Milestone of Ceramic Bracket

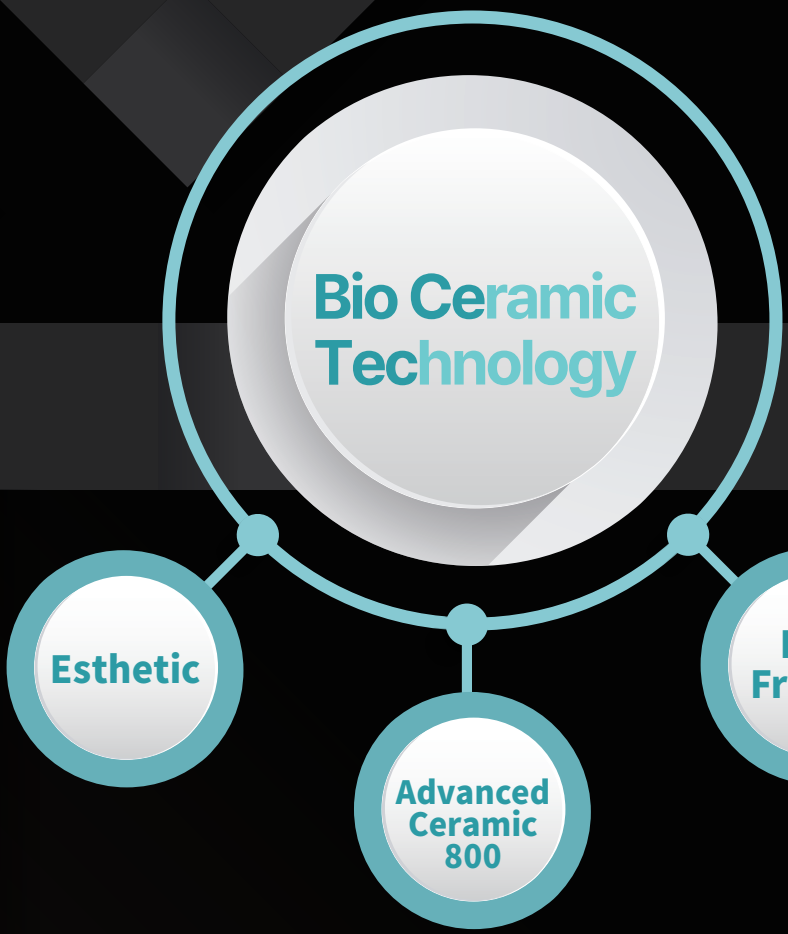


A-Line® Advanced

Active Self-Ligating Ceramic Bracket

A-Line®, Biocetec's new ceramic bracket for comfortable and beautiful orthodontic treatment,
embodies Biocetec's philosophy and technology for both patients and practitioners.
Along with a more comfortable design with Low Profile & Round Shape,
AC800 technology provides high strength and esthetics.
Effective and predictable treatment is possible with precise slot, stable clip and undercut base.

Bio Ceramic Technology
Biocetec



Esthetic

High Transparency

A-Line® is Self-Ligating Ceramic Brackets,
High-purity particulates Ceramic technology provides optimal **Transparency**



A-Line® ceramic brackets

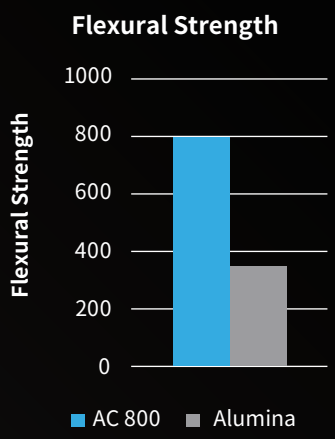


Transparent Disk Specimen

AC800 (Advanced Ceramic 800)

Flexural Strength More than 800MPa

AC800, Biocetec proprietary ceramic technology, breaking through the limitations of alumina ceramics.

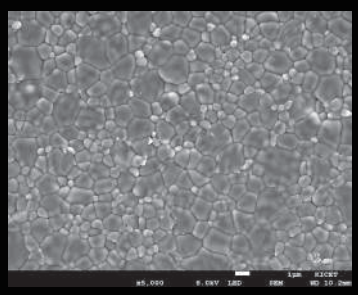


99.99% High-Purity Ceramic Raw Material Refining Technology and Optimized SHP Apply Heat-treatment technology

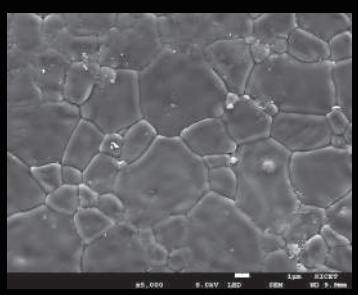
- Flexural Strength 800MPa Implementation of the enhanced ceramic strength above
- Maximize bracket fracture resistance due to wire torque, mastication force and bracket removal stress during orthodontic treatment



[Microstructure Comparison]



A-Line® Microstructure



Competitor Microstructure

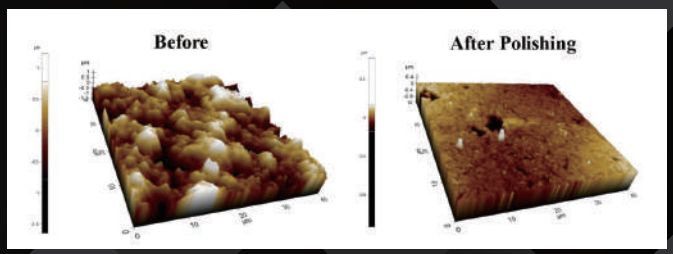
Low Friction

HP Surface Treatment

High-purity particulates Ceramic Polishing Surface Treatment

- Minimize surface Roughness and achieve precise realization with High-Precision Polishing Techniques
- Increased patient convenience with a Rounded Edge design and optimized surface treatment
- Minimize adhesion and discoloration of foreign substances by minimizing Surface Roughness Ra Value





Roughness Images of HP Polishing

A-line® Advanced

01 Low Profile & Rounded Body



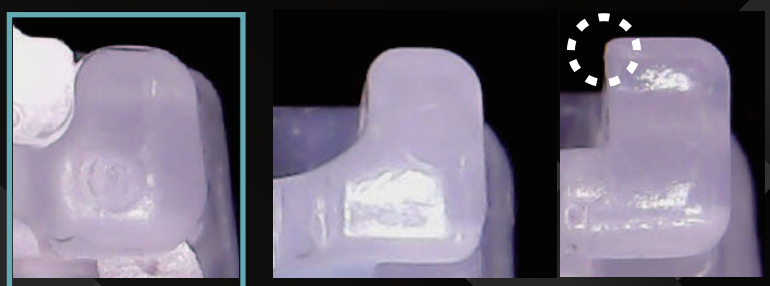
Lowest profile and strongest body among Self-Ligating Ceramic Bracket on the market.

- Low Profile & Round Design for comfortable orthodontic treatment without pain
- Reliable Torque Expression during treatment with High Fracture Resistance
- Maximize treatment efficiency with Low & Precise In/Out

Round Body & wing for Patient Comfort

- Minimize surface Roughness and achieve precise realization with High-Precision Polishing Techniques
- Ultra Smooth Contour Design realization of High-purity particulates polishing Surface Treatment technology application
- Improved patient convenience with Rounded Edge Design and optimized surface treatment
- Minimize attachment and discoloration of foreign substances by minimizing the Surface Roughness Ra Value
- Protect the patient's Soft Tissue with Rounded Edge Clip





A-Line® Competitor 1 Competitor 2

02 OPTIMIZED Tooth Curvature Big Data



Bracket Optimized for Teeth Tilt and Angle with Natural Teeth Anatomy & Curvature Big Data Analysis

- Analysis/Joint R&D of treatment data according to gender of orthodontic treatment patients (Yonsei University)
- Optimal Bonding Strength & Stable treatment available
- Precise Torque & Tipping Force Control





- Collecting first care information for orthodontic patients/ orthodontic treatment patient Scanning Data product reflection
- Application of optimal bracket bonding base corresponding to the diversity of patient tooth shapes
- Realization of Optimal Bonding base Curvature improves suitability with various bonding resins
- Applying stable Mechanical Bonding Base to minimize tooth damage and the bracket breakage even during the Debonding stage



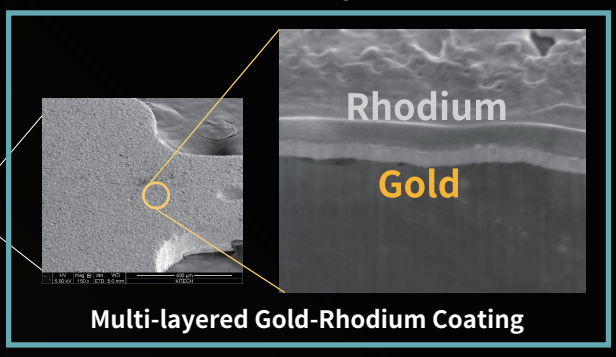
03 GOLD Target Rhodium - Coated Active Clip

Gold Target Two Layered Rhodium Coated Clip Providing esthetics optimized for natural tooth color for a long time

- Minimize deformation and discoloration due to appliances, food, and external forces
- Maintains stable esthetics during treatment by maximizing wear resistance
- Minimize deformation and wear caused by Friction of Wires during treatment
- Minimize the occurrence of Clip Bending Point cracks even under repeated loads



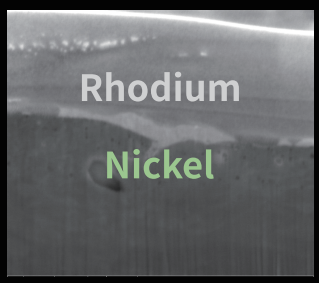
A-Line®



Multi-layered Gold-Rhodium Coating

Resistant to discoloration / abrasion resistance + biocompatibility stability

Competitor

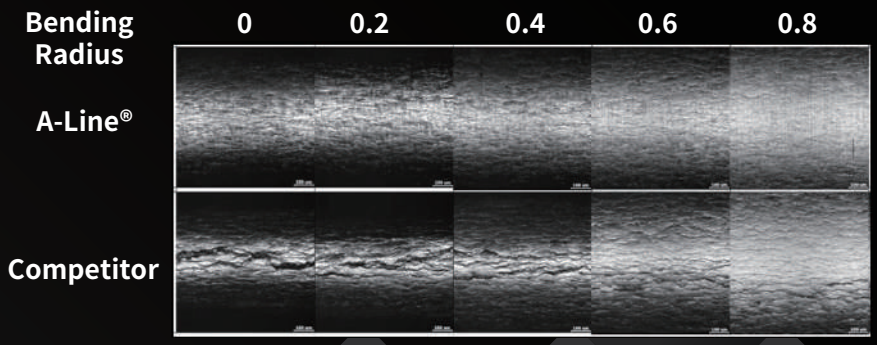


Nickel-Rhodium Coating

Decreased biological stability due to nickel elution

CLIP BENDING



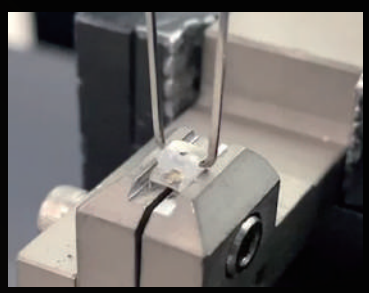


Accumulated more than 5640 bending process optimization data. Completed setting the optimal press condition for Clip where crack does not occur. Application of material development for clips through development cooperation with raw material manufacturer.

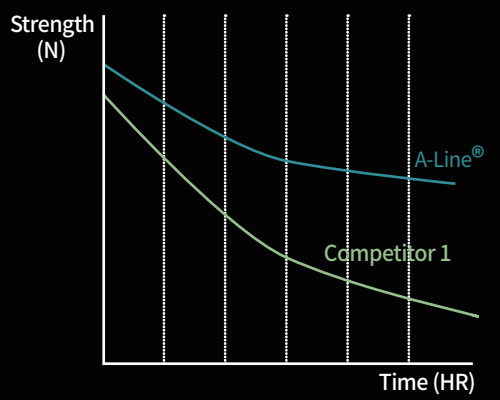
Even on more than 1,000 Opening Closing Fatigue tests,
A stable clip without deformation, deterioration, or discoloration.

Strong Resistant Clip against Tensile Force with Optimized Clip Design

- Prevents Clip deformation and maintains function against Continuous Tensile Force by wire
- Stable Clip Elasticity in Finishing Stage
- Prevents degradation of Clip Flexibility due to Continuous Open & Closing
- Implementation of True Active Force through Stress transfer of Precise & Predictable Clip

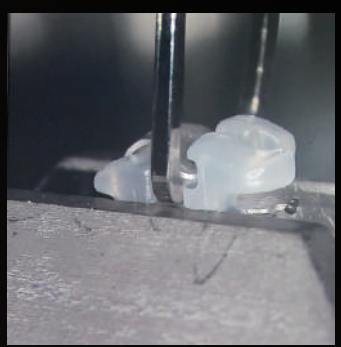


[Door Pull-Out Test]



[Time-Elasticity Strength Graph of Clip]

CLIP DOOR TENSILE TEST



A-Line®
Normal: Return to original shape

Patented ECH Clip Open & Close Mechanism

Stable Clip Opening and Closing available with Use the Specialized Opening Instrument

- Minimize Clip deformation in Clip Open & Closing
- ECH Hole Design Clip Open & Closing Maximizes Convenience

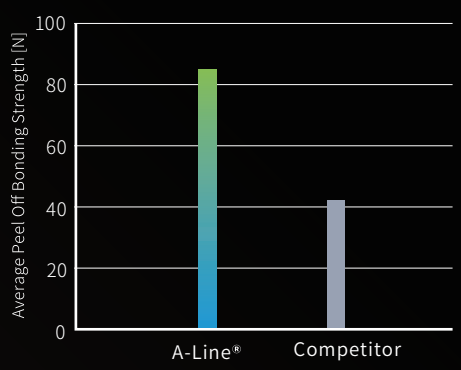


Patent No. 30-2021-0033504
Patent No. 30-2021-0033505

04 Patented Undercut Base Design

With two-way Undercut Base Design Stable Mechanical Bonding Strength

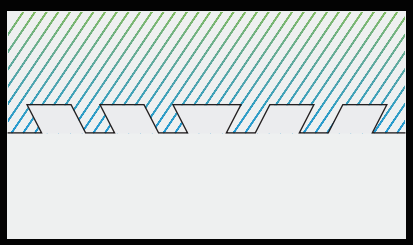
- Reliable Bonding Strength & Stress Free Debonding
- Minimize tooth surface damage after debonding



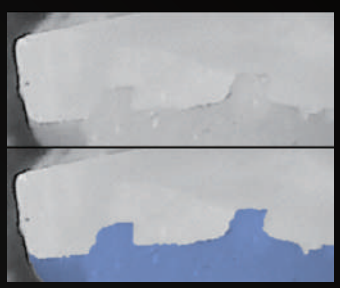
[Peel off Bonding Strength Test]

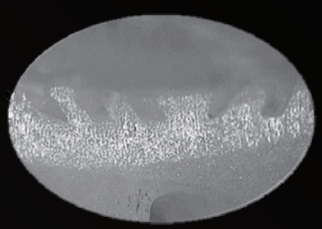
Debonding Performance

Patented **25°** Under Cut Base Design minimizes tooth surface damage when debonding the bracket

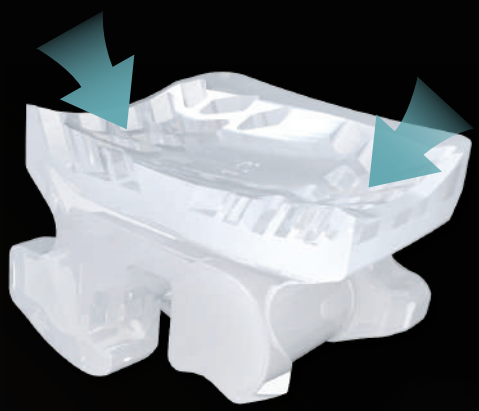


[Under Cut Base]





Mechanical Bonding Base Images



(Patent No : 10-2102262)

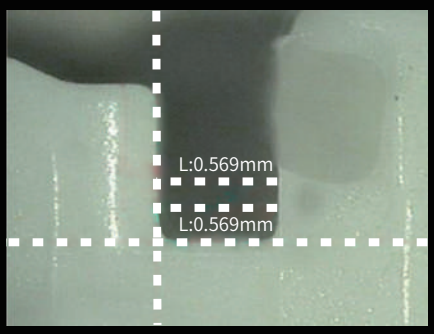
- Minimizes bonding failure during orthodontic treatment by maximizing tooth adhesion to the occlusal and gingival

05 Precise & Strong Straight Slot

Straight & Precise Slot for Precise & Predictable Treatment
Maximize Fracture Resistance by Wire with applying High-Strength AC800 Technology

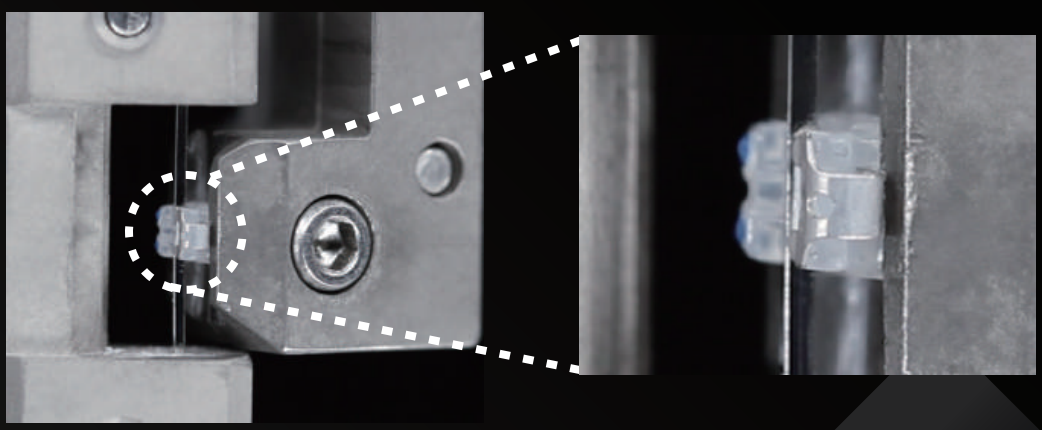
· Achieving Shrinkage Tolerance 5/1000mm with Optimal Ceramic SHP(Sinter Hip Process) process
· Slot Torsional Strength (with 019 X 022 S.S wire) AVG 6N · Cm Implementation





Parallel
~ 0.569mm

Precision control of slot dimensional tolerance in units of 5-10 μm.



Slot Torsional Strength Test (Seoul Univ. Test Image)

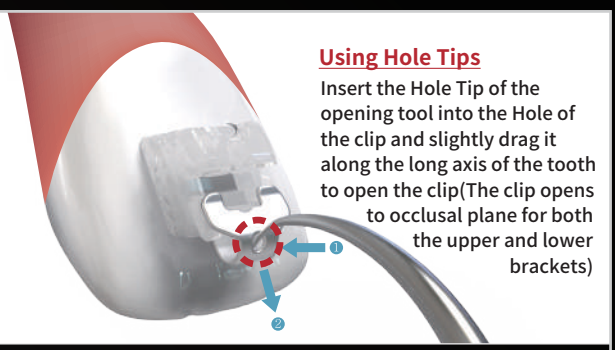
[Self-Ligating Orthodontic Bracket Line]

A-Line® is comfortable Self-Ligating Ceramic Bracket.
For satisfying the patient's esthetic requirements, A-Line® has high light transmittance and strength.

06 Opening Instrument Debonding method(AL-OT)

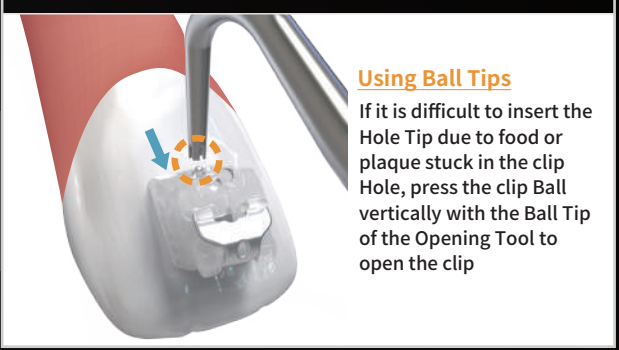


Opening



Using Hole Tips

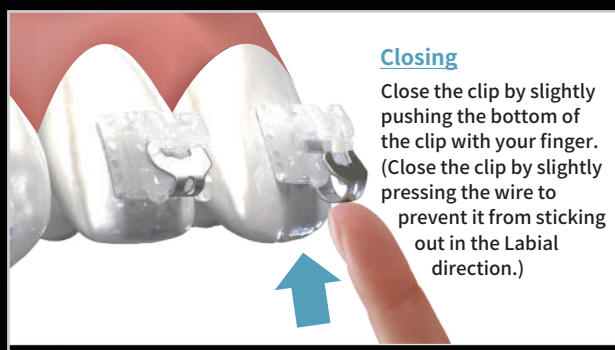
Insert the Hole Tip of the opening tool into the Hole of the clip and slightly drag it along the long axis of the tooth to open the clip(The clip opens to occlusal plane for both the upper and lower brackets)



Using Ball Tips

If it is difficult to insert the Hole Tip due to food or plaque stuck in the clip Hole, press the clip Ball vertically with the Ball Tip of the Opening Tool to open the clip

Closing



Closing

Close the clip by slightly pushing the bottom of the clip with your finger. (Close the clip by slightly pressing the wire to prevent it from sticking out in the Labial direction.)

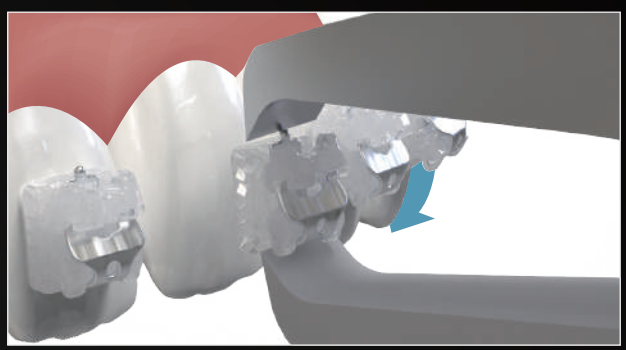


Caution

* If you open the clip using other instruments such as Scaler or Explorer, the clip may deform, so you should use the A-Line specialized Opening Tool.

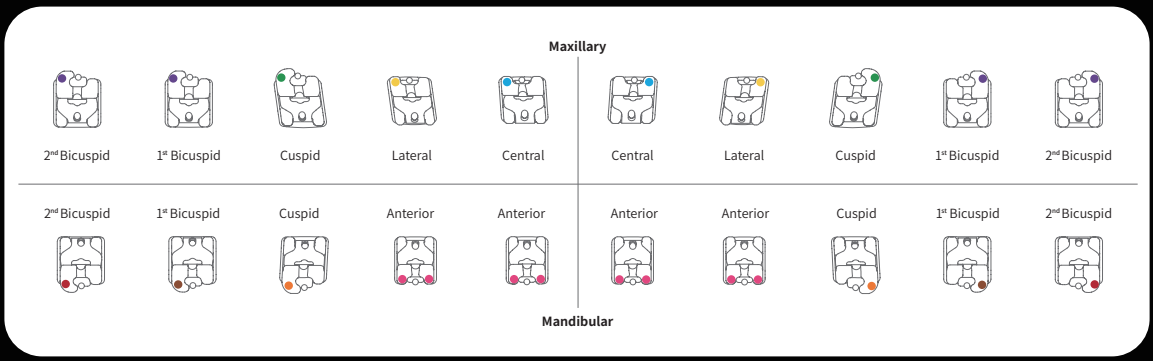
Debonding Wing method

Wing method



Applicable Easy & Safe Debonding in Wing Method using the Universal Debonding Instrument

A-line®



Prescription

MBT022

5-5set - AM22-55H45
5-3set - AM22-53H45
3-3set - AM22-33H

No.	Maxillary	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
1	Central	AM22-1117	AM22-2117		17°	4°	0°
2	Lateral	AM22-1210	AM22-2210		10°	8°	0°
3	Cuspid with Hook	AM22-1300H	AM22-2300H		0°	8°	0°
4	1st/2nd Bicuspid with Hook	AM22-1407H	AM22-2407H		-7°	0°	0°

No.	Mandibular	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
5	Anteriors	AM22-4106	AM22-3106		-6°	0°	0°
6	Cuspid	AM22-4300H	AM22-3300H		0°	3°	0°
7	1st Bicuspid	AM22-4412H	AM22-3412H		-12°	0°	0°
8	2nd Bicuspid	AM22-4517H	AM22-3517H		-17°	0°	0°

Roth022

5-5set - AR22-55H45
5-3set - AR22-53H45
3-3set - AR22-33H

No.	Maxillary	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
1	Central	AR22-1112	AR22-2112		12°	5°	0°
2	Lateral	AR22-1208	AR22-2208		8°	8°	0°
3	Cuspid with Hook	AR22-1302H	AR22-2302H		2°	13°	4°
4	1st/2nd Bicuspid with Hook	AR22-1407H	AR22-2407H		-7°	0°	0°

No.	Mandibular	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
5	Anteriors	AR22-4101	AR22-3101		-1°	0°	0°
6	Cuspid	AR22-4311H	AR22-3311H		-11°	7°	2°
7	1st Bicuspid	AR22-4417H	AR22-3417H		-17°	0°	4°
8	2nd Bicuspid	AR22-4522H	AR22-3522H		-22°	0°	4°

Roth018

5-5set - AR18-55H45
5-3set - AR18-53H45
3-3set - AR18-33H

No.	Maxillary	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
1	Central	AR18-1112	AR18-2112		12°	5°	0°
2	Lateral	AR18-1208	AR18-2208		8°	8°	0°
3	Cuspid with Hook	AR18-1302H	AR18-2302H		2°	13°	4°
4	1st/2nd Bicuspid with Hook	AR18-1407H	AR18-2407H		-7°	0°	0°

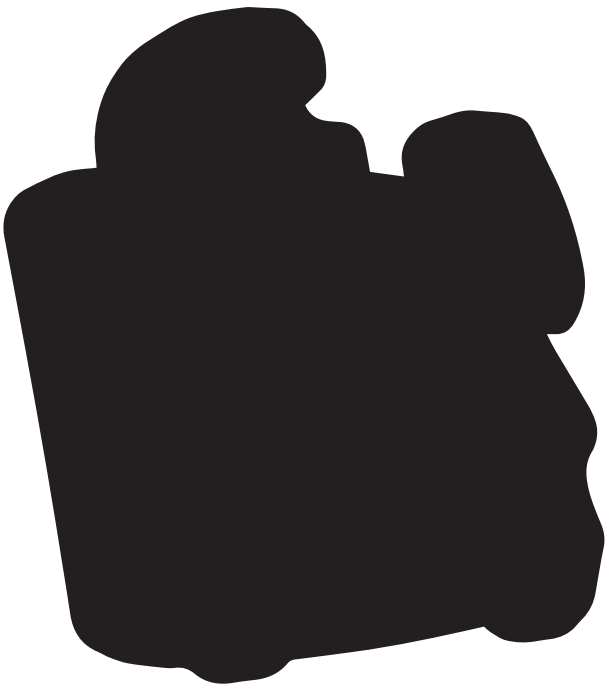
No.	Mandibular	Model name R	Model name L	ID Dot	Torque	Ang.	Offset
5	Anteriors	AR18-4101	AR18-3101		-1°	0°	0°
6	Cuspid	AR18-4311H	AR18-3311H		-11°	7°	2°
7	1st Bicuspid	AR18-4417H	AR18-3417H		-17°	0°	4°
8	2nd Bicuspid	AR18-4522H	AR18-3522H		-22°	0°	4°

Biocetec has been researching only ceramics for 10 years

Bio Ceramic Technology

RM 1001-1002, New T Castle, 108 Gasandigital 2-ro, Geumcheon-gu, Seoul, Republic of Korea(Zip code : 08506)
Tel : +82-2-704-2876 / **Fax** : +82-2-704-2877 / **E-Mail** : service@biocetec.com / www.biocetec.com

BCP-BKTA-01 [Rev.1.1/ 23EN]



A-Line® Advanced