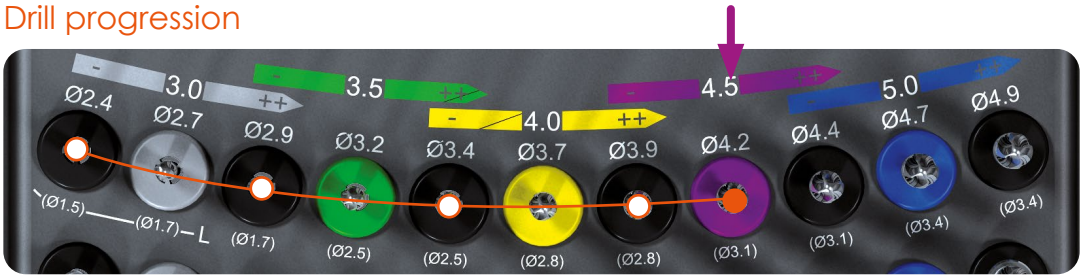


- Linear presentation in increasing order of drill diameter.
- Colour-coded grommets for each standard drill diameter.
- Indication of cervical and apical diameters (in brackets) of drills.
- Available as LONG and SHORT drills.

Modular protocol added for a Ø 4.5 mm implant



Drill progression



Example of a drilling protocol for a ø 4.5 implant in medium density bone

Summary table and recommended speeds

3.0 3.5 4.0 4.5 5.0

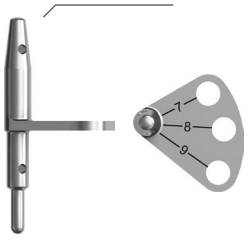
Implant	Bone density	P	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
ø 3.5 mm	Low	●	●		●								
	Medium	●	●		●	●							
	High	●	●		●		●						
ø 4 mm	Low	●	●		●		●						
	Medium	●	●		●		●	●					
	High	●	●		●		●		●				
ø 4.5 mm	Low	●	●		●		●		●				
	Medium	●	●		●		●		●	●			
	High	●	●		●		●		●		●		
ø 5 mm	Low	●	●		●		●		●		●	●	
	Medium	●	●		●		●		●		●		
	High	●	●		●		●		●		●		●

1200 rpm — 800-600 rpm

Ref. DAPULTI-C

Use the reversible parallelism indicators to check the initial drilling axis and depth (Ø 2.4 mm drill).

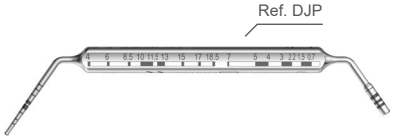
Ref. DIA-ULTI



Option:

Use the spacing guide to space the implants.

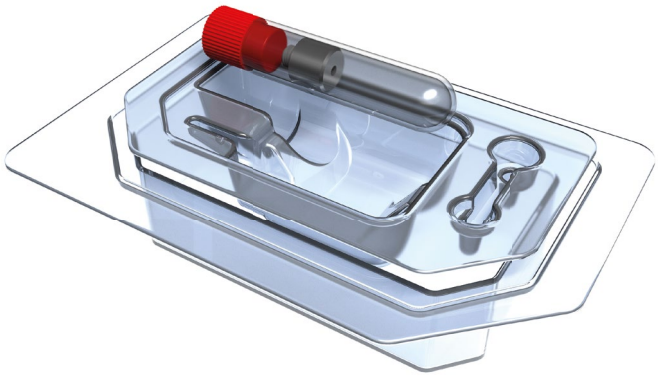
Ref. DJP



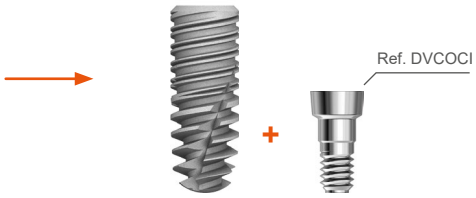
Option:

Dual-use gauge to measure the drilling depth or height of soft tissue from the implant connection.

Implant packaging



Sterile blister pack + tube



Implant
+ low closure screw

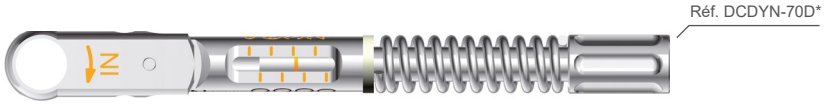
Screwing in the implant

Screwing instruments

Short manual-ratchet
implant drivers

Implant drivers
for contra-angle

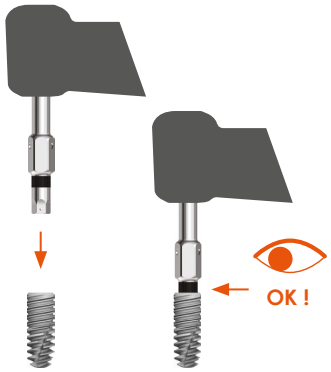
Hex screwdriver



Torque ratchet wrench

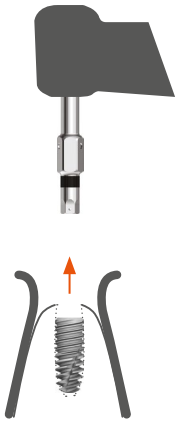
*Key manufactured and CE marked by Josef Ganter Gmbh. Observe the cleaning, decontamination and sterilization recommendations provided by the manufacturer.

Screwing in the implant using the contra-angle wrench



1. Hold the implant in the tube using the contra-angle wrench

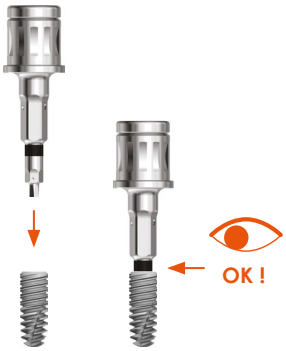
2. Screw the implant in very slowly until the contra-angle wrench stops (do not restart the motor)



3. Once screwing is completed, remove the implant holder in the implant axis direction

4. As an option, tightening may be completed manually using the torque wrench

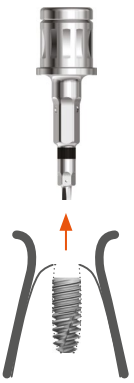
Screwing in the implant manually



1. Manually grip the implant in the tube

2. Start screwing the implant in manually

3. Complete tightening using the adjustable ratchet torque wrench



4. Remove the implant driver in the implant axis direction

*Key manufactured and CE marked by Josef Ganter Gmbh. Observe the cleaning, decontamination and sterilization recommendations provided by the manufacturer.

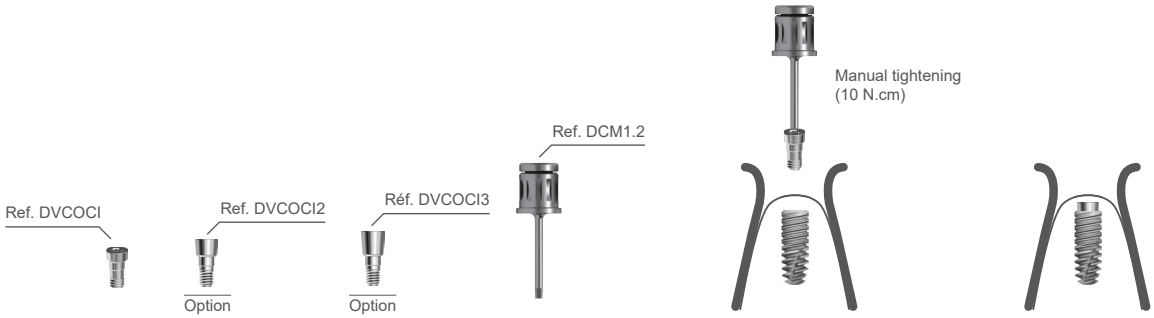
2. Healing

2-stage surgery

Close the implant using the low closure screw (ref. DVCOCI supplied with the implant) and screwdriver DCM1.2.

Option:

The implant can also be closed with a high closing screw (ref. DVCOCI2) or very high (ref. DVCOCI3) delivered separately in a non-sterile packaging (refer to the instructions for the cleaning and sterilization protocol).



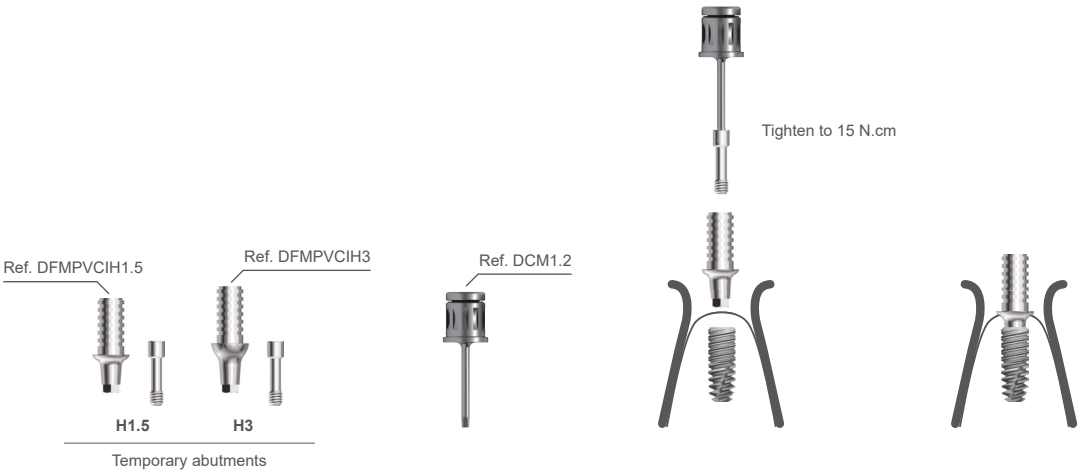
1-stage surgery

Suture line
see page 8

N.B.

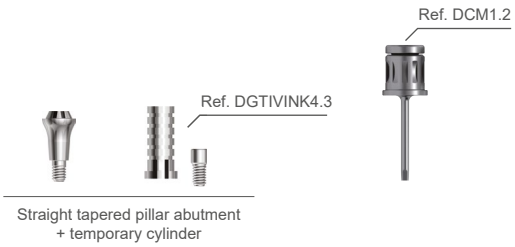
Use cortical drills if required (see page 14)

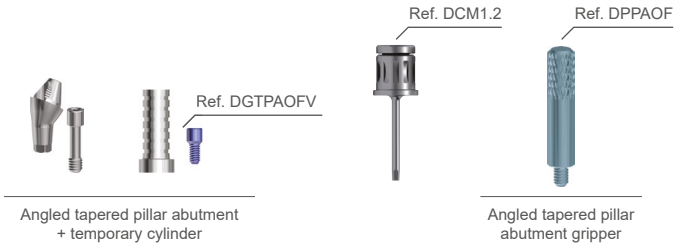
Single aesthetic finishing

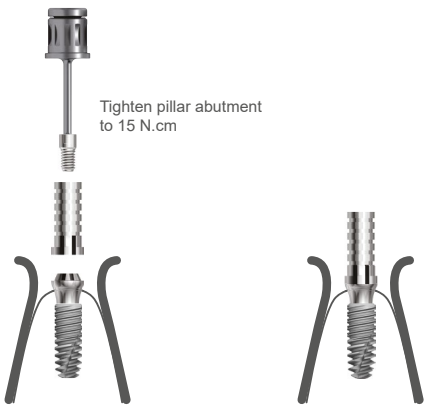


Immediate multiple loading

Immediate multiple loading is performed using non-indexed straight or angled tapered pillar abutments (17° and 30°) which are available in several heights. (Consult references on the prosthesis synoptic)







(illustration with straight tapered pillar abutment)

Instrument maintenance

- Before any use of the instrument, check its wear, proper functioning and / or strength retention so that the performance of the instrument is maintained. Good maintenance of your instruments extends the longevity of your instrumentation.

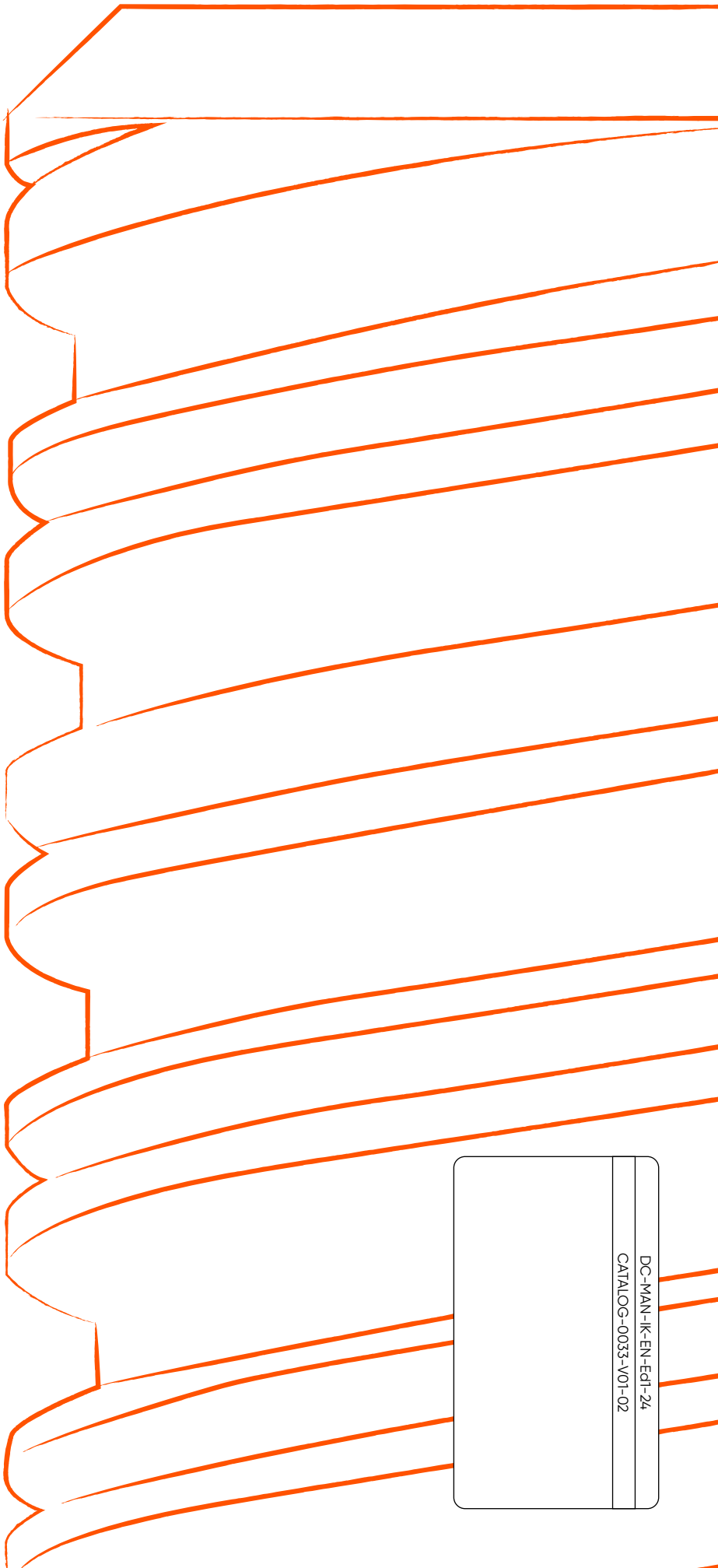
- With the exception of certain instruments supplied sterile, the ancillary is generally supplied non-sterile. To clean, control and sterilize before use.

- The ancillary provided by Global D has been freed from manufacturing residues (lubrication, shavings, etc.) then cleaned, but not sufficiently decontaminated to be sterilized directly. A decontamination and cleaning treatment is therefore essential before any sterilization.

- Global D declines all responsibility in the event of non-compliance with these conditions.

NOTES

EN



DC-MAN-IK-EN-Ed1-24
CATALOG-0033-V01-02

GlobalD
Partner for your surgery

ZI de Sacuny
118 avenue Marcel Mérieux
69530 Brignais
France

tél. +33 (0)4 78 56 97 00
fax +33 (0)4 78 56 01 63
www.globald.com