DIO navi.

# DDA

DIO
DIGITAL
ACADEMY

*Drill Sequence Ver.6.0*

## Contents

## Selecting the right DIOnavi. Kit

**Selection based on the sleeve size**

### Regular

DIOnavi. Master Kit

[ GS 53 ]

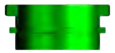
### Narrow

DIOnavi. Narrow Kit

[ GSL 36 ] [ GS 36 ]

### Wide

DIOnavi. Wide Kit



[ GS 68GN ]

**Selection based on the surgical case**

### Sinus case

DIOnavi. Master Kit

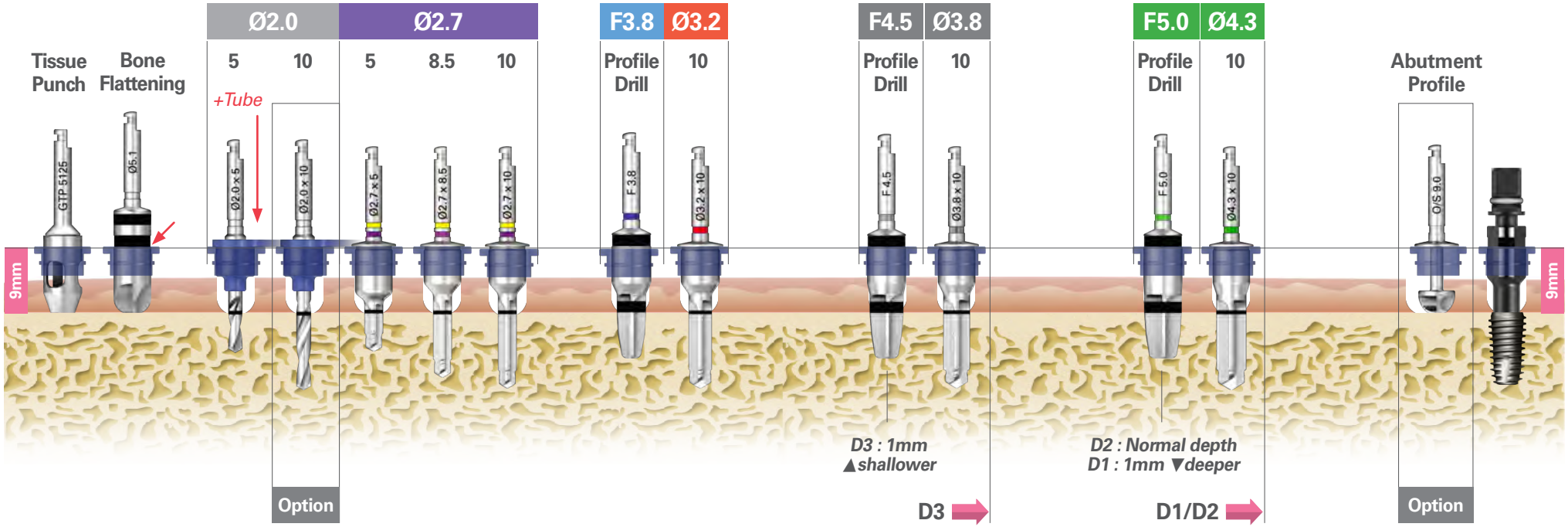
DIOnavi. Flapless Crestal Sinus Kit

### Edentulous

DIOnavi. Master Kit

DIOnavi. Special Kit

# Offset 9.0mm | Bone Block




# UF(II) 5010

## UFII Fixture Ø 5.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

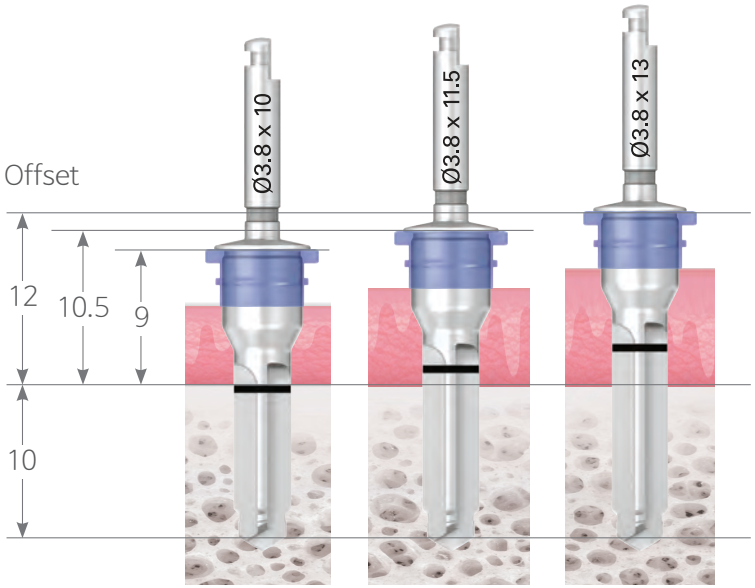
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

## Drill selection criteria based on the different offsets

### Drill offsets for the 10mm fixture

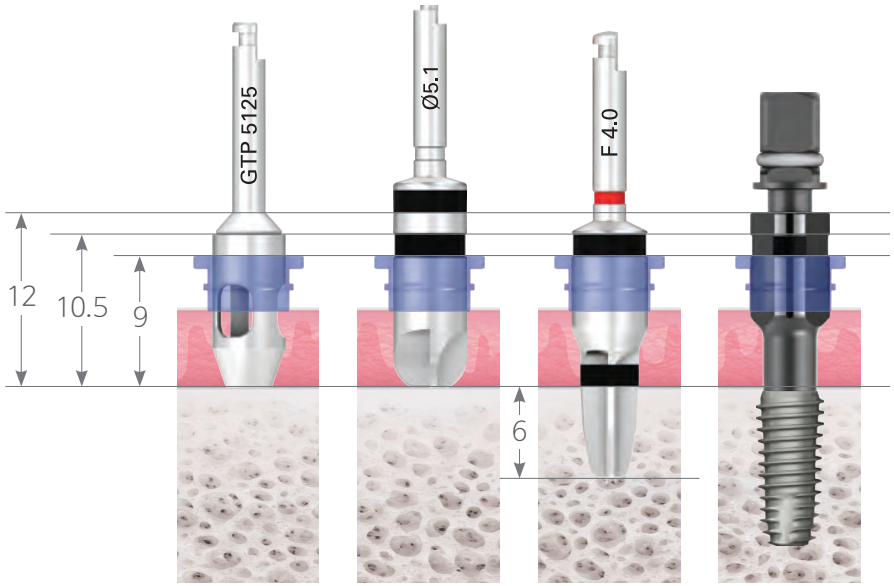



**Offset 9**
Drill 10mm

**Offset 10.5**
Drill 11.5mm

**Offset 12**
Drill 13mm

### Non-stopper drills



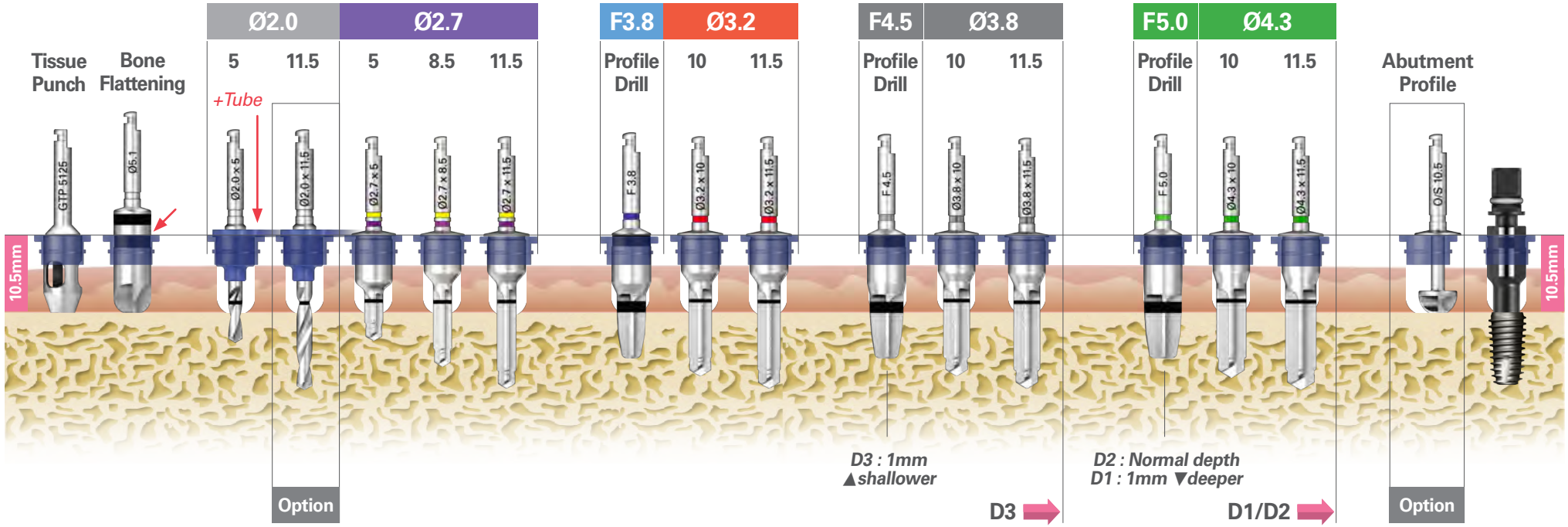

Tissue punch

Bone flattening drill

Profile drill

Implant connector

# Offset 10.5mm | Bone Block




# UF(II) 5010

## UFII Fixture Ø 5.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

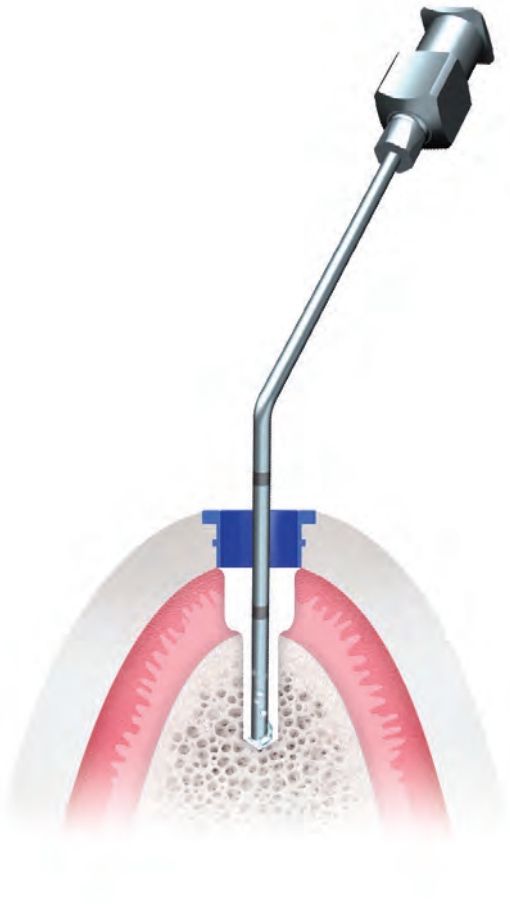
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

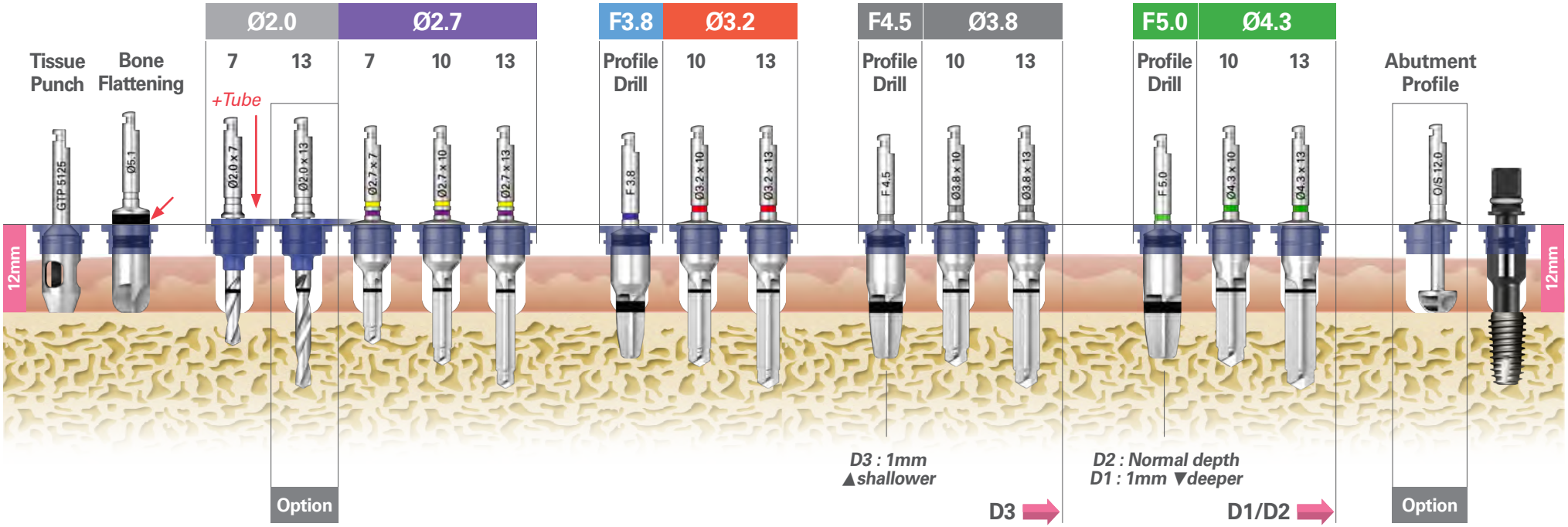
**Low-speed drilling with no handpiece irrigation**

Drill less than **10 seconds!**



Irrigate to the apical of the osteotomy site with the metal needle tip for cooling effect and removing debris.

# Offset 12.0mm | Bone Block




# UF(II) 5010

## UFII Fixture Ø 5.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

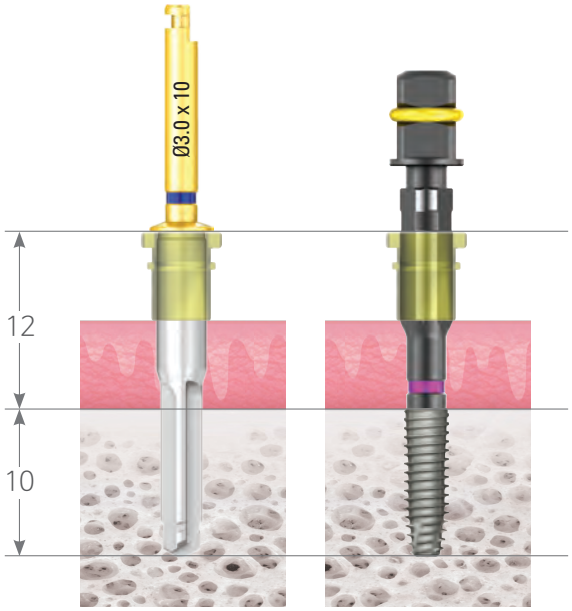
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

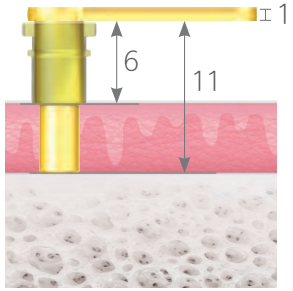
## Understanding the DIOnavi. Narrow system offset

### Only one offset at 12mm



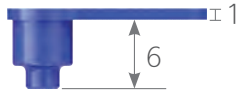

### Sleeve & Ø2.0 drill tube

**Narrow**

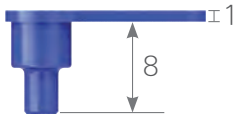



Standard size
[ UDTE 10 ]

**Regular**

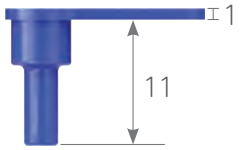



Standard size
[ UDT 20 ]




Extension size
[ UDTE 20 ]

※ Purchased seperately



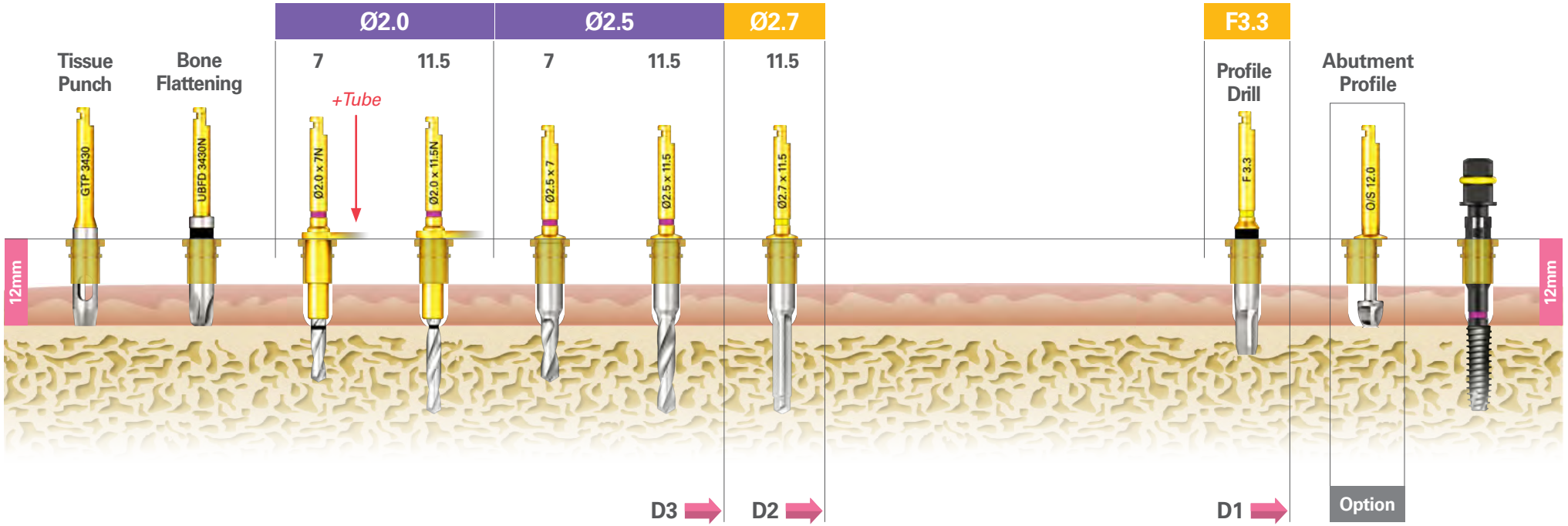

Extension size
[ UDTL 20 ]

**Wide**


Extension size
[ UDT 53 ]

The sleeve and tube height are optimized in accordance with the expansion of the contact surface, while ensuring maximum precision in terms of drill path and guidance.

# Offset 12.0mm | Bone Block




# UF(II)N 3311

## UFII Fixture Ø 3.3 x 11.5mm

Ver.6.0_2019.10

DIO navi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 45 Ncm |
| Fixture | 30 rpm | 35 Ncm |

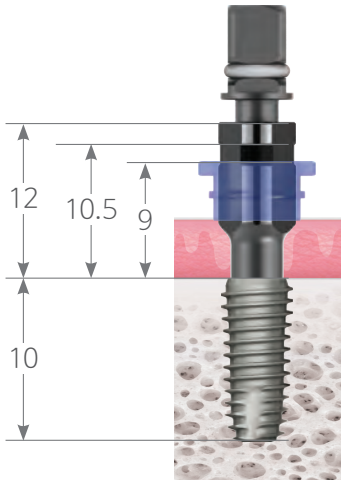
- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

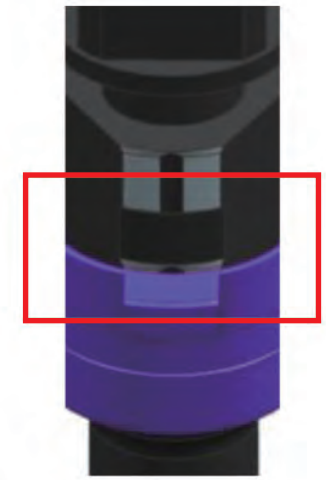
② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

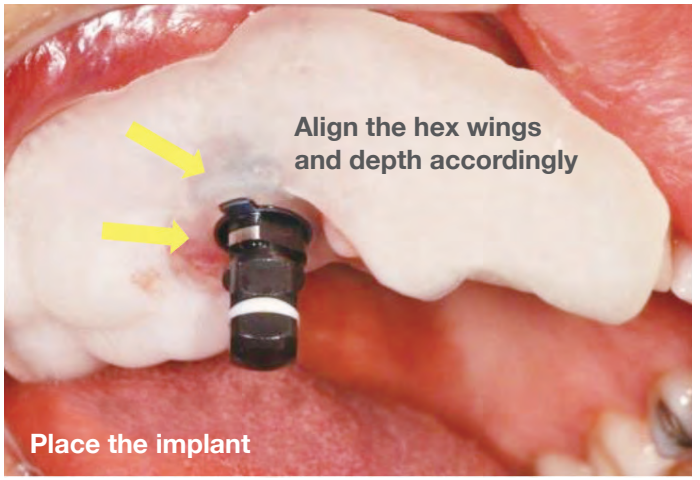
## Placing the fixture in immediate load cases




Regular

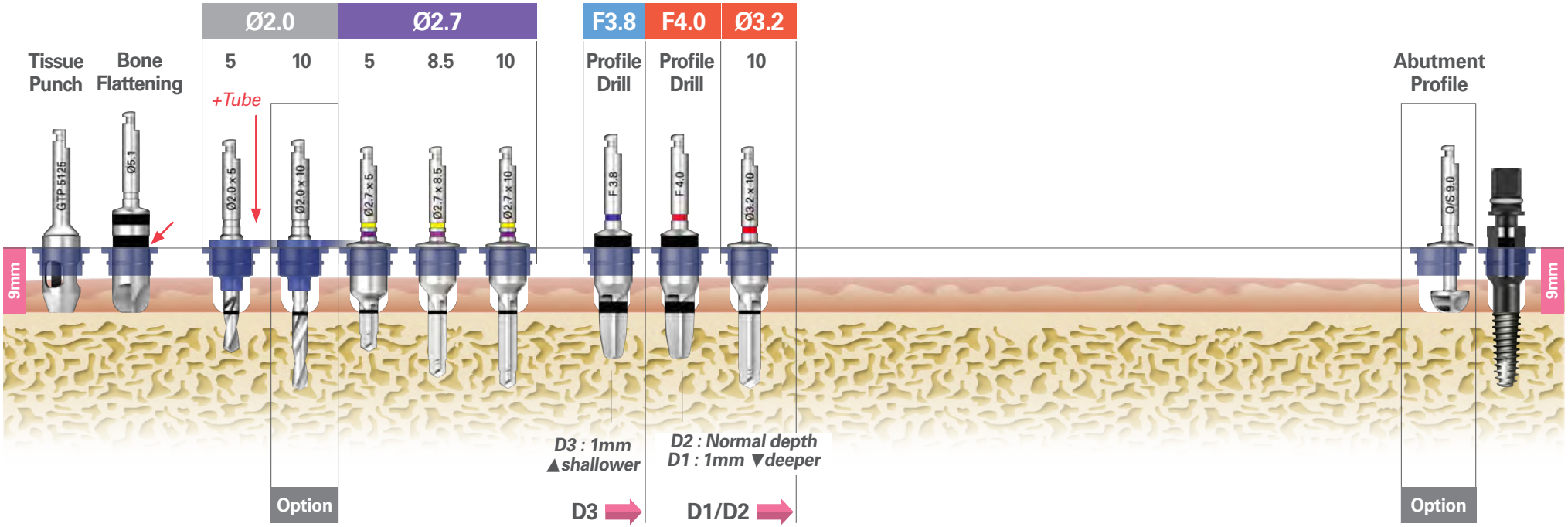


Align the buccal side sleeve wings
based on the correct hex depth.




The Implant Connector is specifically designed to ensure the accurate placement of the Customized abutment in terms of angle and depth of placement, by aligning the silver surface with the guide sleeve.

# Offset 9.0mm | Case 1 #35




# UF(II) 4010

## UFII Fixture Ø 4.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

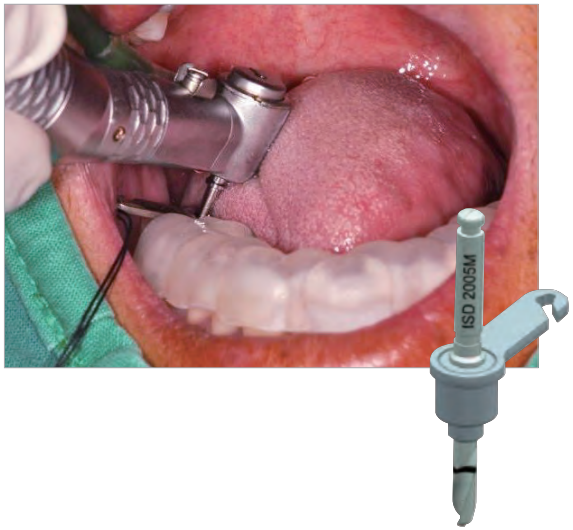
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement.
Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

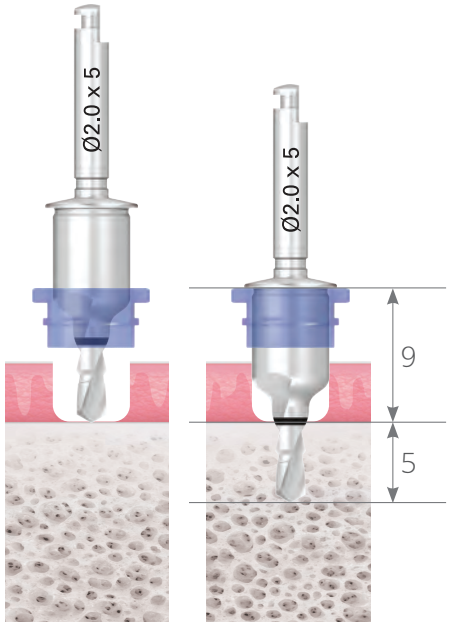
## Surgical tips for limited mouth opening cases

### Ø2.0 x 5mm drill + Tube



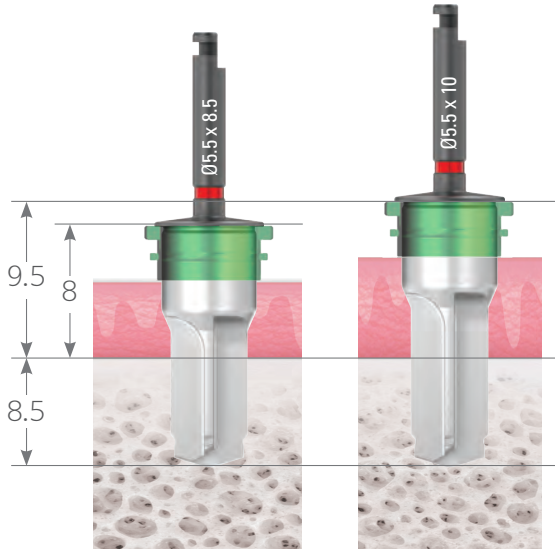

- Connect the Ø2.0 x 5mm drill with the drill tube outside the mouth before seating on the guide sleeve.
- Allows easy drill access to the posterior.

### Ø2.0 x 5mm guide drill




- Initial drill type used for small mouth opening without the drill tube.
- Recommended for application to wide ridges.

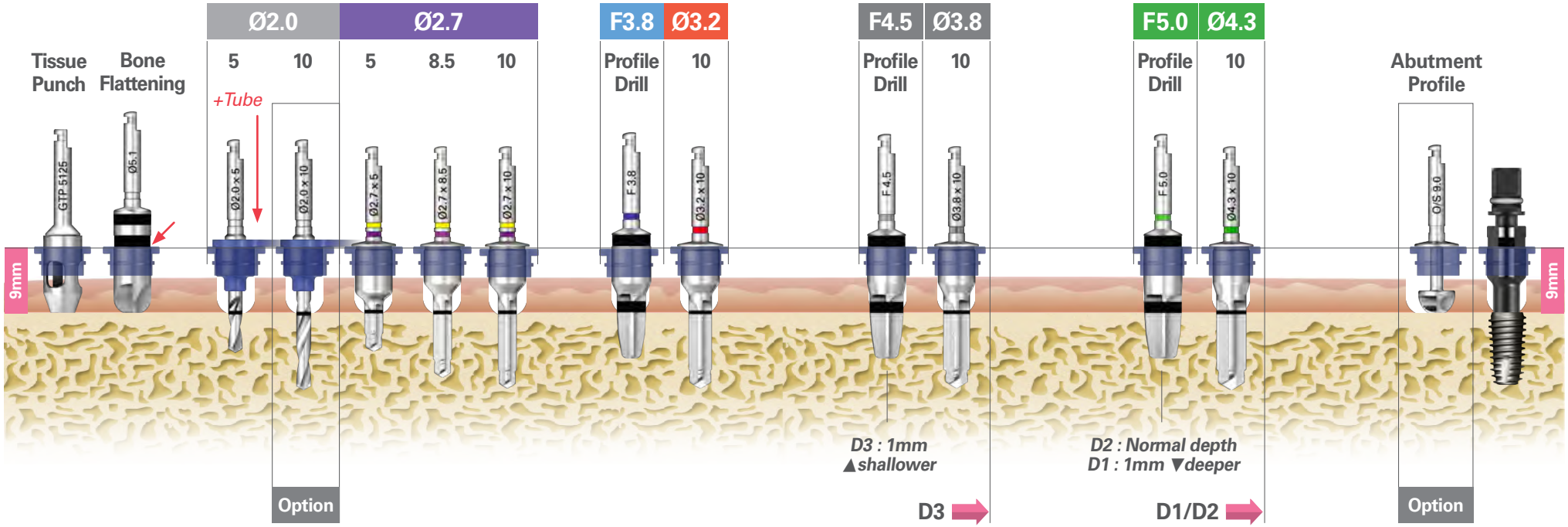
### Wide sleeve + Kit




- Drill selection based on the offsets (for the 8.5mm drill)

| | | |
|---|---|---|
| Offset 8mm | → | 8.5mm Drill |
| Offset 9.5mm | → | 10mm Drill |

# Offset 9.0mm | Case 2 #45, #47




# UF(II) 5010

## UFII Fixture Ø 5.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

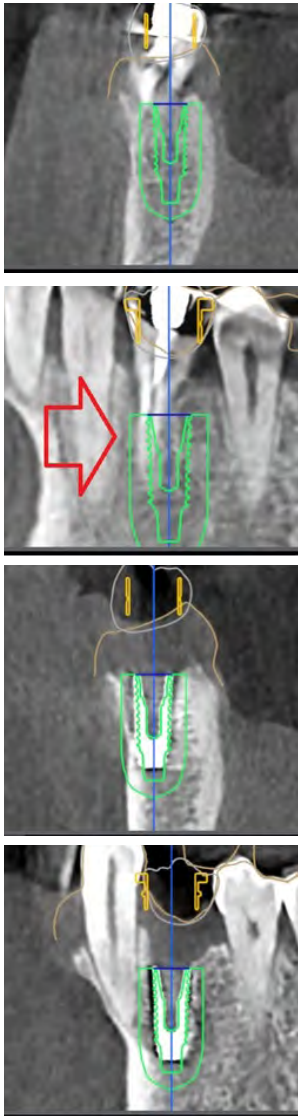
- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

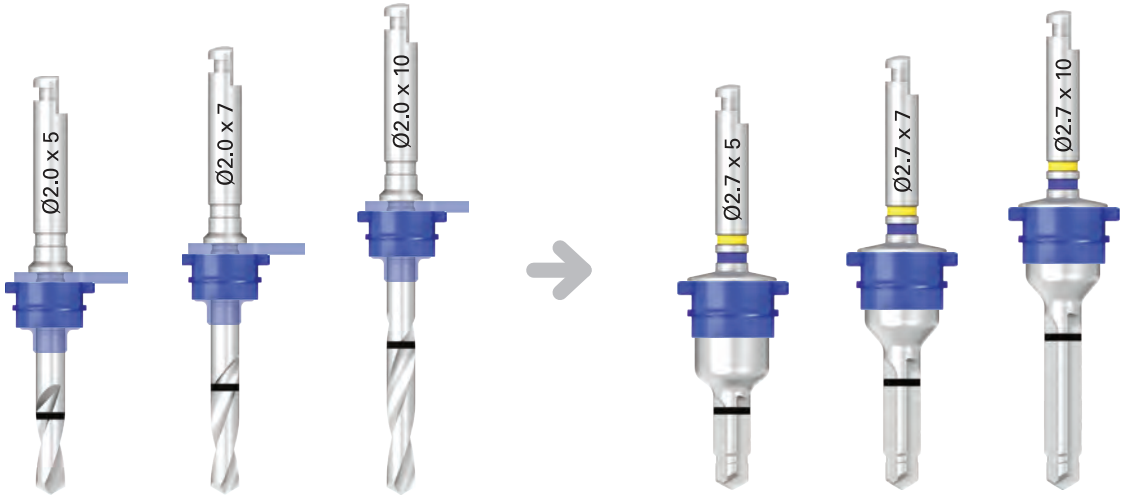
③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

## Surgical tips for immediate loading after extraction cases



The drill may run off course from the guided path due to deviations in the soft tissue, for immediate loading after extraction cases or non-recovered sites.

### Step by Step Drilling (Ø2.0 ➜ Ø2.7)



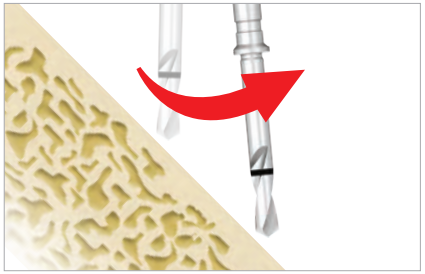

Ø2.0 Initial drill + Drill tube

Ø2.7 Drill

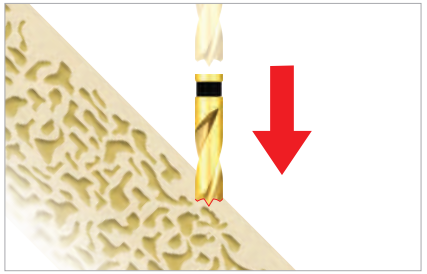
### Ø2.5 Point straight drill (Special Kit)


Short Long

Dedicated tube [ UDT 25 ]

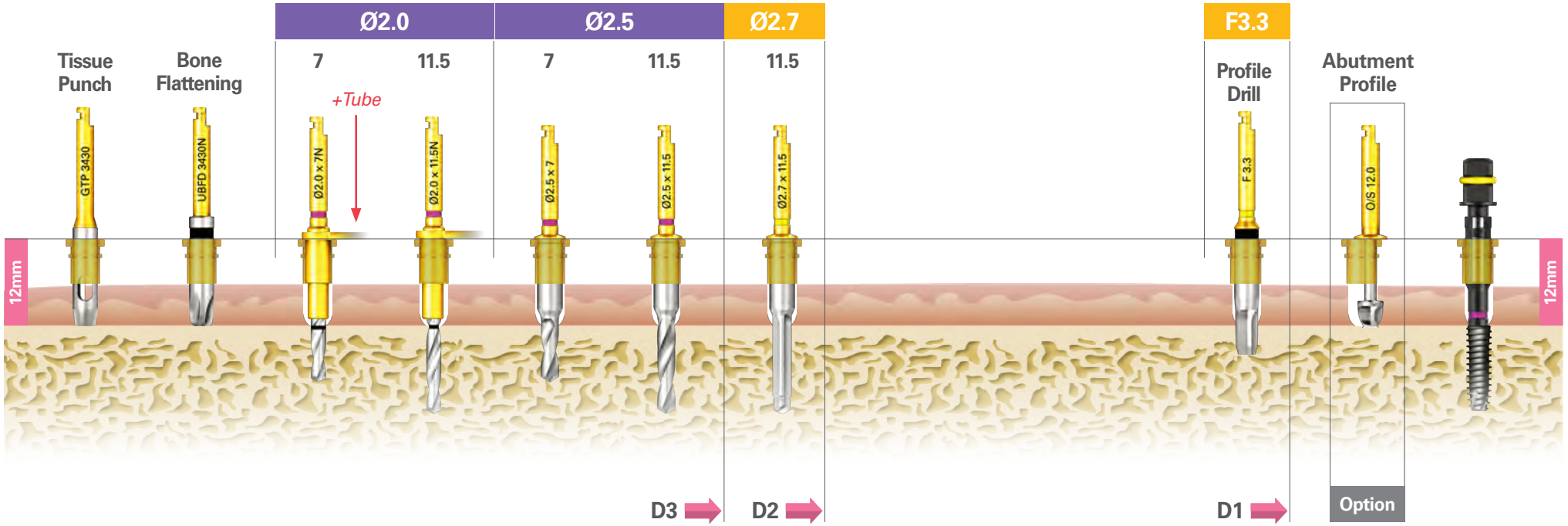


Higher risk of slippage for general drills.



The point straight drill can ensure accurate drilling in the guided path.

# Offset 12.0mm | Case 3 #11, #22




# UF(II)N 3311

## UFII Fixture Ø 3.3 x 11.5mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 45 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

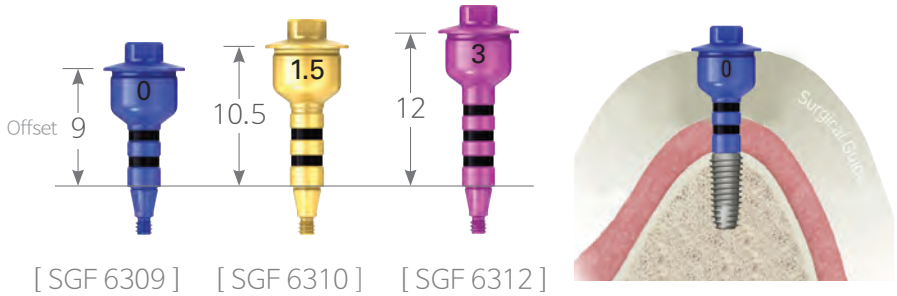
③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

# Affixing the surgical guide for edentulous cases

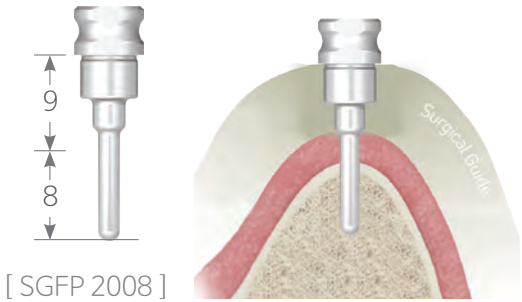
## Guide fix & Fix pin

- Used for affixing the surgical guide in the drilled osteotomy site, or in the already placed fixture.

### * Guide fix (Fixture + Surgical guide)




### * Fix pin (Ø2.0 Drill hole + Surgical guide)




- Use above Ø2.0x8.5mm drill regardless of the sleeve offset.

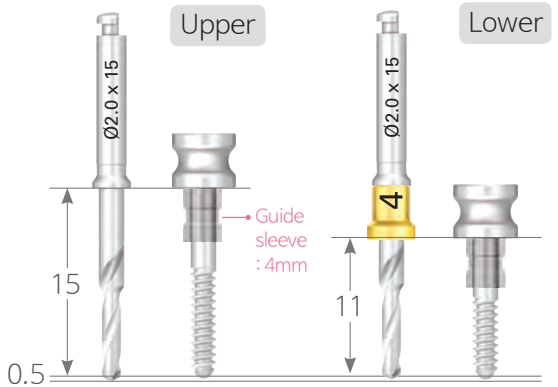
**TIP**

Use of the bone flattening drill is advised to avoid interference of the gum or surrounding bone.

## Anchor system

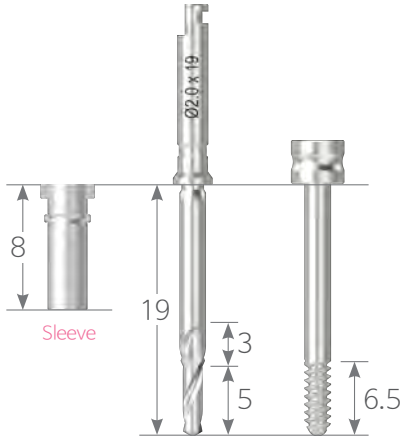
- Different drill heights are applied for the upper and lower. A 4mm dedicated stopper must be applied to the anchor screw when applying to the lower.

### * Specification




- 15mm drill
- 4mm sleeve
- Upper 15mm screw
- Lower 11mm screw
- 4mm stopper

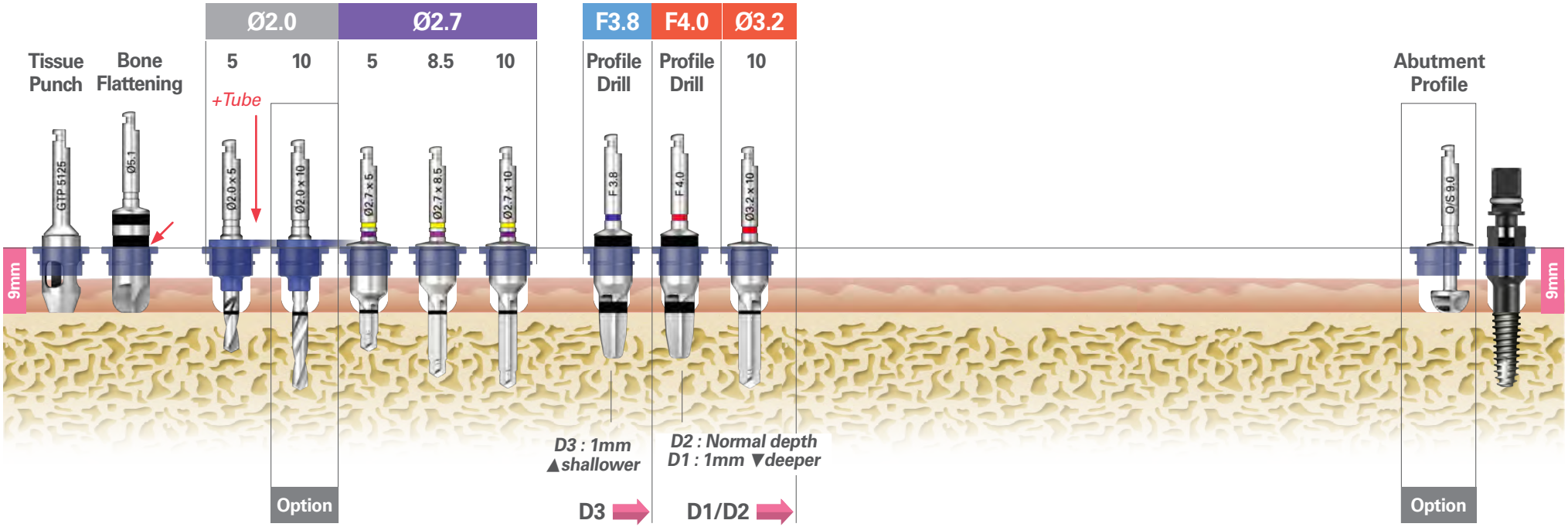
### * R&D development underway (Plan-to-update 19.4Q)




- 19mm drill
- 8mm sleeve
- Upper 19mm screw
- Lower 14mm screw
- 4mm stopper

**TIP** Precision of the position and angle of the drill can be enhanced by expanding the sleeve fixation surface.

# Offset 9.0mm | Case 4 #33, #34, #43, #44




# UF(II) 4010

## UFII Fixture Ø 4.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

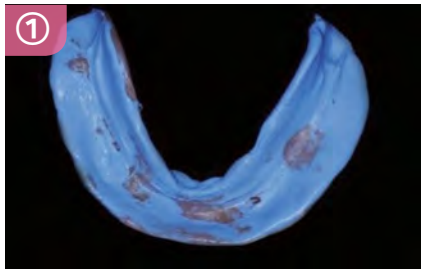
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

# Edentulous case scan workflow

## Trios scanner & Denture accessible



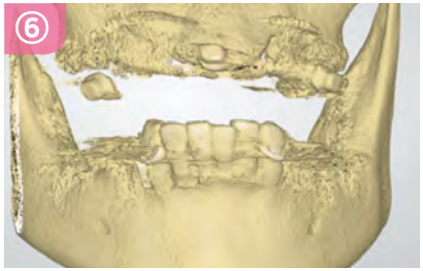

Use of a silicon-based hard impression material is advised for denture relining


Attach markers or flow resin (As close to the margins)


Scan the denture, inner denture, markers, teeth and opposing


Seat the marker-attached denture in the mouth


Take bite scan with denture seated



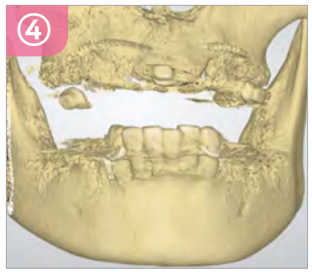

Take CT scan with denture seated (Closed bite)

## Stone model based


Send the upper and lower stone models to the DIOnavi. Center


Splint is fabricated and delivered


VD and bite are checked using the splint

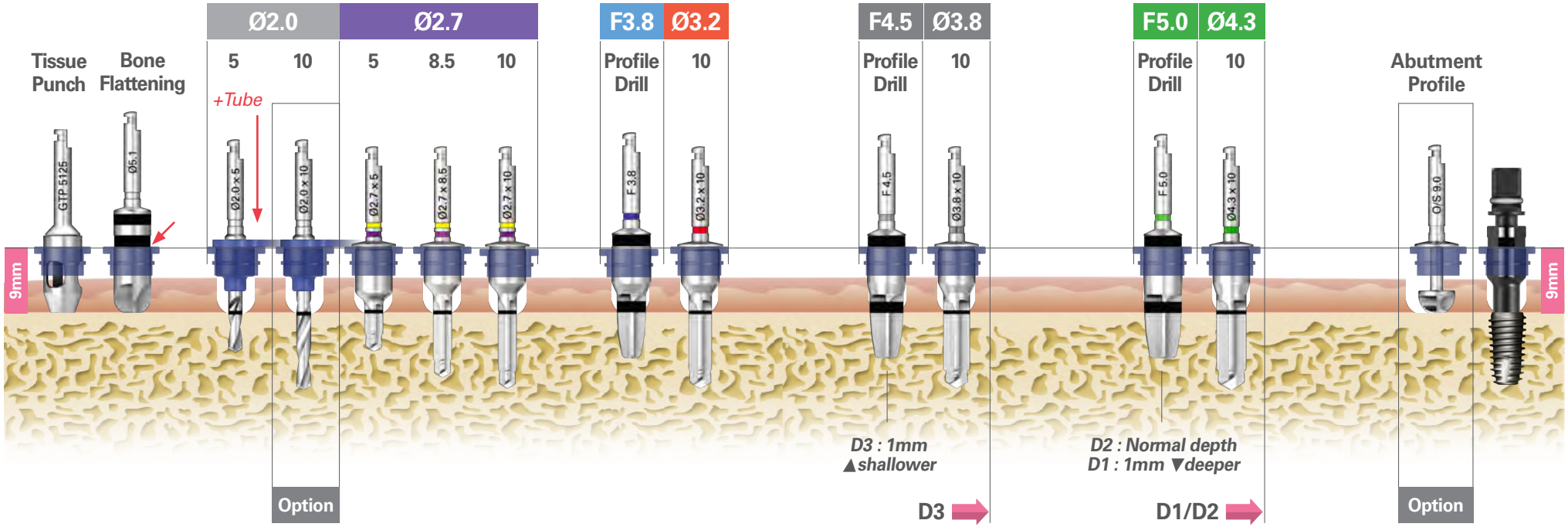



Seat the splint in the mouth and take CT

Splint well seated

Splint improperly seated

# Offset 9.0mm | Case 4 #36, #46




# UF(II) 5010

## UFII Fixture Ø 5.0 x 10mm

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

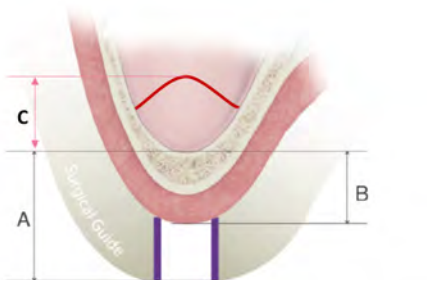
① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.

③ Guidelines for Abutment Profile Drill
- Use only when the teeth adjacent to the osteotomy site interferes with the placement of abutments.
- Drill at 800 rpm with irrigation in very dense bone areas.

## Important data to check before surgery

### Anatomical data of the surgical site

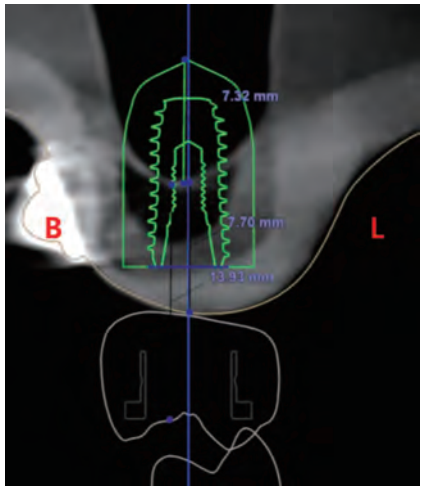



Ⓐ From top of the surgical guide sleeve to the sinus floor

Ⓑ From sinus floor to the gingival margin

※ Depth can be indicated by the marking on the bone condenser and depth gauge

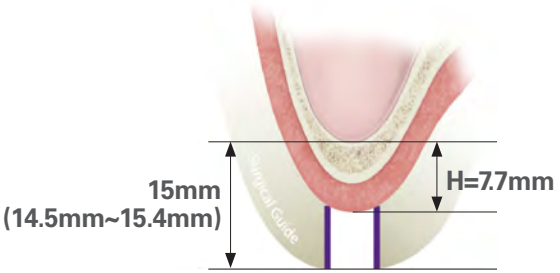
Ⓒ Sinus lift and bone graft height

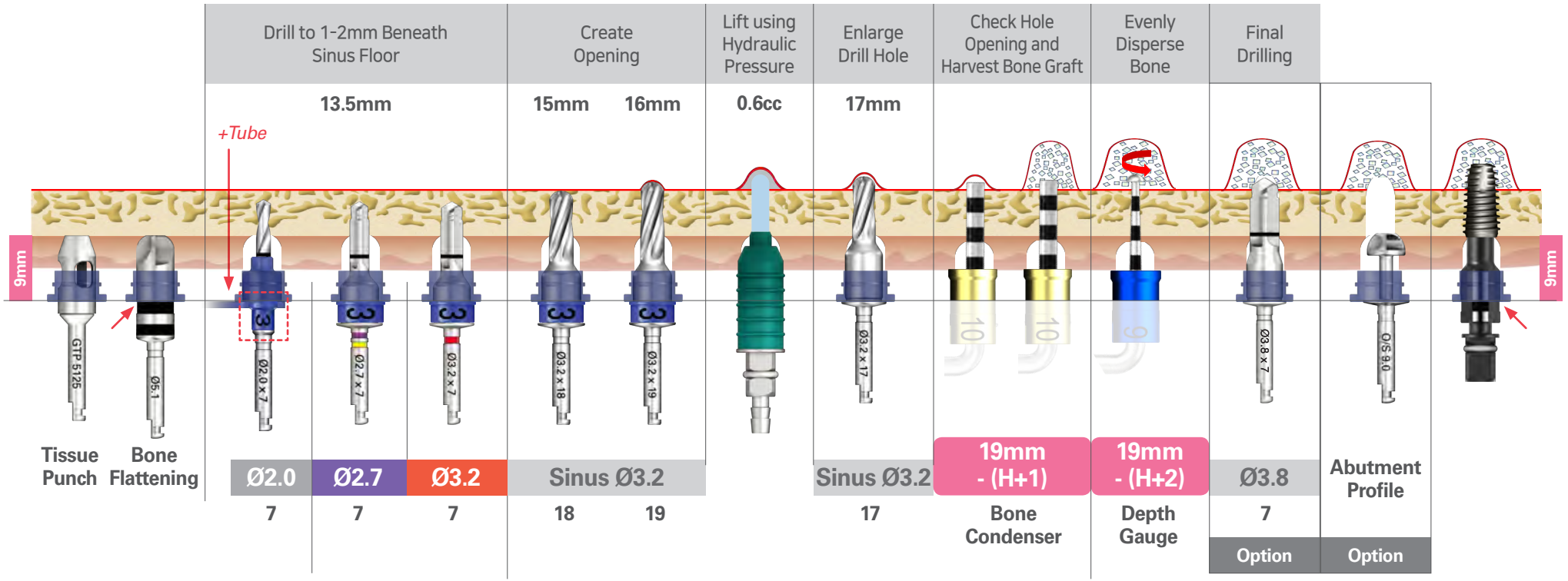



### Recommended bone graft volume

| Sinus lift height | 1mm | 2mm | 3mm | 4mm | 5mm | 6mm | 7mm | 8mm | 9mm | 10mm |
|---|---|---|---|---|---|---|---|---|---|---|
| For implant site | 0.1cc | 0.2cc | 0.3cc | 0.4cc | 0.5cc | 0.6cc | 0.7cc | 0.8cc | 0.9cc | 1.0cc |
| For non-implant site | 0.3cc | 0.6cc | 0.9cc | 1.2cc | 1.5cc | 1.8cc | 2.1cc | 2.4cc | 2.7cc | 3.0cc |

# Offset 9.0mm | Case 5 #16




# UF(II) 5010

## UFII Fixture Ø 5.0 Fixture

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Sinus drill | 10 rpm | 35 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

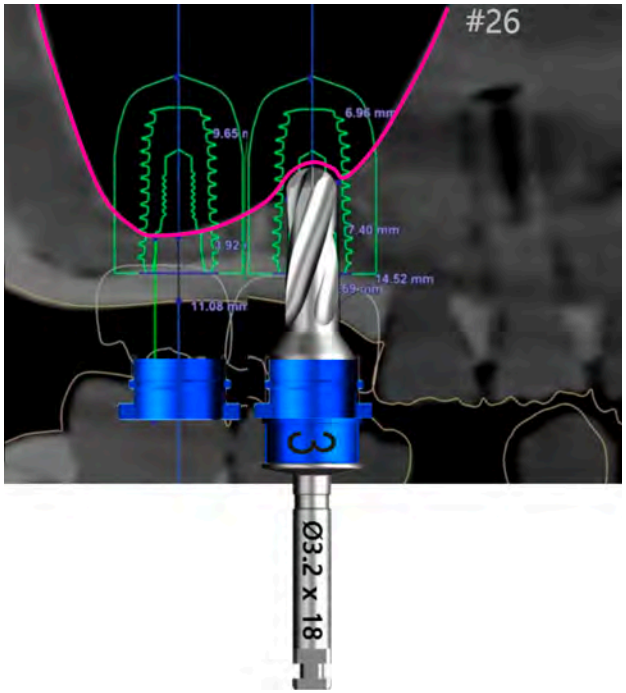
② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.
- After the sinus floor is open, maximum attention must be paid to avoid contact of the metal needle tip with the sinus membrane in case of perforation.

③ When using the Sinus Drill under low speed of 10 rpm , vertical force should be applied to create or enlarge the drill hole.

④ Use of the Final Drill is optional based on the bone quality and thickness of the remaining bone.

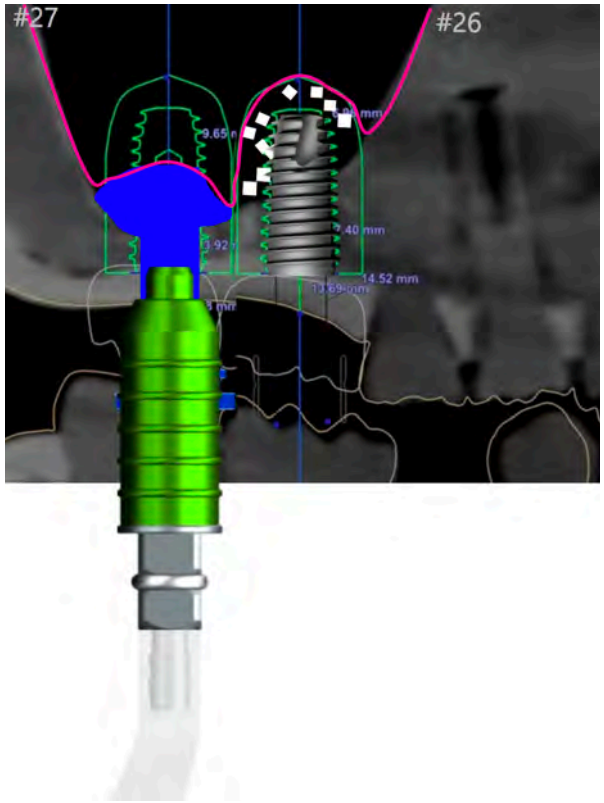
## Precautions for DIOnavi. Sinus surgery

### Extra attention is required to avoid perforation when using the sinus drill



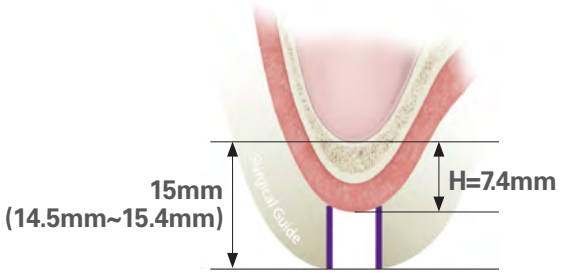

When using the sinus drill, drill under 10 rpm with no irrigation, placing more force while drilling to remove the remaining cortical layer.

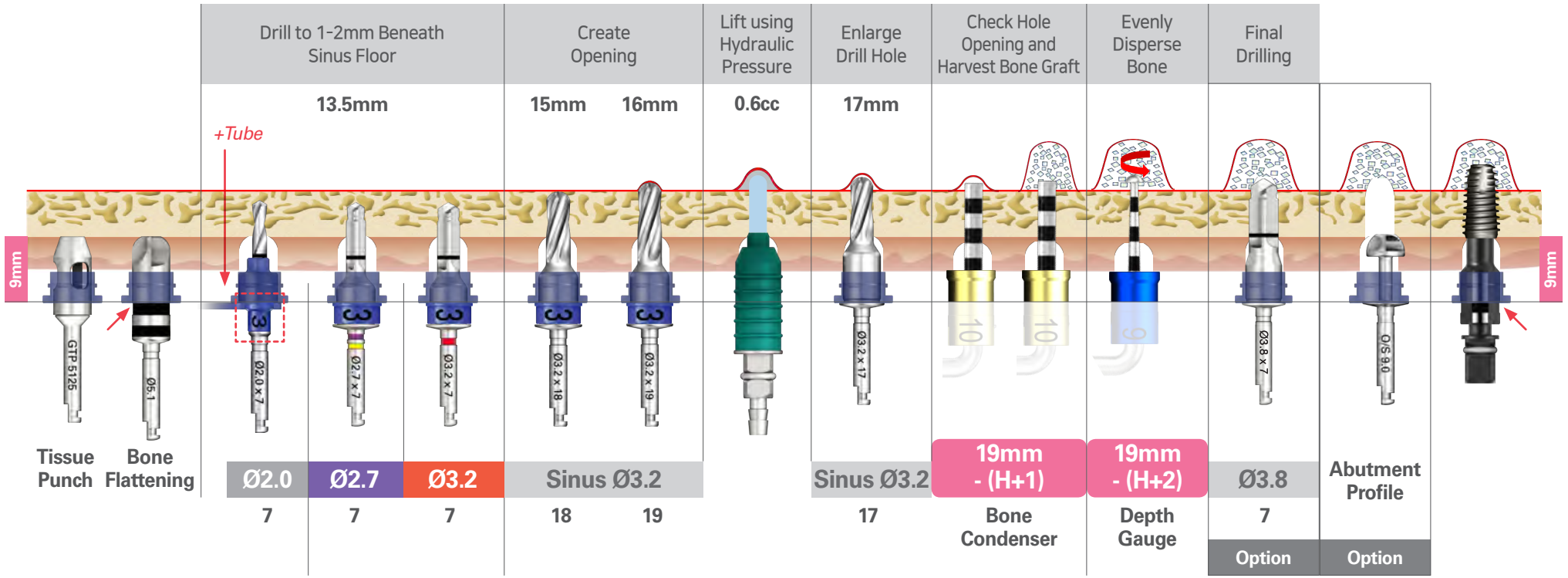
### When placing multiple implants in the sinus




Place the implants with the most accessible sites first.

# Offset 9.0mm | Case 6 #26




# UF(II) 5010

## UFII Fixture Ø 5.0 Fixture

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Sinus drill | 10 rpm | 35 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

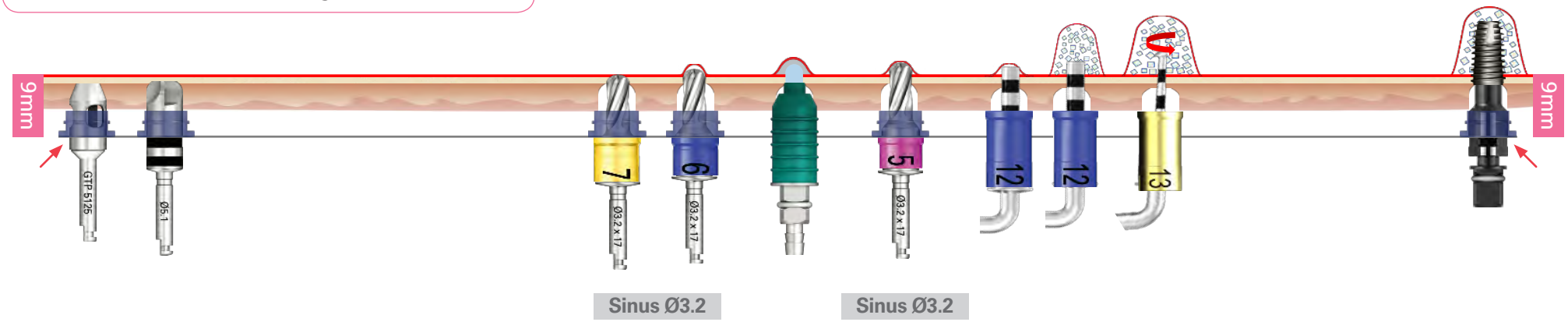
② Basic rules for prevention of bone heating
- Drill within or less than 10 seconds.
- After every drill, insert the metal needle tip into the apical of the osteotomy site and irrigate for cooling effect.
- After the sinus floor is open, maximum attention must be paid to avoid contact of the metal needle tip with the sinus membrane in case of perforation.

③ When using the Sinus Drill under low speed of 10 rpm , vertical force should be applied to create or enlarge the drill hole.

④ Use of the Final Drill is optional based on the bone quality and thickness of the remaining bone.

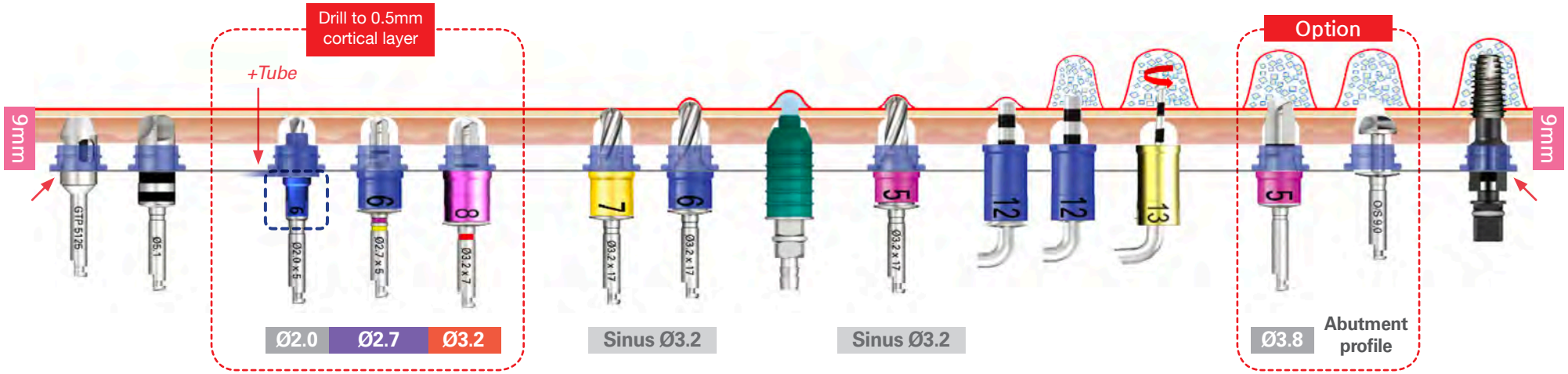
## Recommended protocol based on the remaining bone layer (Ø5.0 fixture)

### Thickness of the remaining bone < 1.5mm

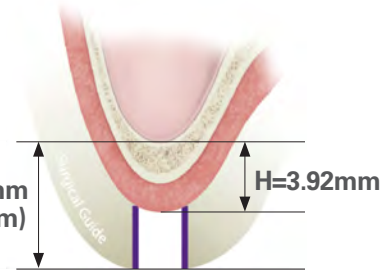


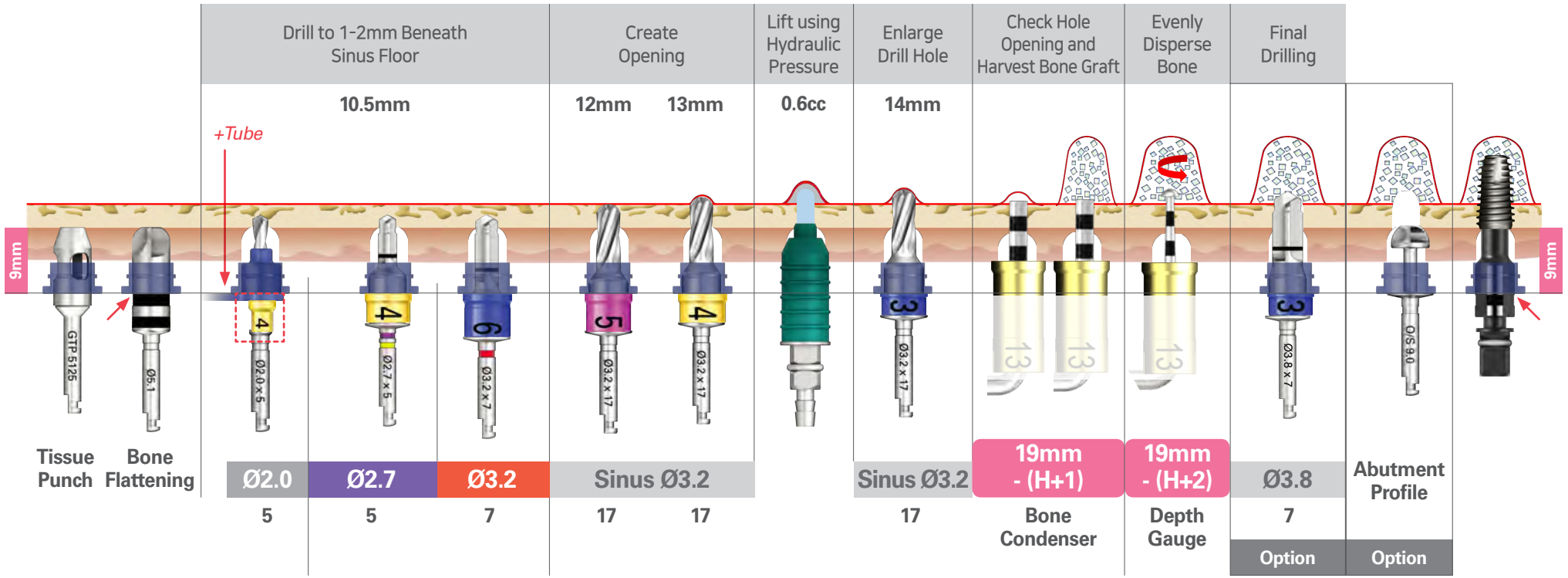

### Thickness of the remaining bone > 2mm

TIP
Recommended for use when the remaining bone is > 6mm



# Offset 9.0mm | Case 6 #27




# UF(II) 5010

## UFII Fixture Ø 5.0 Fixture

Ver.6.0_2019.10

DIOnavi.

- **Recommended Drill Speed & Torque**

| Cat. | Speed | Max torque |
|---|---|---|
| Drilling | 100 rpm | 55 Ncm |
| Sinus drill | 10 rpm | 35 Ncm |
| Fixture | 30 rpm | 35 Ncm |

- **Important Drill Instructions**

① Check the sleeve offset (height) prior to initiating the drill procedure to ensure correct depth of placement. Drill selection and drilling should adhere to the sequential procedure according to bone type.

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③ When using the Sinus Drill under low speed of 10 rpm , vertical force should be applied to create or enlarge the drill hole.

④ Use of the Final Drill is optional based on the bone quality and thickness of the remaining bone.

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