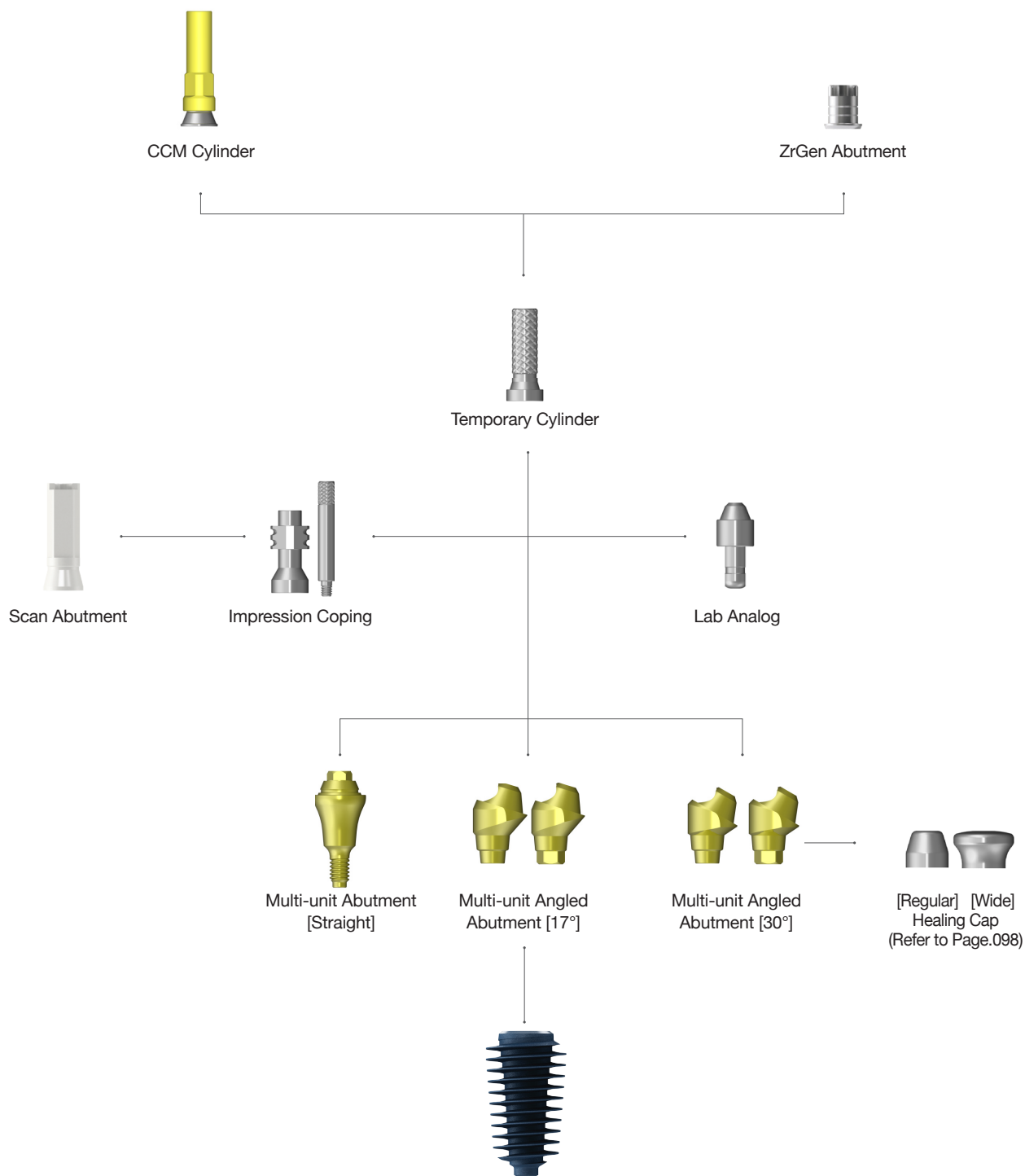


II. Abutment Level Prosthesis

3-1. Multi-unit Abutment & Components (All-on-4) (N_Type)

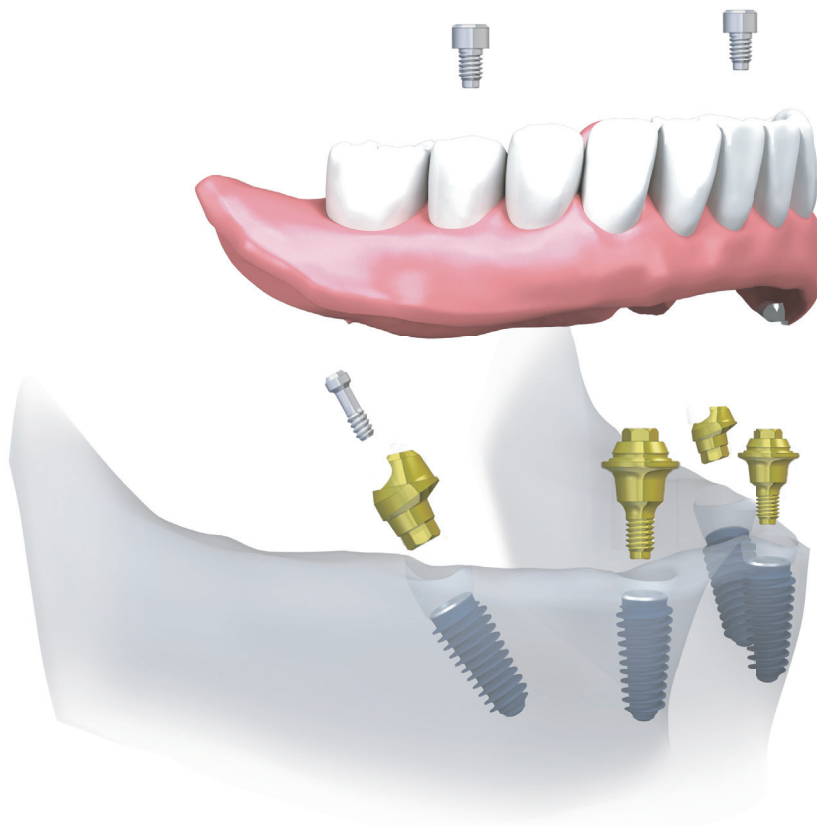
For the design concept and rationale of the Multi-unit Abutment, Please refer to page.094



►► Multi-unit Abutment™

Multi-unit Abutment Design Concept

MegaGen Implant develops the special abutment named as Multi-unit Abutment, which can be the solution for the edentulous patients. With 4 fixtures placed into patient's ridge and a hybrid denture on those four fixtures, a patient can recover his or her dental condition almost completely. In most cases, Multi-unit Abutments work in a set of 2 x straight type abutment for anterior position and 2 x angled type abutment on posterior position.



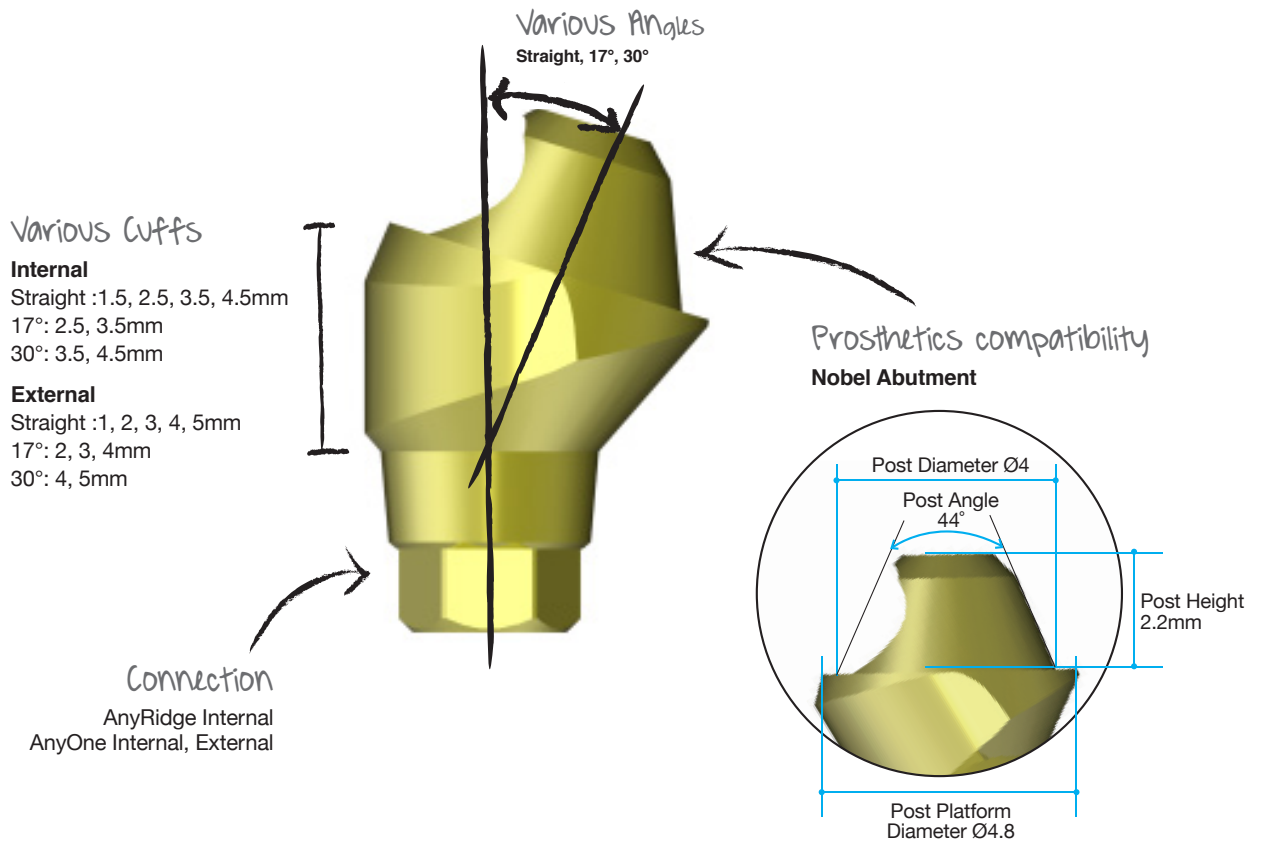
Features

You could see how Multi-unit Abutment functions and what benefits you could get from Multi-unit Abutment are as the followings:

- 2 fixtures which are slantly implanted on posterior position are osseointegrated with cancellous bone. These fixtures function as dispersing vertical load on alveolar bone.
- Multi-unit Abutment is only 4 fixtures + 4 abutments. It means that dental surgeon has enough places for surgery. Therefore, it will be easy to find and place 4 fixtures into ridge where abundant cancellous bone exists.
- A doctor can use graft bone material if a patient doesn't have enough alveolar bone. However, the slantly placed fixtures can overcome the patient's insufficient bone by getting good holding strength with this angulation.
- In addition, these angulated fixtures can avoid touching important anatomies, such as mandibular nerve and maxillary sinus.
- All on 4 technique is also possible to do guided surgery using R2GATE Guide with a diagnosis from R2GATE.

►► Multi-unit Abutment N Type

The solution for the edentulous patients



Benefit

1. Easy and economical treatment solution for compromised edentulous cases.
2. Expensive and time consuming bone graft may not be necessary.
3. Multiple angles (0°, 17°, 30°) support different implant insertion paths.
4. Universally compatible with other Multi-unit systems.

Available implant System

- AnyRidge Internal
- AnyOne Internal
- AnyOne External

Compatibility with others' Multi-unit level prosthetic components

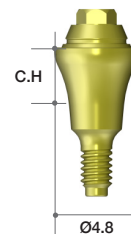
- ✓ Post Height
- ✓ Post Diameter
- ✓ Post Angle
- ✓ Abutment Angle
- ✓ Cuff Height

➔ Multi-unit Abutment

Multi-unit Abutment [AR] - Straight

- MUA Straight Carrier (MUASC) included
- Recommend torque : 35Ncm

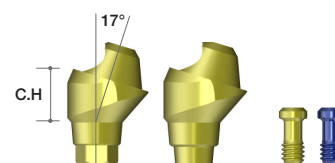
Cuff Height (mm)	Type	Ref.C
1.5	1-piece (M1.8)	MUAARN0015C
2.5		MUAARN0025C
3.5		MUAARN0035C
4.5		MUAARN0045C



Multi-unit Angled Abutment [AR] - 17°

- MUA Screw (MUAARS) included
- MUA Angled Carrier (MUAAC) included
- Recommend torque : 25Ncm

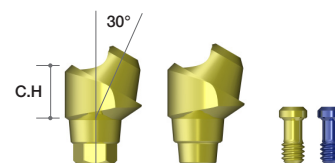
Cuff Height (mm)	Type	Ref.C
2.5	Hex	MUAARH1725LC
3.5		MUAARH1735LC
4.5		MUAARH1745LC
2.5	Non-Hex	MUAARN1725LC
3.5		MUAARN1735LC
4.5		MUAARN1745LC



Multi-unit Angled Abutment [AR] - 30°

- MUA Screw (MUAARS) included
- MUA Angled Carrier (MUAAC) included
- Recommend torque : 25Ncm

Cuff Height (mm)	Type	Ref.C
3.5	Hex	MUAARH3035LC
4.5		MUAARH3045LC
3.5	Non-Hex	MUAARN3035LC
4.5		MUAARN3045LC

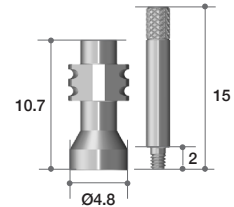


➔ Components for Multi-unit Abutment (Continued)

Impression coping (Pick-up)

- Guide pin (MUAGP) included
- Use to take an impression at the abutment level.
- Open tray method.

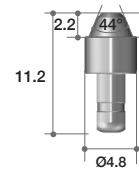
Connection	Ref.C
Non-Hex	MUAICT



Lab Analog

- Use to duplicate the Multi-unit abutment in the working model.
- Available to use as a RP Analog for 3D printed working model.

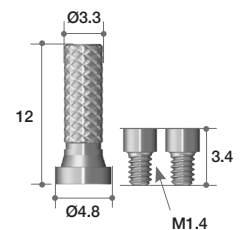
Head form	Ref.C
Multi-unit Abutment(Nobel)	MUALA



Temporary Cylinder

- Cylinder Screw (MUAS) included
- Use for fabricating acrylic provisional restoration.
- Grooves on the post cylinder allow storing resin adhesion.
- Back-up screw is included.
- Recommend torque : 15Ncm

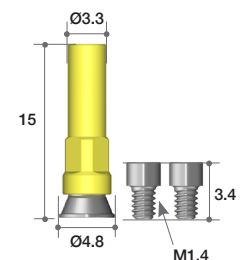
Connection	Ref.C
Non-Hex	MUATCL



CCM Cylinder

- Cylinder Screw (MUAS) 2EA included
- Use for fabricating screw retained prostheses with metal reinforced or bar structured overdentures.
- Available to cast with non-precious dental alloys (Ni-Cr, Cr-Co alloys)
- Melting temperature of CCM base: 1380 - 1420°C
- Back-up screw is included.
- Recommend torque : 15Ncm

Connection	Ref.C
Non-Hex	MUACCML

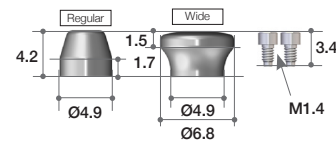


➔ Components for Multi-unit Abutment

Healing Cap

- Cylinder Screw (MUAS) 2ea included
- The size of healing cap can be selected depending on soft tissue volume or type of restorations.

Type	Ref.C
Regular	MUAHCL
Wide	MUAHCWL



Healing Cap Set reference code

Order code : Add "P" after the existing reference code

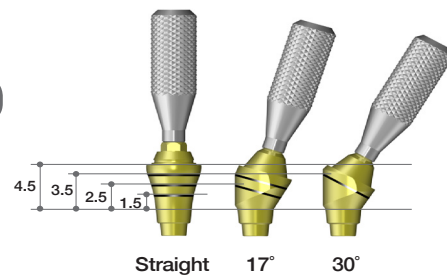
Ex) MUAHCL → MUAHCP



Try-in Abutment

- Cuff height is indicated with laser markings
- Straight 17°, 30°
- Non-hex type

Angle	Cuff Marking	Ref.C
Straight	1.5 / 2.5 / 3.5 / 4.5	MUTIAAR00C
17°	2.5 / 3.5 / 4.5	MUTIAAR17C
30°	3.5 / 4.5	MUTIAAR30C

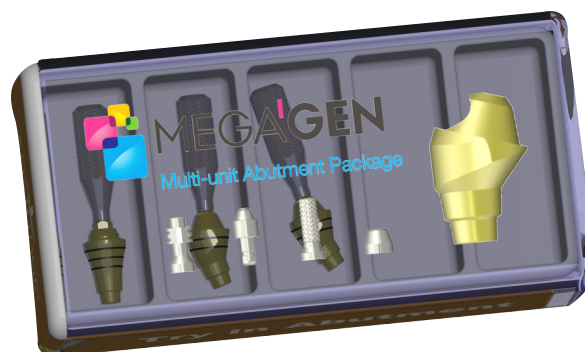


Try-in Abutment Set reference code

Order code : MUTIAAR00P



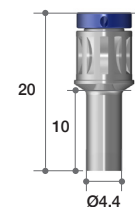
- * Available Systems : AnyRidge, AnyOne Internal, AnyOne External
- * Kit contains Straight, 17° and 30° type of Try-in Abutments (1 each)



Multi-unit Driver

- Use to torque straight type Multi-unit Abutments.
- Use with a torque wrench (ref code: **MTW300A**)

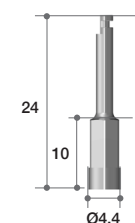
Hex	Length	Ref.C
2.0	10	MUD10



Right Angle Driver

- Use to torque straight type Multi-unit Abutments.
- Use with latch-type handpiece.
- Use with Meg-TORQ (ref code: **MEG_TORQ**)

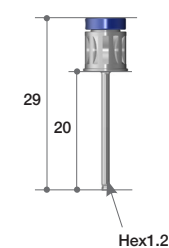
Hex	Length	Ref.C
2.0	10	MURAD10



Hand Driver

- Use for abutment screw with 1.2 hex hole.
- Use up to 15° divergent.
- It should use under 30Ncm torque.

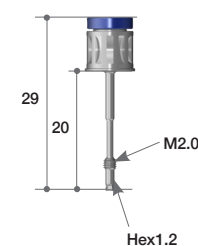
Hex	Length	Ref.C
1.2	20	MUHD1220



Removal Driver

- Use for abutment screw with 1.2 hex hole.
- Use up to 15° divergent.
- Exclusively for AnyRidge system.
- It should use under 30Ncm torque.

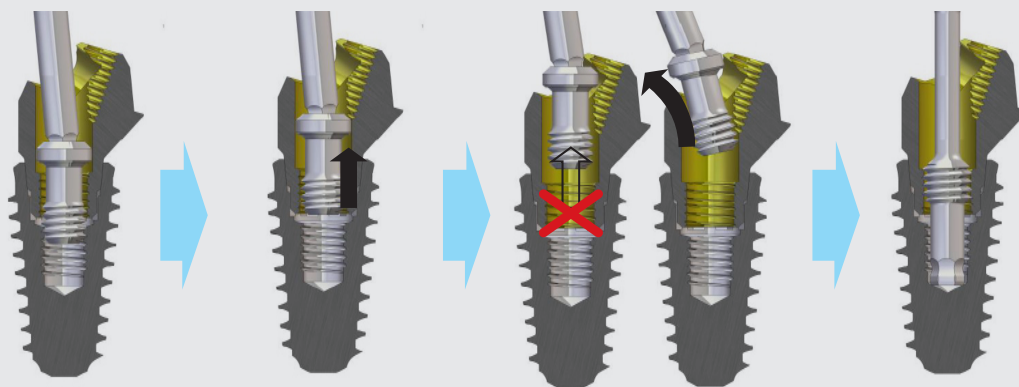
Hex	Length	Ref.C
1.2	20	MUARD20



► Screw & Abutment Tightening Torque Guide

- Abutment Screw (M1.8 & M2.0) : 25Ncm
- Cylinder Screw (M1.4) : 15Ncm
- Straight Abutment (M1.8 & M2.0) : 35Ncm

Instruction for removing abutment screw from Multi-unit abutment [Exclusively for AnyRidge system]



1. Completely unscrew abutment screw by rotating it counterclockwise (approximately 4 rotations are required). It should sue with a Hand Driver (ref code: MUHD1220)
2. Pull the Hand Driver up straight until it is visible through abutment crew hole. Shaking left and right may be required if the screw becomes stuck inside of the abutment hole.
3. Slightly rotate the screw to the main access hole. Otherwise the screw could fall back into the screw hole due to disturbance of abutment structure.
4. Remove abutment with the Removal Driver (ref code: MUARD20) by rotating it clockwise.

Driver Tightening Torque Guide

1. Multi-unit Abutment Remover Driver



2. Multi-unit Hand Driver



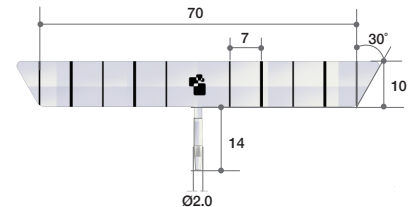
- Excessive torque more than 30Ncm may cause fracturing of the driver.
- Straight type Multi-unit abutment needs to use the Multi-unit Driver that is provided in the starting package. (ref code: MUD10)
- **Strongly recommended to pick up the abutment screw by pressing the Hand Driver to remove the abutment screw from the Multi-unit abutment.**

➔ Components for Multi-unit Abutment

Surgical Guide

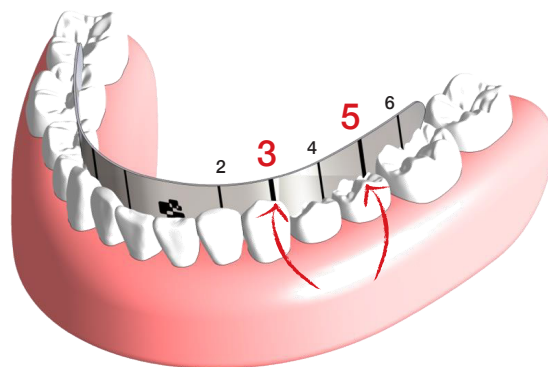
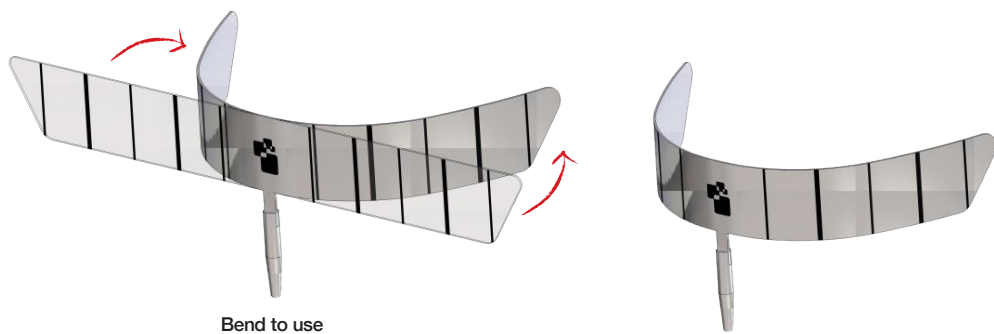
- The distance between the lines is 7mm
- Put center pin after initial drilling at the centric of arch. (Refer to the surgical protocol on page.104)

Angle	Marking Length (mm)	Ref.C
30°	7	MUSG70



▶▶ How to use Surgical Guide

- ※ As Canine and second premolar are most commonly used, the surgical guide has thicker lines for easier identification.
- ※ The surgical guide is able to use for first molar depending on surgical plan.



► Multi-unit Abutment Set Contents

Multi-unit Abutment Healing cap type Set reference code

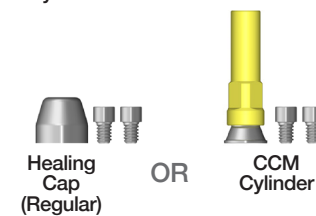
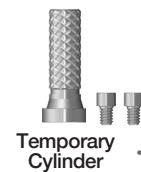
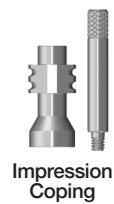
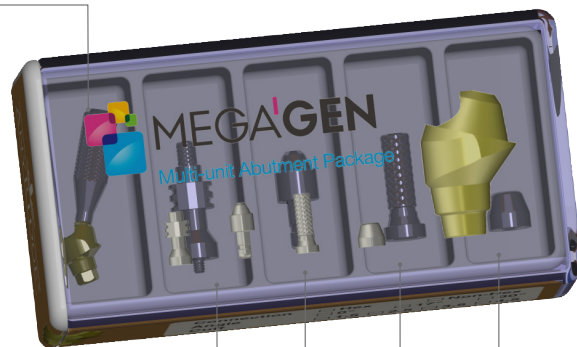
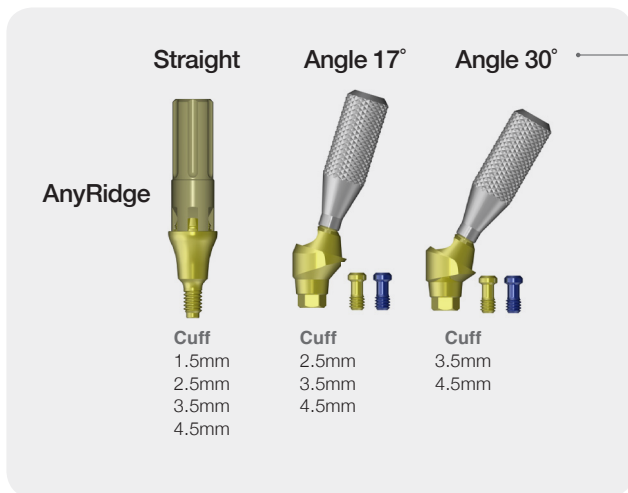
Order code : Add "HP" after the existing reference code

Ex) MUAARH1725LC → MUAARH1725 HP

Multi-unit Abutment CCM type Set reference code

Order code : Add "P" after the existing reference code

Ex) MUAARH1725LC → MUAARH1725 P



▶▶ Starting Package Contents



Type		Ref.C
Healing Cap	Hex	SKARHN3000H
	Non Hex	SKARNN3000H
CCM Abutment	Hex	SKARHN3000
	Non Hex	SKARNN3000

Straight 8set (2set x 4kind of cuff)	Angle 17° 6set (2set x 3kind of cuff)	Angle 30° 4set (2set x 2kind of cuff)
<p>Multi-unit Abutment with *carrier</p> <p>* MUA carrier is used to pick-up an abutment to the patient's mouth, and check its insertion angle.</p> <p>Healing Cap (Regular) or CCM Cylinder</p> <p>Temporary Cylinder</p> <p>Lap Analog</p> <p>Impression Coping</p>		

Surgical Instrument

Multi-unit Driver Right Angle Driver Hand Driver Removal Driver

Healing Cap 2set

Regular

Wide

Try-in Abutment 1set
(Straight, 17°, 30° each 1ea)

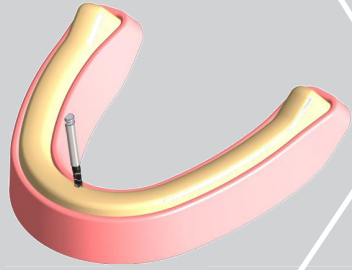
Surgical Guide 2ea

►► Surgical Protocol

Conventional Surgery

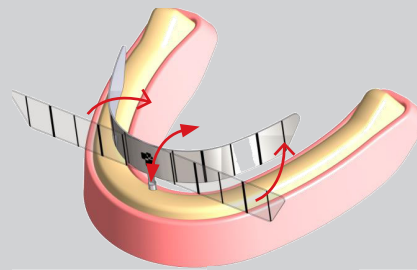
1. Initial drilling

For placement of center pin after initial drilling in the centric of the arch. The drilling hole should be in lingual area of the arch to ensure the best result.



2. Guide Bending & Position

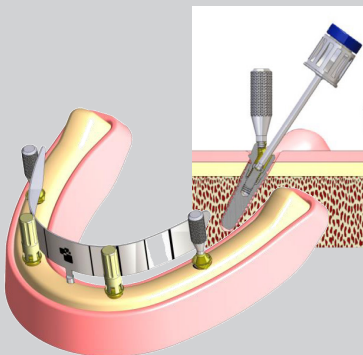
Bend according to the patient's arch.



7. Tightening the Abutment

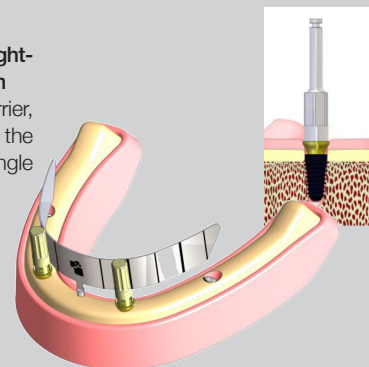
Abutment Screw tightening Torque : 25Ncm

After connecting Abutment Screw, remove Carrier from Abutment. For 17° abutment, you need to tighten it by tilting Driver about 5°. Connect Abutment and check the path using Carrier.



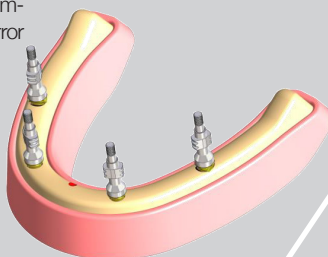
Straight Abutment tightening Torque : 35Ncm

After removing Carrier, connect Abutment to the Fixture using Right Angle Driver or MUA Driver.



8. Impression

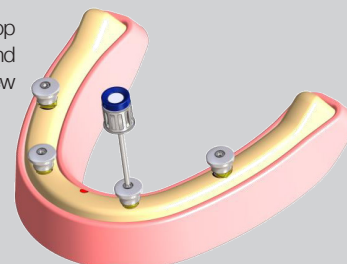
Take an impression with an individual tray. (Open tray method is strongly recommended to avoid any error in the future.)



9. Healing Cap

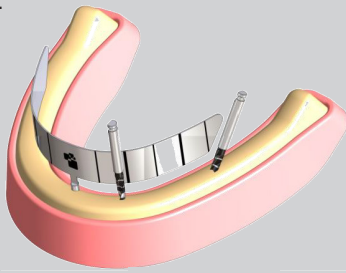
Cylinder Screw tightening Torque : 15Ncm

Place Healing Cap on top of Multi-unit abutment, and connect Cylinder Screw with the Hand Driver.



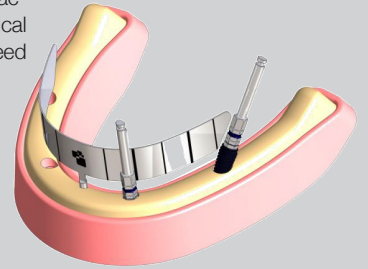
3. Drilling

Drill according to the surgical plan.



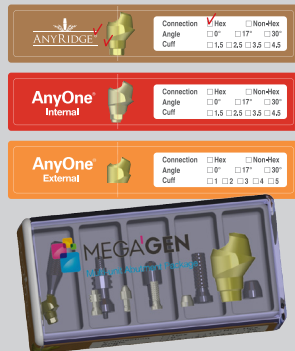
4. The fixture is implanted

Place implant fixtures according to the surgical plan and do not exceed torque value (60Ncm)



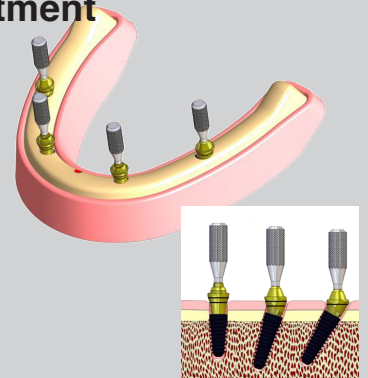
6. Abutment Selection

Select the appropriate set after checking the angulation and cuff height that were measured with the Try-in abutment. Connect the abutment onto the fixture and check the angulation and the cuff height.

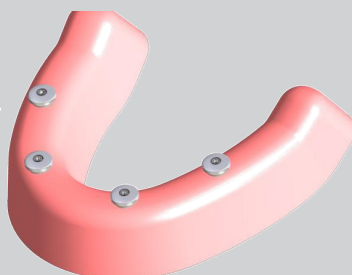


5. Try-in Abutment

Using the laser marking on the Try-in abutment, select the appropriate cuff height and angulation of Multi-unit abutments.



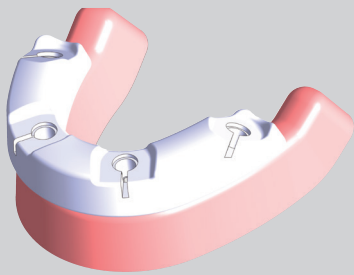
10. Suture



►► Surgical Protocol Guided Surgery

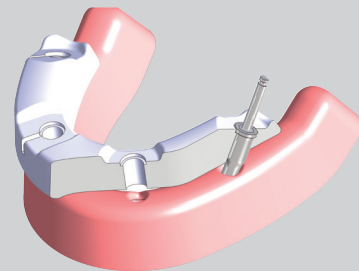
1. Guide

Place a R2GATE Guide.



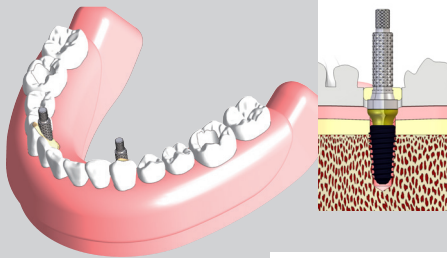
2. Narrow Crest Drill

For the cases with narrow ridge or placing a fixture slanted on the lingual side, you can flatten the surface and drill stably without slipping



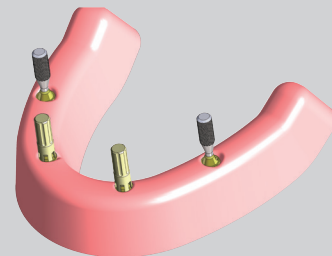
8. Setting Temporary and Denture

Reline the temporary denture with resin to fill the space around the Temporary Cylinder.



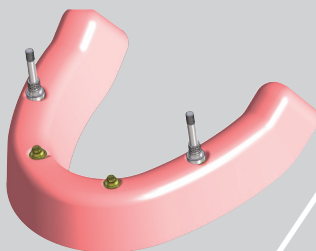
7. Connect Temporary Cylinder in the front

Connect the Temporary Cylinders in the front. Make sure that holes in the denture are free from any contact with the Temporary Cylinder. Adjust the holes until there is no contact between the denture and the Temporary Cylinder. *If the Temporary Cylinder is fixed using Guide Pin, resin flow into access hole will be prevented.



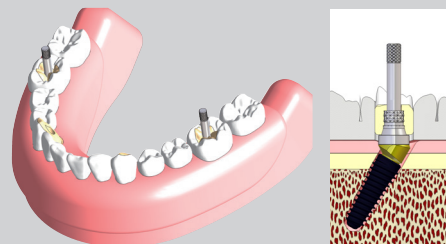
9. Connect Temporary Cylinder in the back

Connect rest of the Temporary Cylinders in the back, make sure that the holes in the denture are free from any contact with the Temporary Cylinder. Adjust the holes until there is no contact between the denture and the Temporary Cylinder.



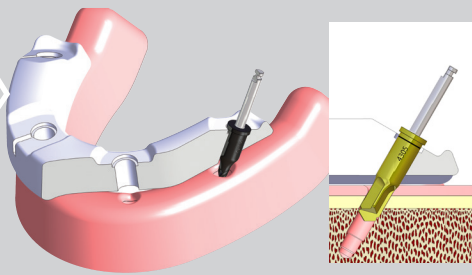
10. Setting Temporary and Denture

All temporary cylinders are picked up in the denture with resin.

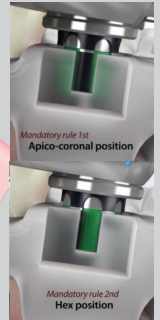
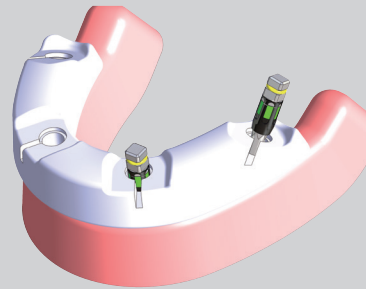


3. Drilling

Drill according to the drilling sequence.

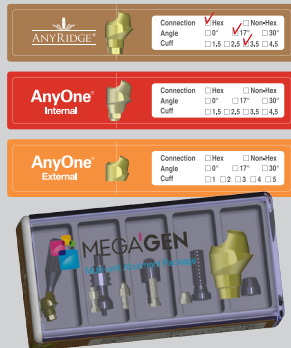


4. Fixture Placement



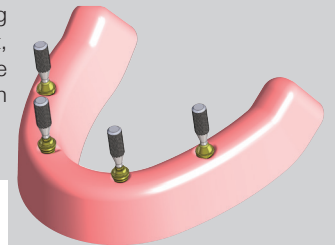
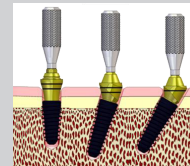
6. Abutment Selection

Select the appropriate set after checking the angulation and cuff height that were measured with the Try-in abutment. Connect the abutment onto the fixture and check the angulation and the cuff height.



5. Try-in Abutment

Using the laser marking on the Try-in abutment, select the appropriate cuff height and angulation of Multi-unit abutments.



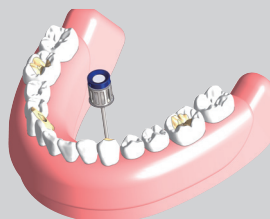
11. Temporary Fixation

Remove Denture and fill up the bottom and other non-resin filled parts with resin and completely fix Temporary Cylinder.



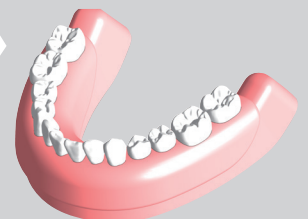
12. Tighten the Denture

Cylinder Screw tightening Torque : 15Ncm
Set Denture onto Multi-unit Abutment and tighten cylinder



13. Finish

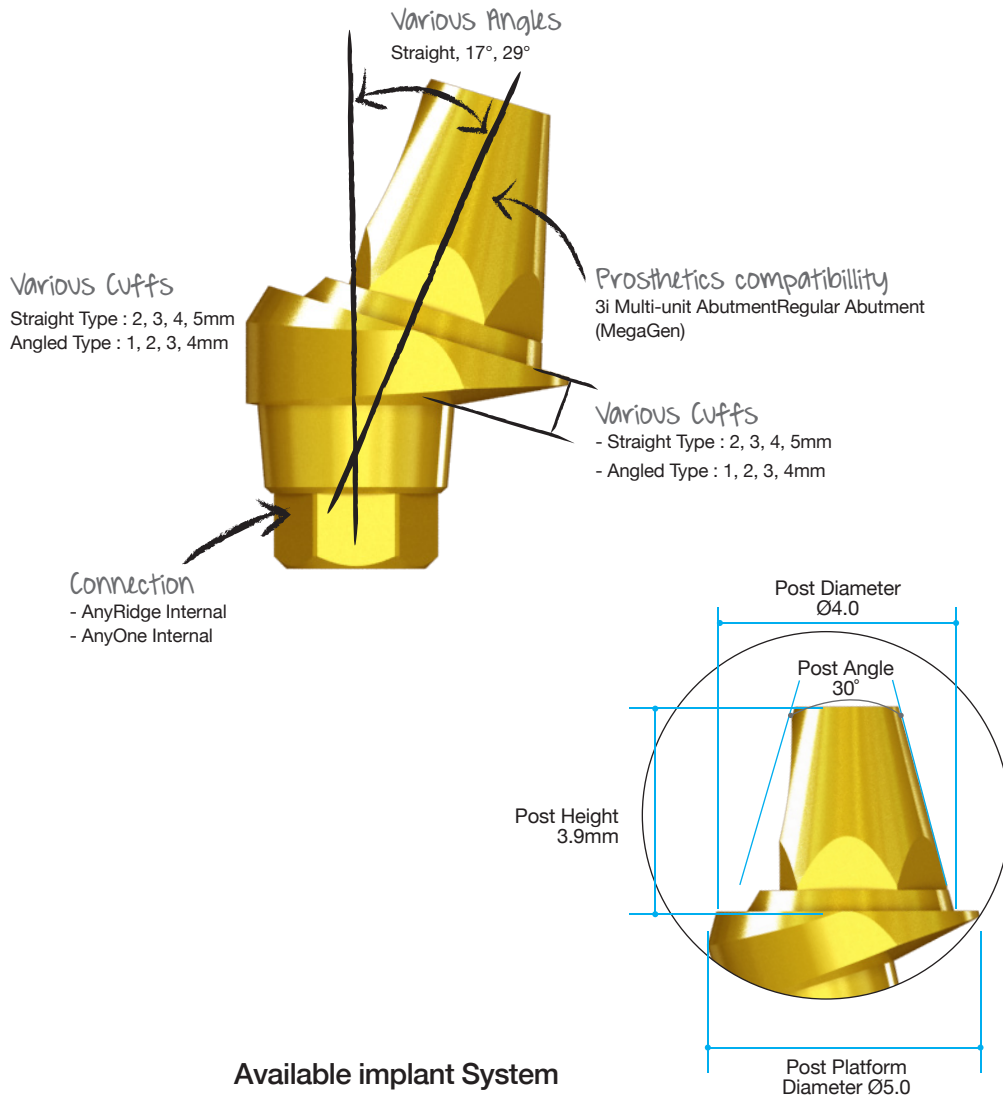
Close Hole using EZ Seal and finalize the surgery.



►► Multi-unit Abutment S Type

The solution for the edentulous patients

For the design concept and variable of the Multi-unit Abutment, Please refer to page.094



Benefit

1. Retrievability means that doctor can change or retrieve the final prosthetics easily.
2. Two types of angulation : 17°, 29°. It means that doctor has various options to angle.
3. Various cuff heights (1~5mm) : Doctor can have flexibility on the depth of fixture placement.
4. MegaGen's Multi-unit Abutment is perfectly compatible with the prosthetic components of Multi-unit Abutment of 3i implant, and Regular Abutment of MegaGen's Exfeel External system.

Available implant System

- AnyRidge Internal
- AnyOne Internal