

7. Precautions for fastening the abutment screw

When using the hand driver, it is recommended to press the driver in the direction of the fixture, to ensure that the torque can be properly applied while the tip of the driver is fully engaged to the screw hex. When using a torque driver, it is recommended also to tighten while slightly pressing the head.

BLUEDIAMOND IMPLANT® has a deep internal connection structure for safe loading of the prosthesis. Therefore, the head position of the abutment screw is located comparably lower than other implant systems.

Due to this aspect, the user must clearly check whether the hand driver has fully engaged on the screw hex. If the hex tip of the driver does not reach the full depth of the screw hex, deformation can occur even at a low torque value.

※ **Tip.** If the abutment screw hex is deformed and cannot be removed,

1st step) Try to remove the screw using a hand driver with a fully intact hex tip, pressed towards the direction of the fixture.

2nd step) A 911 removal kit may be used to easily eliminate the abutment screw, replaced with a new screw.



A CUT ABOVE THE REST

BLUEDIAMOND IMPLANT

Simple User Guide

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MegaGen never stops developing....
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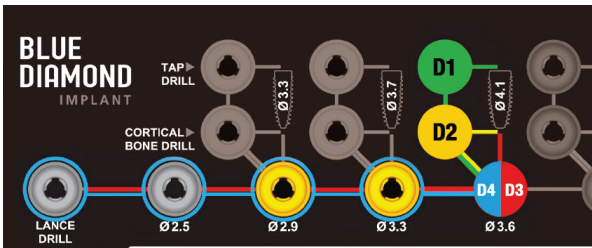


1. Drilling Sequence

BLUEDIAMOND IMPLANT® enables the user to check step-by-step the optimal initial stability during the drilling sequence.

The drilling sequence is organized based on implant placement in the D3 bone. Easy drilling is possible as the user can predict the bone quality from the initial phase, and can decide the next drilling step accordingly. In doing so, the desired initial stability can be secured conveniently.

The drilling sequences for each bone quality are as follows:



Ex) Drilling sequence for ø 4.1 fixture placement (Normal Thread and Deep Thread)

D4	Lance Drill → ø 2.5 Shaping Drill → ø 2.9 Shaping Drill → ø 3.3 Shaping Drill → ø 3.6 Shaping Drill → ø 4.1 Deep Thread Fixture Placement (Blue Line)
D3	Lance Drill → ø 2.5 Shaping Drill → ø 2.9 Shaping Drill → ø 3.3 Shaping Drill → ø 3.6 Shaping Drill → ø 4.1 Normal Thread Fixture Placement (Red Line)
D2	Lance Drill → ø 2.5 Shaping Drill → ø 2.9 Shaping Drill → ø 3.3 Shaping Drill → ø 3.6 Shaping Drill → ø 4.1 Cortical Bone Drill → ø 4.1 Normal Thread Fixture Placement (Yellow Line)
D1	Lance Drill → ø 2.5 Shaping Drill → ø 2.9 Shaping Drill → ø 3.3 Shaping Drill → ø 3.6 Shaping Drill → ø 4.1 Cortical Bone Drill → ø 4.1 Tap Drill → ø 4.1 Normal Thread Fixture Placement (Green Line)

BLUEDIAMOND IMPLANT® line-up includes the Deep Thread fixtures, to ensure high initial stability in low bone quality cases. If the bone is predicted to be D4 quality in the initial drilling stage, users can proceed with the D3 drilling sequence, and place a Deep Thread fixture of the same size.

Note) If the fixture must be placed deeper than the planned depth, it is recommended to first remove the fixture, perform additional drilling to the desired depth, and then place the fixture again.

2. RPM guide

It is recommended to use the optimal RPM for the BLUEDIAMOND IMPLANT® drills to prevent heating and for precise drilling. It is better to use each drill at the recommended rpm in the following table, rather than the same high rpm (800) for all drills.

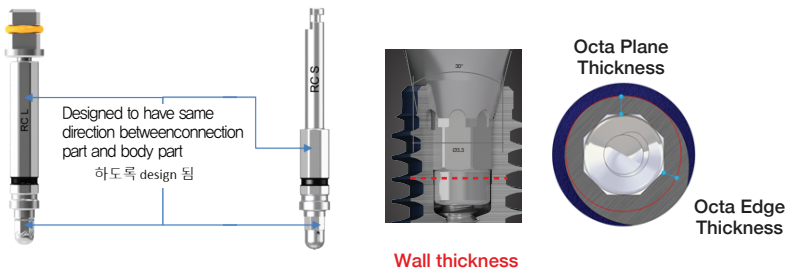
	Flattening Drill	Lance	Shaping Drills							Cortical Bone Drills					Tap Drills					Stopper Drills					
	Ø5.0 / Ø2.0	Ø2.0	Ø2.5	Ø2.9	Ø3.3	Ø3.6	Ø3.9	Ø4.3	Ø3.6	Ø4.0	Ø4.4	Ø4.7	Ø5.0	Ø3.3	Ø3.7	Ø4.1	Ø4.4	Ø4.8	Ø2.5	Ø2.9	Ø3.3	Ø3.6	Ø3.9	Ø4.3	
																									
rpm max	400~600	800	800	600	600	500	500	400	300					15					800	600	600	500	500	400	

3. Fixture Pick up Guide

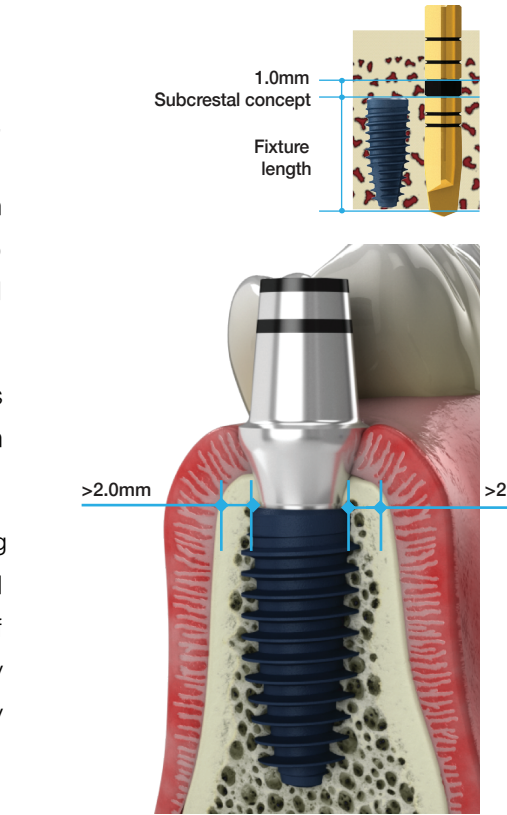
The connector of BLUEDIAMOND IMPLANT® has a strong elastic spring applied. This spring is designed to correct the connection of the fixture if not properly engaged, making it easier to pick up the fixture. This function will also prevent the fixture from getting scratched, or becoming jammed inside the ampule. Therefore, it is recommended not to engage with the Octa in the ampule, but to do it precisely in the surgical site.

In addition, the connector of BLUEDIAMOND IMPLANT® carries the same Octa that allows you to predict the connection of the fixture. It is recommended that the plane of the Octa connection with the thicker wall is in the same direction of the occlusal force during placement.

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Normal Thread			
Fixture Diameter	Platform thickness	OCTA Edge thickness	OCTA Plane thickness
Ø3.3	0.241	0.351	0.431
Ø3.7	0.435	0.551	0.631
Ø4.1	0.386	0.437	0.537
Ø4.4	0.531	0.587	0.687
Ø4.8	0.724	0.787	0.887

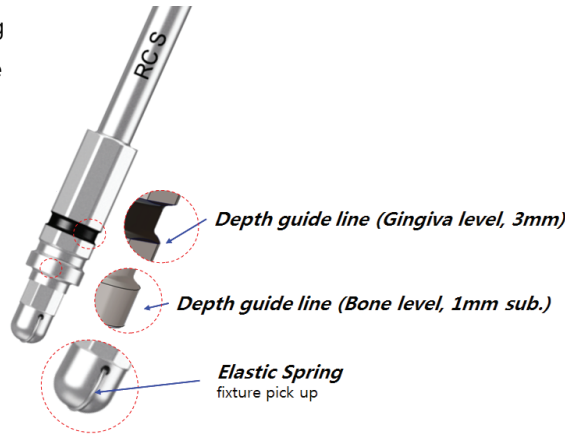


4. 1mm lower placement

By regularizing the length of the BLUEDIAMOND IMPLANT® drill and fixture, the fixture can be naturally positioned 1mm below the crestal bone after drilling. The BLUEDIAMOND IMPLANT® fixture is designed to be 0.8mm shorter than the written size, and the drill is evenly marked for the fixture to be placed to a depth of 1.0mm (ex, Nominal size of fixture 10mm = actual length 9.2mm)

To minimize the stress on the crestal bone, BLUEDIAMOND IMPLANT® has no thread on the upper part of the fixture, designed to be positioned 1mm below the bone level.

This thread design minimizes the stress on the cortical bone surrounding the fixture. It also can secure more than 2mm width of biological marginal bone for maintaining implant stability. This concept has the advantage of minimizing bone loss in the long term, as well as securing the biologically required vertical / horizontal peri-implant tissue width for producing aesthetically optimal prosthetics.



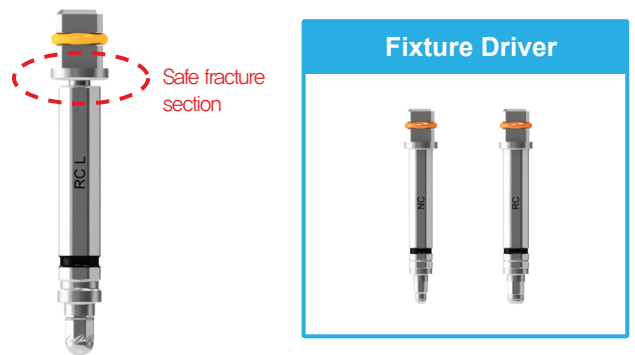
5. Recommended Insertion Torque

BLUEDIAMOND IMPLANT®'s X-Fit connection has a fastening structure that minimizes micro-movement through precise fixation with the prosthesis. Excessive placement torque may cause deformation of the connection; therefore 45 Ncm placement torque is recommended. If higher placement torque must be delivered due to the bone quality, it should not exceed a maximum of 80Ncm.

※ Tip. The BLUEDIAMOND IMPLANT®'s Ratchet Connector is equipped with a fracture section to prevent the deformation of the fixture connection in over-torque situations. This fracture section will break first for easy removal in the occurrence of over-torque(190Ncm).

If a torque value of 100Ncm or more is applied to the fixture, it may cause damage to the connection that may not be noticed with the naked eye. At 200Ncm, permanent deformation will occur, and the prosthesis cannot be fastened.

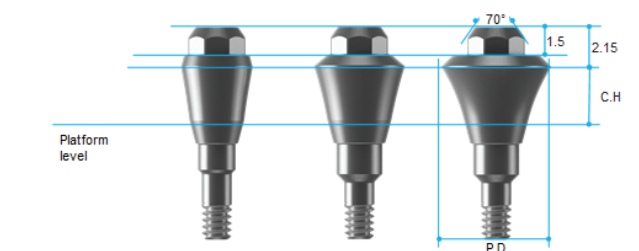
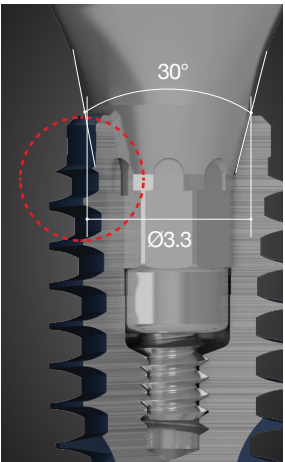
If the connector is fractured during placement, remove the fixture using the fixture driver included in the surgical kit. Perform additional drilling according to the drilling sequence for re-placement of the fixture.



6. Prosthetics for Multiple Cases

BLUEDIAMOND IMPLANT®'s unique X-Fit connection holds a precise and deep internal design. This allows the fixture to have higher strength compared to other brand fixtures with the same diameter. Also long-term implant safety can be achieved against mastication forces with minimized micro-movement. The characteristics of this connection may show limitations for certain multiple cases.

BLUEDIAMOND IMPLANT® is primarily designed for the single prosthetic concept, but have available the Octa abutments for multiple cases. For multiple case surgeries without Octa abutments, it is recommended to use cemented type prosthesis.



Octa Abutment			
Profile Diameter	Ø4.0	Ø5.0	Ø6.0
Cuff Height (mm)	1/ 2/ 3/ 4/ 5		
Type	NC	RC	

※ Tip. In general applications of multiple cases with internal fixtures, the SCRPP procedure at the fixture level can lead to limitations in multiple prosthetics. This is due to the limited correction angle caused by the angulation in the fixture connection. An overly forced loading of the prosthesis could cause the abutment to be sustained only by the tightening force of the abutment screw. From imperfect connection, this can lead to the fracture of the fixture or prosthesis.