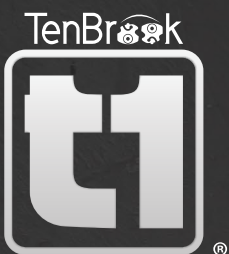




TenBrook  
self-ligating system®

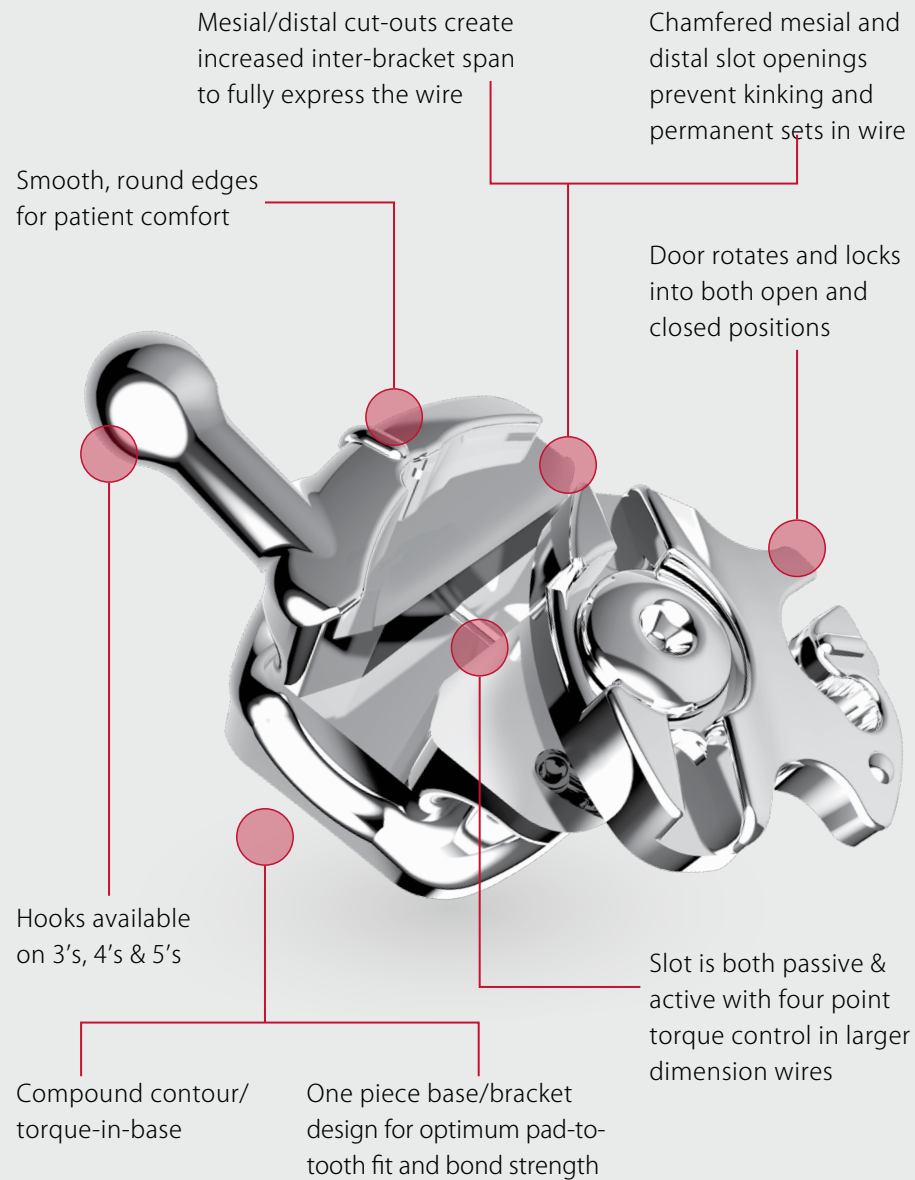


Revolutionary.



# TenBrook T1™ Features & Benefits

The TenBrook T1™ passive self-ligating system is a low-friction, light force orthodontic solution that delivers healthy tooth movement with optimal control. The contoured trajectory of the slide and smooth rounded edges, along with its low profile design, increase patient comfort while a revolutionary new locking system replaces the need for ligatures. The combination of the TenBrook T1™ self-ligating bracket and simplified archwire sequences provide remarkable advantages over traditional orthodontic systems.



Pad-Lok 80 mesh base provides one of the strongest bonds available

## Hygienic

Radial Contours of the T1 follow the natural contours of the teeth, creating natural sluice ways for materia alba to wash away from the braces.

## Comfort

Smooth, rounded contours provide superior patient comfort. There are no uncomfortable tie wings to stick out and cause irritation. These features allow lips and soft tissue to adapt comfortably with T1 contours. The TenBrook T1™ is the lowest profile self-ligating bracket on the market

## Chamfered Slot (Mesio-Distally)

Chamfered slot dimensions allow for greater flexibility and ease of archwire engagement. High performance wires are able to deflect in a more radial manner, enhancing the archwire's effectiveness in moving teeth efficiently and decreasing permanent sets or kinks in the wires.

## Rotating Cap

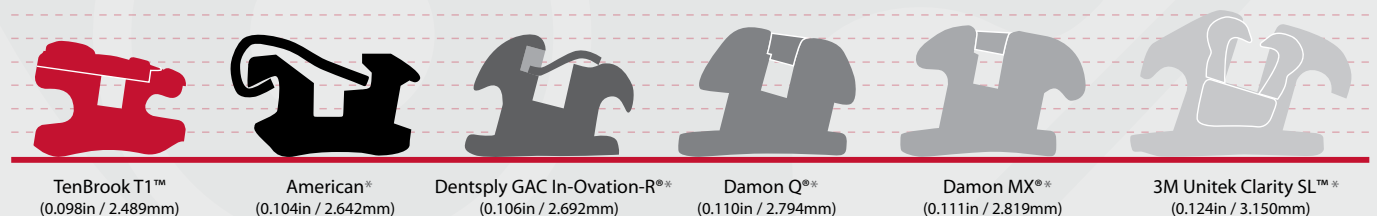
Unique and easy to use. The Tenbrook T1's™ proprietary rotating cap allows for easier archwire engagements by "carrying the wire into the slot" upon archwire engagement. No more "crushing" or scraping the surface of archwires by attempting to close a door, slide or clip. Unique axial design minimizes materia alba and calculus build up around the mechanism. The aids in deflecting material away, not allowing frictional binding of the cap.

## Finishing

### Finishing is a snap!

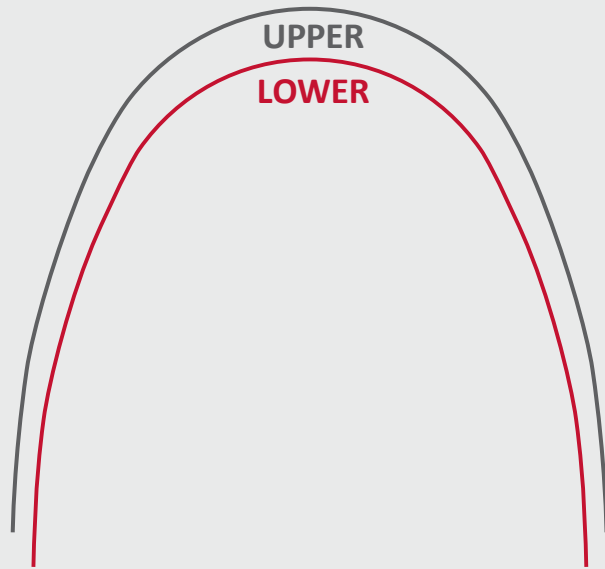
Unique slot dimensions allow for wires to "couple" more effectively, aiding in rotational and torque control. The finishing wires match the T1 slot dimensions (within manufacturing tolerances) almost perfectly, allowing you, the orthodontist, to realize your "true straight wire" prescription. Slot dimensions allow for four-wall contact, making T1 an active bracket for optimum torque control during finishing.

# Self-Ligating Bracket Profile Comparison

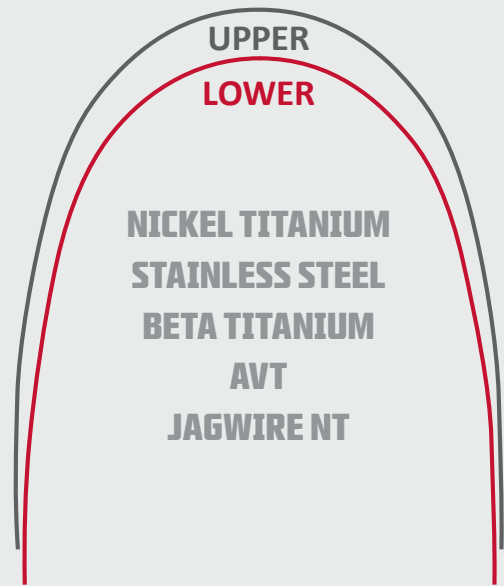


\*American, In-Ovation-R, Damon Q, Damon MX and Clarity SL are the property of their respective owners.

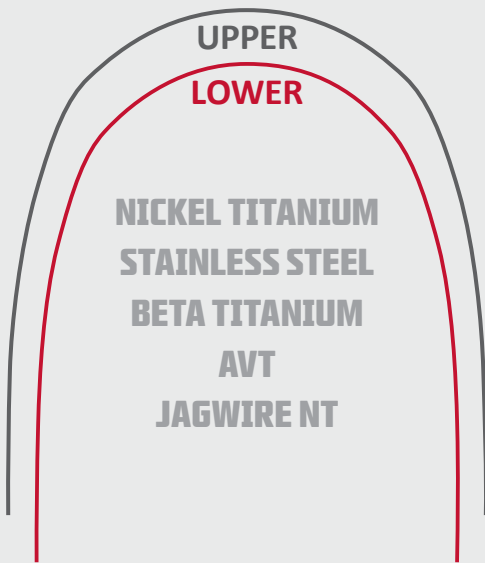
# Archwire Comparison



**TENBROOK ARCH FORM**

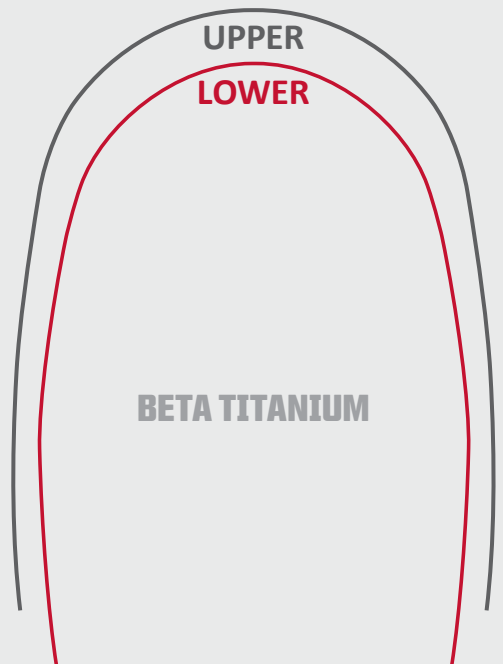


**INTERNATIONAL FORM**

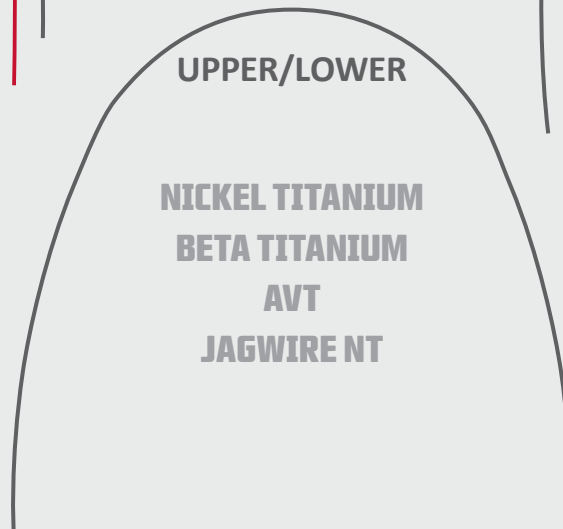


**NATURAL FORM**

Diagrams represent typical arch shapes. Actual sizes may vary slightly due to printing tolerances.



**NATURAL FORM LONG**



**UNIVERSAL FORM**

# TenBrook Technique Archwire Sequence

## Stage 1


Alignment Phase

	Treatment	.018 & .022 Bracket Slot	Working Force (gms)	Treatment Time (months)	Archwire	TenBrook Shape Upper	TenBrook Shape Lower
Both 	Severe Crowding	.013	30	2	Premium Thermal	61.41.110.00013	61.41.210.00013
Both 	Severe Crowding	.014	50	2	Premium Thermal	61.41.110.00014	61.41.210.00014
Both 	Moderate Crowding	.012 × .016	55-70	2	Premium Thermal	61.41.110.01216	61.41.210.01216
	Mild Crowding	.014 × .016	75-90	2	Premium Thermal	61.41.110.01416	61.41.210.01416
Both 	Alignment	.016 × .016	100	2	Premium Thermal	61.41.110.01616	61.41.210.01616
	Alignment	.018 × .018	140	2	Premium Thermal	61.41.110.01818	61.41.210.01818

Light rectangular wires; allowing for unique directional forces, optimizing fast and efficient tooth alignment with minimal friction.

## Stage 2








Working Phase

	Treatment	.018 Bracket Slot	Working Force (gms)	Treatment Time (months)	Archwire	TenBrook Shape Upper	TenBrook Shape Lower
.018 	Space Closure, Bite Opening, Overjet Reduction	.016	75-100	2 to 6	Premium Working	61.41.140.00016	61.41.240.00016
		.022 Bracket Slot					
.022 	Space Closure, Bite Opening, Overjet Reduction	.018	75-100	2 to 6	Premium Working	61.41.140.18000	61.41.240.18000

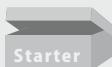
Tensile stiff round wires allow for long activations with the least amount of friction in sliding mechanics.

## Stage 3

Finishing Phase

	Treatment	.018 Bracket Slot	Working Force (gms)	Treatment Time (months)	Archwire	TenBrook Shape Upper	TenBrook Shape Lower
.018 	Second Molars, Detailing	.016 × .022	70	2	Ultra-Soft Thermal	61.41.120.01622	61.41.220.01622
	Detailing, Finishing	.016 × .022	130	3	Premium Thermal	61.41.110.16220	61.41.210.16220
	Finishing	.016 × .022	235	3	Premium Elastic	61.41.130.01622	61.41.230.01622
.018 	Second Molars, Detailing	.017 × .022	80	2	Ultra-Soft Thermal	61.41.120.01722	61.41.220.01722
	Detailing, Finishing	.017 × .022	175	3	Premium Thermal	61.41.110.17220	61.41.210.17220
.018 	Finishing	.017 × .022	270	3	Premium Elastic	61.41.130.01722	61.41.230.01722
		<b>.022 Bracket Slot</b>					
.022 	Second Molars, Detailing	.016 × .025	125	2	Ultra-Soft Thermal	61.41.120.01625	61.41.220.01625
	Detailing, Finishing	.016 × .025	200	3	Premium Thermal	61.41.110.16250	61.41.210.16250
	Finishing	.016 × .025	310	3	Premium Elastic	61.41.130.01625	61.41.230.01625
.022 	Second Molars, Detailing	.019 × .025	150	2	Ultra-Soft Thermal	61.41.120.19025	61.41.220.19025
	Detailing, Finishing	.019 × .025	290	3	Premium Thermal	61.41.110.01925	61.41.210.01925
.022 	Finishing	.019 × .025	485	3	Premium Elastic	61.41.130.01925	61.41.230.01925
.022 	Second Molars, Details	.021 × .025	175	2	Ultra-Soft Thermal	61.41.120.21025	61.41.220.21025
	Detailing, Finishing	.021 × .025	355	3	Premium Thermal	61.41.110.02125	61.41.210.02125
	Finishing	.021 × .025	565	3	Premium Elastic	61.41.130.02125	61.41.230.02125

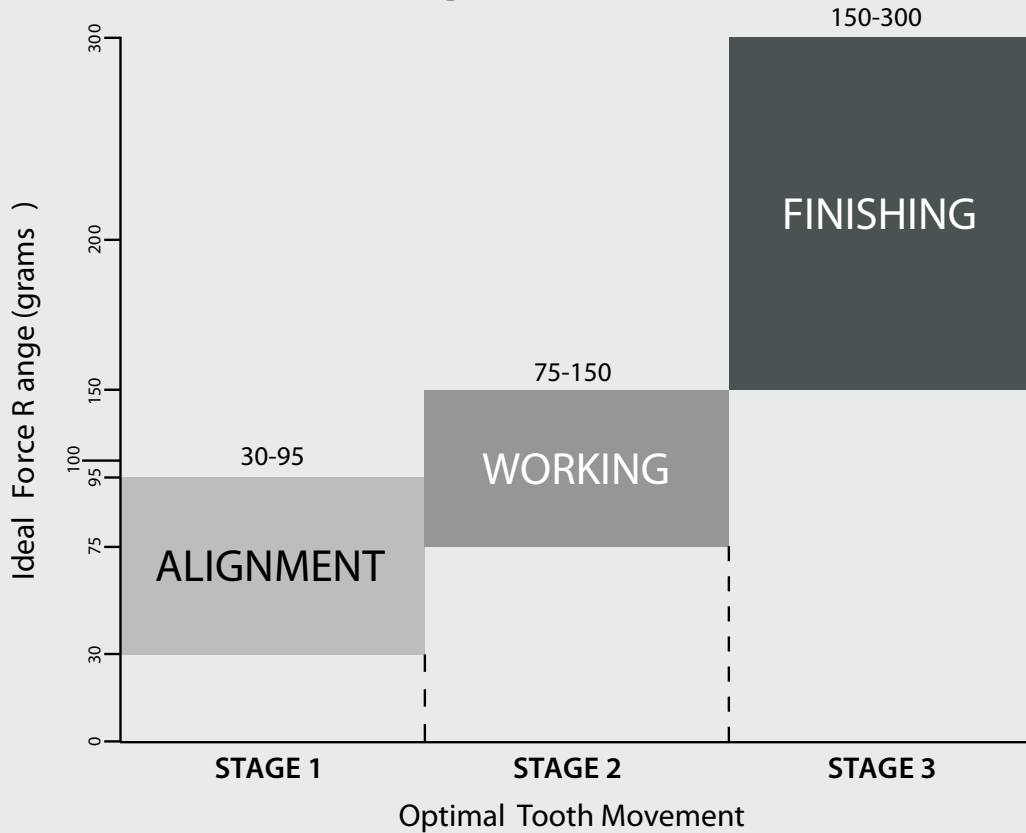
Unique wire-slot interaction allows you to finish without a struggle due to the "mating" slot-wire dimensions.



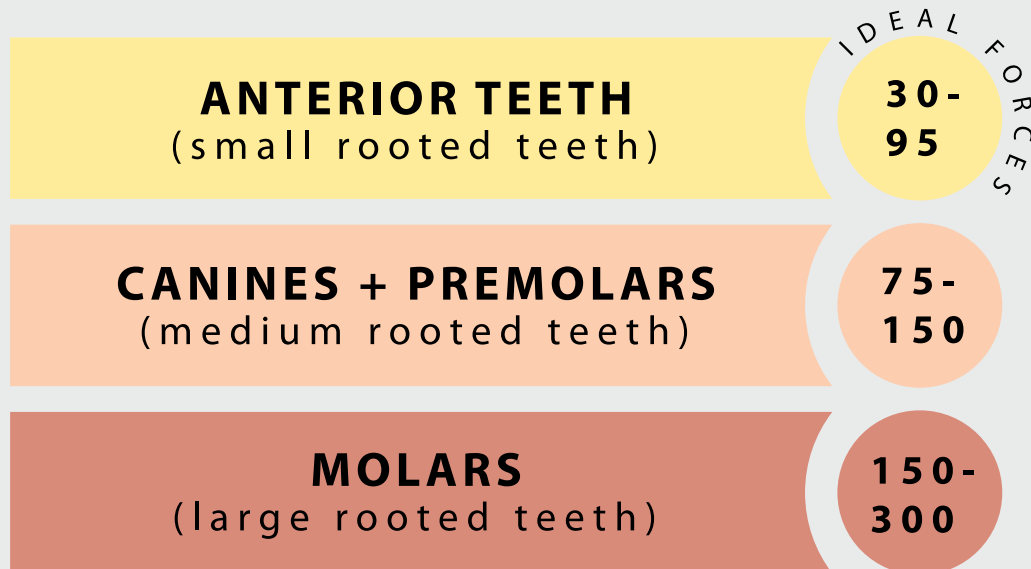
= Included in Starter Kit

# Ideal Forces

## Force Ranges Across Treatment



## Ideal Forces by Tooth Type

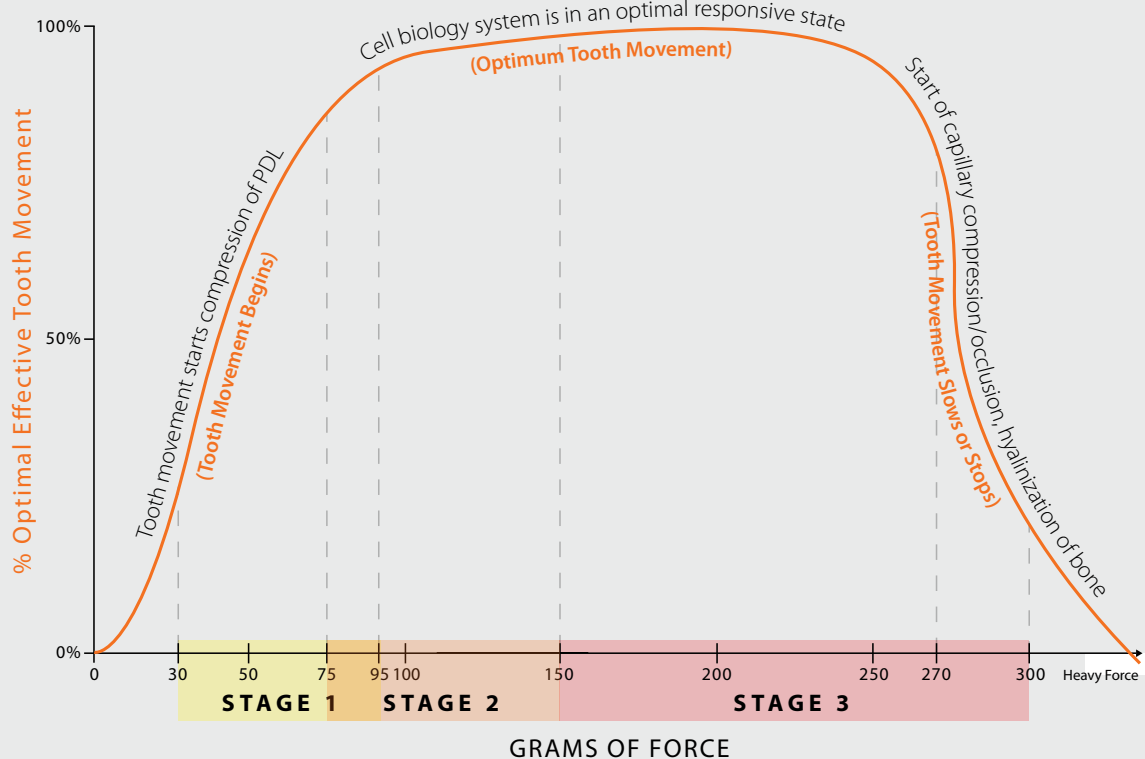


# TenBrook T1 Treatment Stages

## Treatment Stage Details

STAGE 1	STAGE 2	STAGE 3
Loose, Flowing	Controlled, Trolley	Binding Friction
SL	Begg	Edgewise
1 Point Control	2 Point Control	3 Point Control
30 - 95 grams	75 - 150 grams	150 - 300 grams

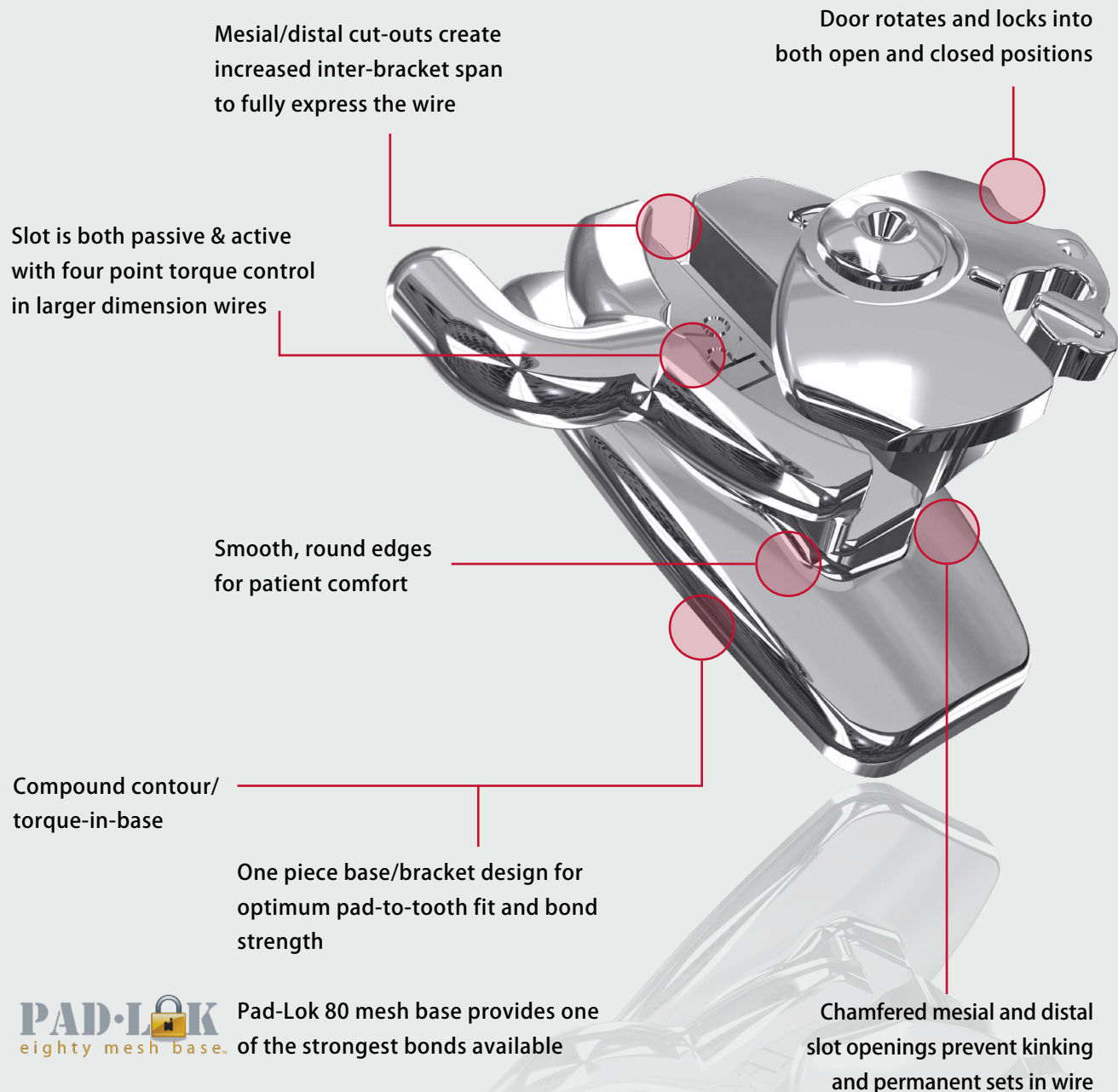
## Biozones Across Treatment



# TenBrook T1™ Buccal Tubes

CAN BE USED WITH SELF-LIGATION OR STANDARD MINI-TWINS

CAN BE DIRECT BONDED OR PRE-WELDED



Pad-Lok 80 mesh base provides one of the strongest bonds available





# OC Lab

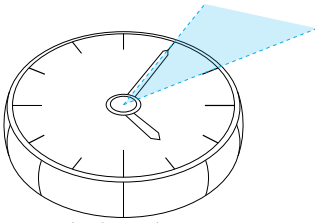
## INDIRECT BONDING

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### Exceptional Accuracy

Accurate positioning is simplified and perfected through indirect bonding. The ability to recognize every angle and rotation for bracket placement up close provides unparalleled precision on every tooth.

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Average Standard Bonding: 15-20 min  
Average Indirect Bonding: 5 min

### Reduced Chair-Time

Reducing chair-time for your patients without sacrificing accuracy saves time and money. Indirect bonding allows you to increase your efficiency while increasing the quality of your practice and patient population.

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# TenBrook T1 Starter Kit

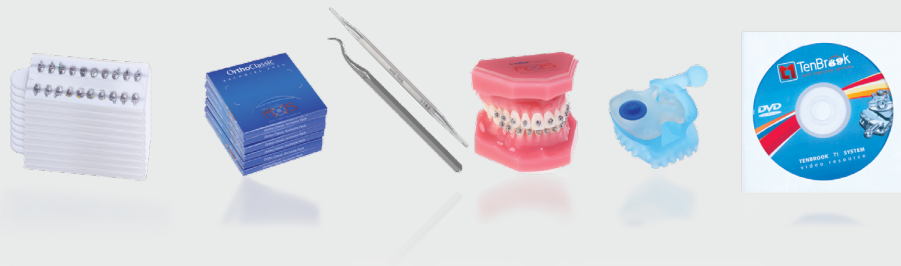


# Kit Starter



The TenBrook T1™ Starter Kit is the perfect way to become introduced to the system. Choose between 5 or 10 case kits. Each kit includes: T1 brackets, archwire, T1 Classic Trident Tool™, T1 Director Tool™, typodont, 15x model, educational DVD and brochure.

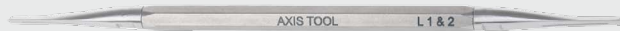
Bracket Size	Hooks	10 Case Kit	5 Case Kit
.018	3's, 4's, 5's	20.10.222.00200	20.10.221.00203
.018	3's only	20.10.212.00201	20.10.211.00204
.022	3's, 4's, 5's	20.10.122.00100	20.10.121.00103
.022	3's only	20.10.112.00101	20.10.111.00104



# TenBrook T1 Tools

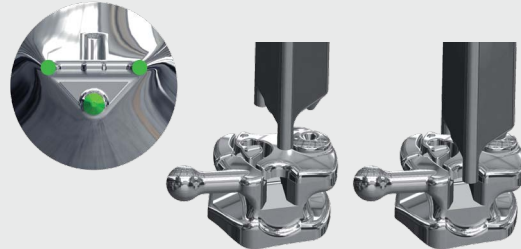
## TenBrook **Classic Trident Tool**

The original T1 tool has been designed to work perfectly with the T1 system. The double-sided tool has 3 engagement points that naturally align with the T1 and easily open the axial door with a simple rotation.



#60.10.806.00900

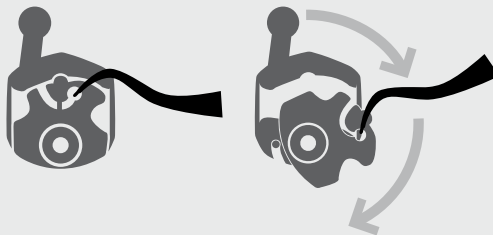
Tip of Classic Trident Tool with Highlighted Engagement Points



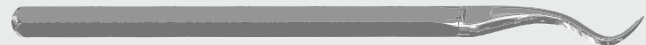
Classic Trident Tool Engagement Technique

## TenBrook **Director Tool**

Use tip of tool inside slot to rotate cap

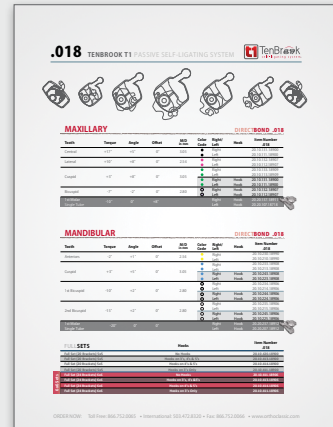
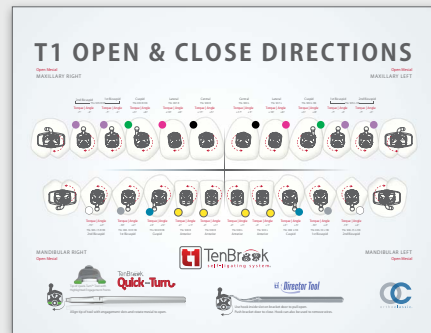


The TenBrook T1™ Director Tool is the perfect alternative to the Classic Trident Tool. Inspired by the director, this tool provides swift accuracy in opening the bracket doors for the TenBrook T1 brackets. It also helps direct the wires for removal and placement.



#60.10.806.00901

# TenBrook T1 Reference Guides



For your convenience we have included two reference guides to help remind you how to correctly use the TenBrook T1™ System. The open and close directions show bracket placement, colors, and direction of rotating bracket doors as well as torque, angle, and instructions for each TenBrook T1™ tool.

The product guide gives you a reference for future orders with order numbers for every bracket and set of brackets. Make sure to keep these guides handy for as long as you need to reference them.

Just tear along the perforation to remove each reference guide.



# T1 OPEN & CLOSE DIRECTIONS

Open Mesial

MAXILLARY RIGHT

Open Mesial

MAXILLARY LEFT



MANDIBULAR LEFT  
Open Mesial

MANDIBULAR RIGHT  
Open Mesial

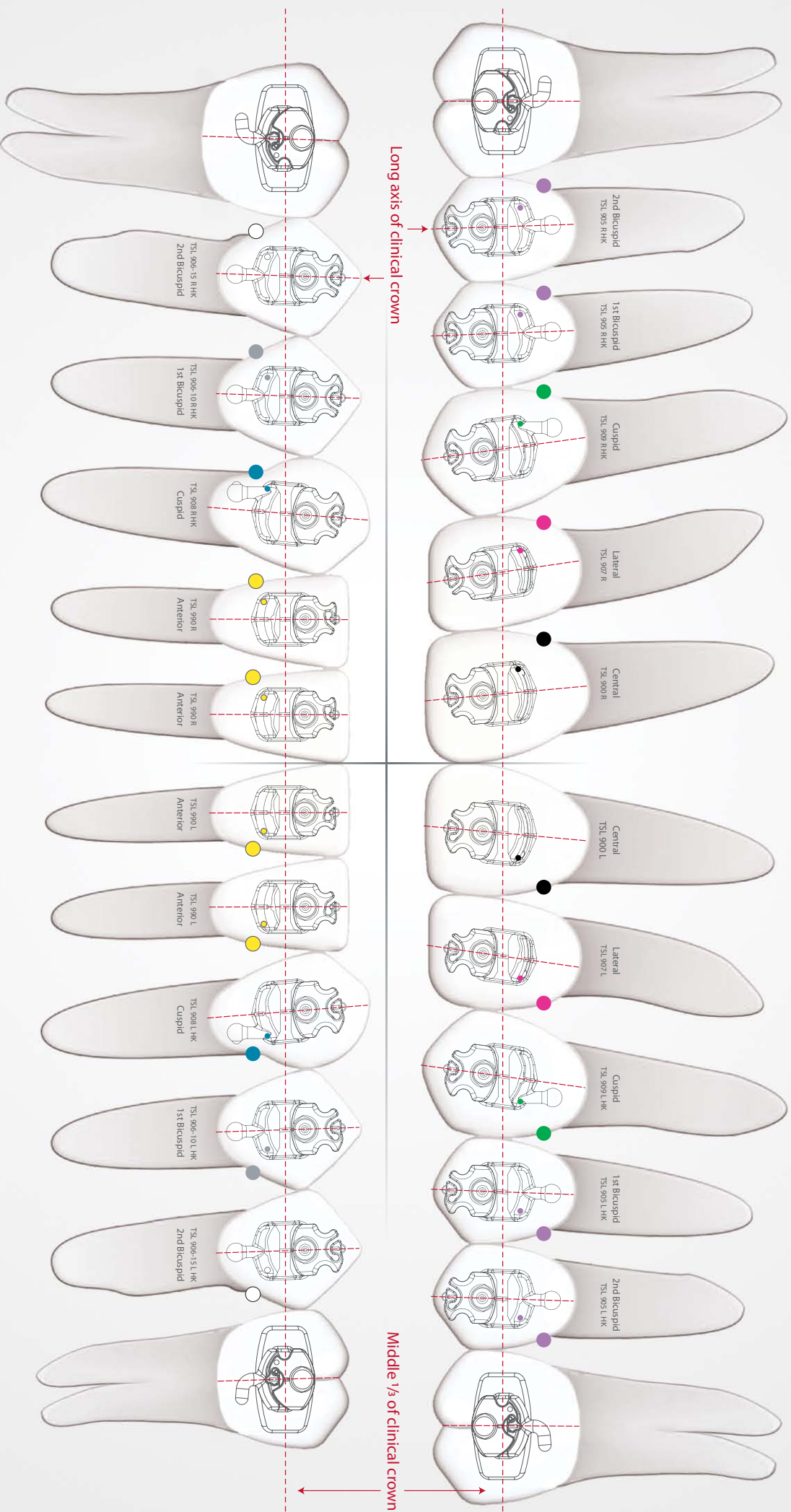


Use hook inside slot on bracket door to pull open.  
Push bracket door to close. Hook can also be used to remove wires.

# T1 BRACKET PLACEMENT CHART

MAXILLARY RIGHT

MAXILLARY LEFT

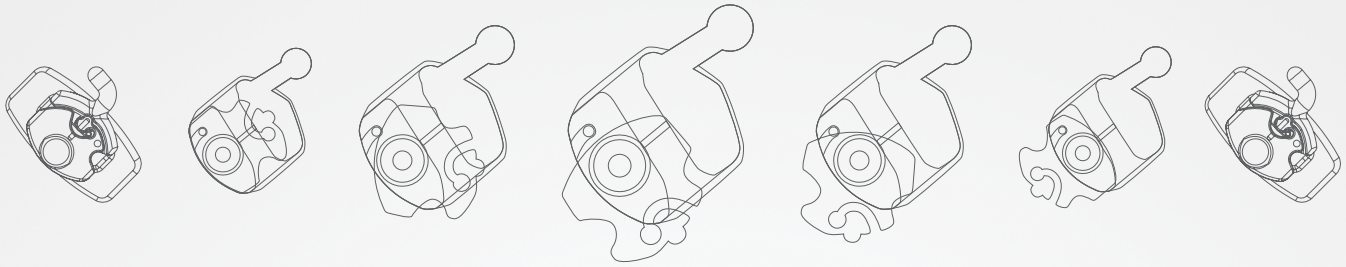


MANDIBULAR RIGHT

MANDIBULAR LEFT



# .018 TENBROOK T1 PASSIVE SELF-LIGATING SYSTEM



## MAXILLARY

## DIRECTBOND .018

Tooth	Torque	Angle	Offset	M/D in mm	Color Code	Right/Left	Hook	Item Number .018
Central	+17°	+5°	0°	3.05	●	Right		20.10.131.18900
						Left		20.10.111.18900
Lateral	+10°	+8°	0°	2.54	●	Right		20.10.132.18907
						Left		20.10.112.18907
Cuspid	+3°	+8°	0°	3.05	●	Right		20.10.133.18909
						Left		20.10.113.18909
Bicuspid	-7°	-2°	0°	2.80	○	Right	Hook	20.10.131.18900
						Left	Hook	20.10.111.18900
1st Molar Single Tube	-10°	0°	+8°		○	Right	Hook	20.10.132.18907
						Left	Hook	20.10.112.18907
						Right	Hook	20.20.137.18911
						Left	Hook	20.20.107.18718



## MANDIBULAR

## DIRECTBOND .018

Tooth	Torque	Angle	Offset	M/D in mm	Color Code	Right/Left	Hook	Item Number .018
Anteriors	-2°	+1°	0°	2.54	●	Right		20.10.230.18990
						Left		20.10.210.18990
Cuspid	+3°	+5°	0°	3.05	●	Right		20.10.233.18908
						Left		20.10.213.18908
1st Bicuspid	-10°	+2°	0°	2.80	○	Right	Hook	20.10.243.18908
						Left	Hook	20.10.223.18908
					○	Right		20.10.234.18906
						Left		20.10.214.18906
					○	Right	Hook	20.10.244.18906
						Left	Hook	20.10.224.18906
2nd Bicuspid	-15°	+2°	0°	2.80	○	Right		20.10.235.18906
						Left		20.10.215.18906
1st Molar Single Tube	-20°	0°	0°		○	Right	Hook	20.10.245.18906
						Left	Hook	20.10.225.18906
						Right	Hook	20.20.237.18912
						Left	Hook	20.20.207.18912



## FULLSETS

### Hooks

### Item Number .018

6x6 Sets	Full Set (20 Brackets) 5x5	No Hooks	20.10.420.18900
	Full Set (20 Brackets) 5x5	Hooks on 3's, 4's & 5's	20.10.413.18900
	Full Set (20 Brackets) 5x5	Hooks on 4's & 5's	20.10.414.18900
	Full Set (20 Brackets) 5x5	Hooks on 3's Only	20.10.411.18900
	Full Set (24 Brackets) 6x6	No Hooks	20.10.411.18906
	Full Set (24 Brackets) 6x6	Hooks on 3's, 4's & 5's	20.10.413.18906
	Full Set (24 Brackets) 6x6	Hooks on 4's & 5's	20.10.414.18906
	Full Set (24 Brackets) 6x6	Hooks on 3's Only	20.10.411.18906



## BRACKET I.D. CHART



Note: All axial doors open mesial.

### MAXILLARY

### DIRECTBOND .022

Tooth	Torque	Angle	Offset	M/D in mm	Color Code	Right/Left	Hook	Item Number .022
Central	+17°	+5°	0°	3.05	●	Right		20.10.131.22900
					●	Left		20.10.111.22900
Lateral	+10°	+8°	0°	2.54	●	Right		20.10.132.22907
					●	Left		20.10.112.22907
Cuspid	+3°	+8°	0°	3.05	●	Right		20.10.133.22909
					●	Left		20.10.113.22909
					●	Right	Hook	20.10.131.22900
					●	Left	Hook	20.10.111.22900
Bicuspid	-7°	-2°	0°	2.80	○	Right	Hook	20.10.132.22907
					○	Left	Hook	20.10.112.22907
1st Molar	-10°	0°	+8°			Right		20.20.137.22911
Single Tube						Left		20.20.107.22911



### MANDIBULAR

### DIRECTBOND .022

Tooth	Torque	Angle	Offset	M/D in mm	Color Code	Right/Left	Hook	Item Number .022
Anteriors	-2°	+1°	0°	2.54	●	Right		20.10.230.22990
					●	Left		20.10.210.22990
Cuspid	+3°	+5°	0°	3.05	●	Right		20.10.233.22908
					●	Left		20.10.213.22908
					●	Right	Hook	20.10.243.22908
					●	Left	Hook	20.10.223.22908
1st Bicuspid	-10°	+2°	0°	2.80	○	Right		20.10.234.22906
					○	Left		20.10.214.22906
					○	Right	Hook	20.10.244.22906
					○	Left	Hook	20.10.224.22906
2nd Bicuspid	-15°	+2°	0°	2.80	○	Right		20.10.235.22906
					○	Left		20.10.215.22906
					○	Right	Hook	20.10.245.22906
					○	Left	Hook	20.10.225.22906
1st Molar	-20°	0°	0°			Right		20.20.237.22912
Single Tube						Left		20.20.207.22912



### FULLSETS

	Hooks	Item Number .022	
Full Set (20 Brackets) 5x5	No Hooks	20.10.420.22900	
Full Set (20 Brackets) 5x5	Hooks on 3's, 4's & 5's	20.10.413.22900	
Full Set (20 Brackets) 5x5	Hooks on 4's & 5's	20.10.414.22900	
Full Set (20 Brackets) 5x5	Hooks on 3's Only	20.10.411.22900	
6x6 Sets	Full Set (24 Brackets) 6x6	No Hooks	20.10.411.22906
	Full Set (24 Brackets) 6x6	Hooks on 3's, 4's & 5's	20.10.413.22906
	Full Set (24 Brackets) 6x6	Hooks on 4's & 5's	20.10.414.22906
	Full Set (24 Brackets) 6x6	Hooks on 3's Only	20.10.411.22906
	Full Set (24 Brackets) 6x6	Hooks on 3's Only	20.10.411.22906



# TenBrook T1 Case Study—Patient: D.C.



**Class 3 Malocclusion**  
Bilateral Posterior Crossbite  
Anterior Crossbite  
Severe Maxillary Crowding  
3mm Open Bite  
Class 3 Skeletal Pattern  
Skeletal Maxillary Constriction  
Vertical Maxillary Excess  
**T1 Treatment:**  
Non-Extraction, 14 Months



## Initial Bonding

**Wire:** 12×16 TenBrook T1™ Premium Thermal NiTi



**9/15/08**



## Stage 1

**Wire:** 12×16 TenBrook T1™ Premium Thermal NiTi



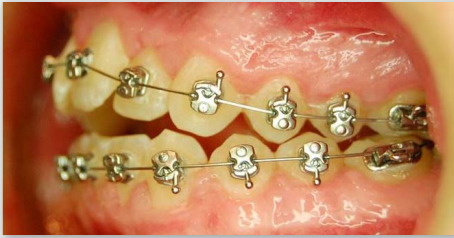
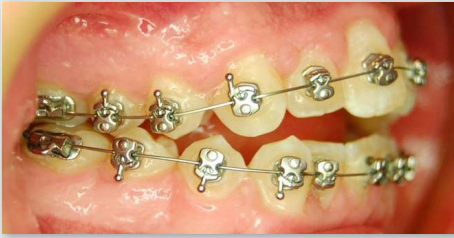
**11/13/08**  
(2 Months)



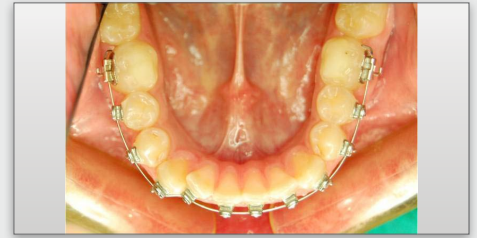
# TenBrook T1 Case Study—Patient: D.C.

## Stage 1

Wire Upper: 12×16 Premium Thermal NiTi Wire Lower: .014 Premium Thermal NiTi



**12/20/08**  
(3 Months)

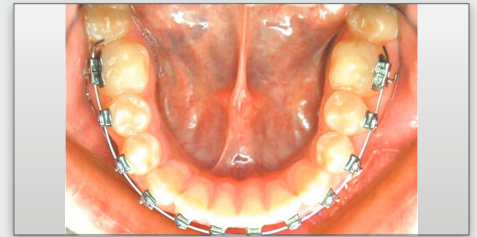


## Stage 1

Wire: 16×16 TenBrook T1™ Premium Thermal NiTi



**2/25/09**  
(5 Months)



## Stage 3

Bands: 7's, Wire: 16×22 TenBrook T1™ Soft Premium Thermal NiTi

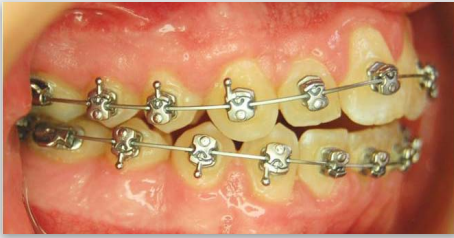


**3/27/09**  
(6 Months)

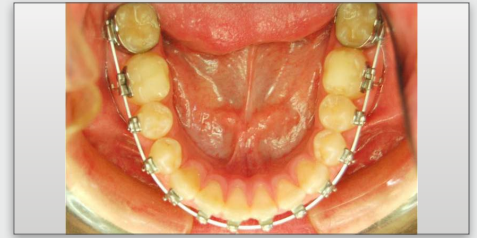


### Stage 3

Wire: Bands on 7's, 16×22 TenBrook T1™ Soft NiTi



**5/18/09**  
(8 Months)

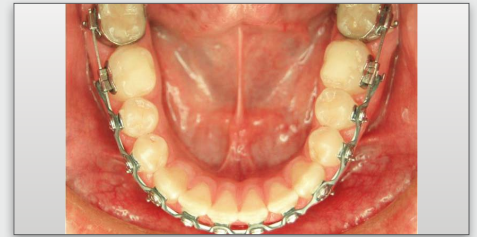


### Stage 3

Wire: Pan-Repo Detail 17×22 TenBrook T1™ NiTi



**6/17/09**  
(9 Months)

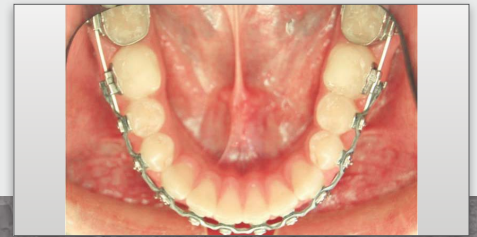


### Stage 3

Wire: Detail 16×22 TenBrook T1™ Stainless Steel



**7/22/09**  
(10 Months)

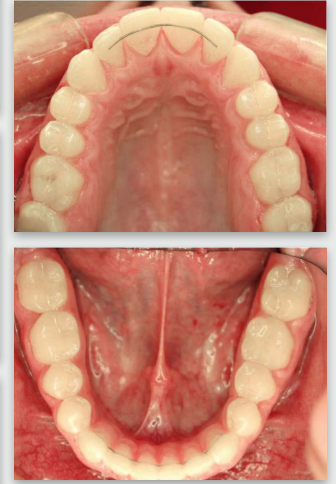
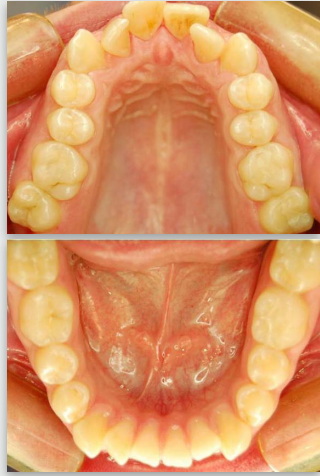


# Patient: D.C. Results

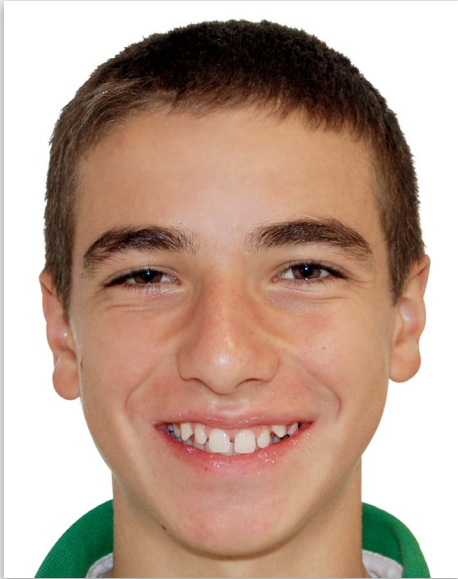
**Starting Records**  
Prior to Treatment

## 9/15/08 - 11/6/09

**Final Records**  
Treatment Complete  
(14 Months)



# TenBrook T1 Case Study—Patient: V.K.



## Class 1 Malocclusion

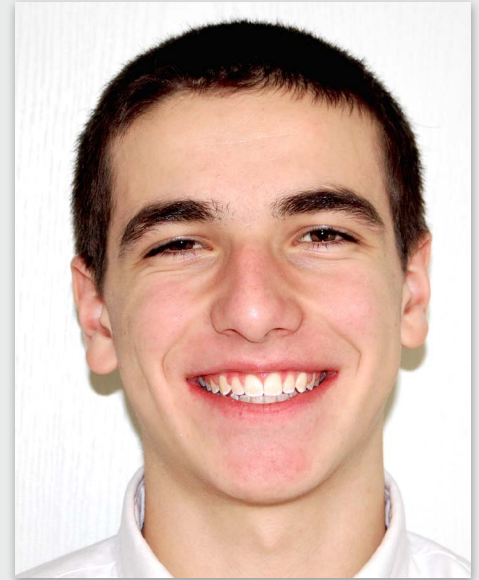
Moderate Maxillary and  
Mandibular Spacing

Deep Overbite

Labial Ectopic Maxillary Left Canine

## T1 Treatment:

Non-Extraction, 17 Months



## Starting Records

Prior to Treatment

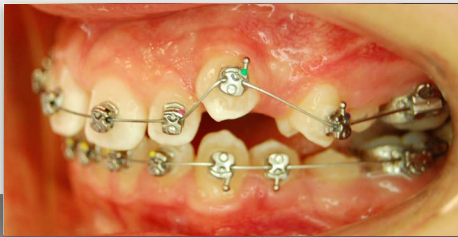
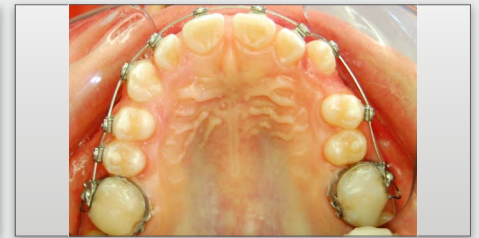
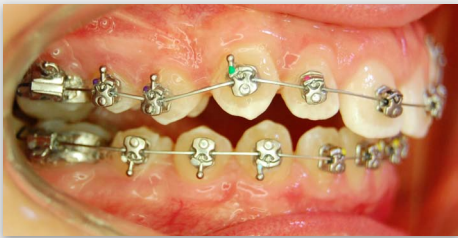


10/15/08

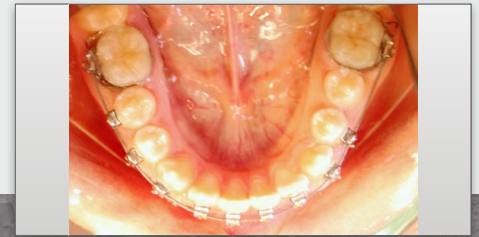


## Initial Bonding - Stage 1

Wire: 12×16 TenBrook T1™ Premium Thermal NiTi



10/15/08



# TenBrook T1 Case Study—Patient: V.K.

## Stage 2

Wire: .016 TenBrook T1™ Delivery Working Wires

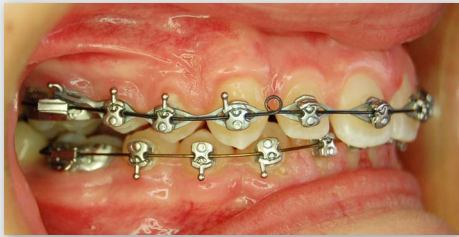


**2/25/09**  
(4 Months)

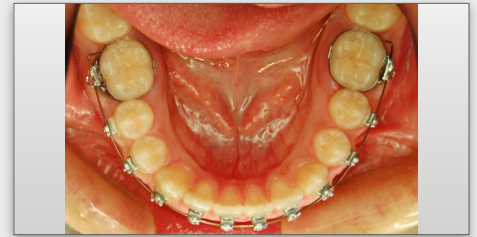


## Stage 2

Wire: .016 TenBrook T1™ Delivery Working Wires

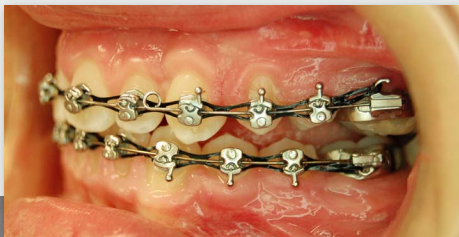


**3/27/09**  
(5 Months)



## Stage 2

Wire: .016 Delivery TenBrook T1™ Working Wires

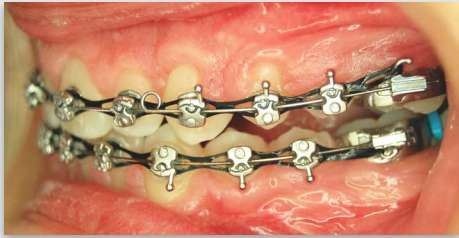


**5/22/09**  
(7 Months)



### Stage 3

Wire: 16×22 TenBrook T1™ Premium Thermal NiTi

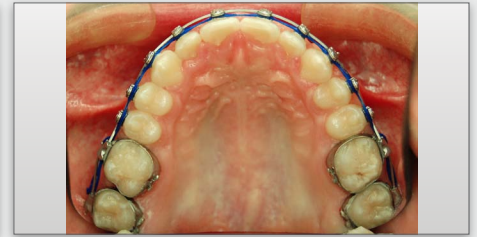
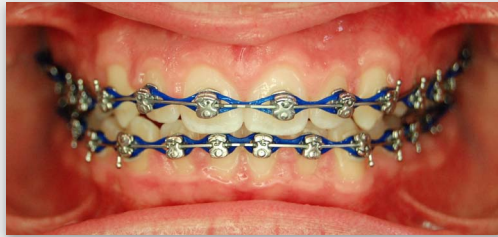


**6/17/09**  
(8 Months)

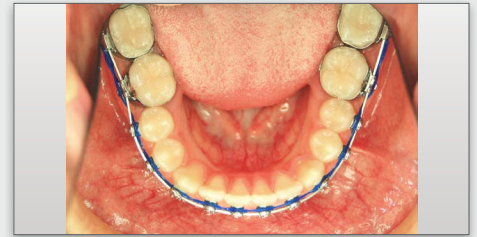


### Stage 3

Wire: 16×22 TenBrook T1™ Stainless Steel

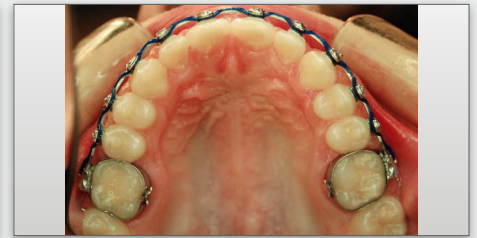


**12/28/09**  
(14 Months)



### Stage 3

Wire: 16×22 TenBrook T1™ Stainless Steel



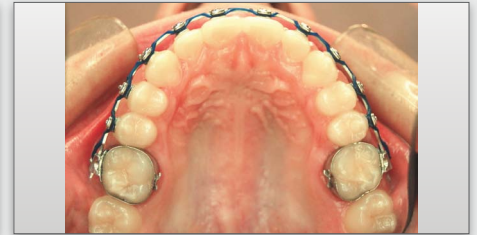
**1/20/10**  
(15 Months)



# Patient: V.K. Results

## Evaluation Debond

Wire: To Be Removed



**3/1/10**  
(17 Months)



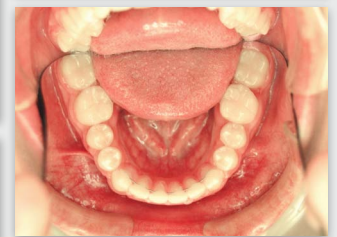
## Starting Records

Prior to Treatment

**10/15/08 - 3/1/10**

## Final Records

Treatment Complete  
(17 Months)





# TenBrook T1 Case Study—Patient: A.K.



Class 2, Division 1 Malocclusion

Maxillary and Mandibular Crowding

Dental Arch Protrusion

Moderately Deep Overbite

T1 Treatment:

Non-Extraction, 17 Months



## Starting Records

Prior to Treatment



11/3/08



## Initial Bonding - Stage 1

Wire: .014 TenBrook T1™ Premium Thermal NiTi



11/3/08



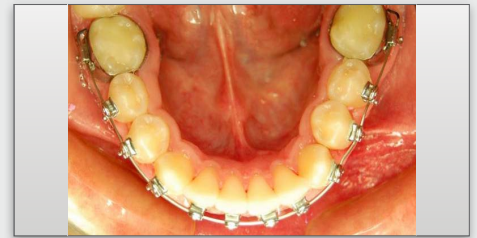
# TenBrook T1 Case Study—Patient: A.K.

## Stage 1

Wire: 16×16 TenBrook T1™ Premium Thermal NiTi



**2/25/09**  
(3 Months)



## Stage 2

Wire: .016 TenBrook T1™ Working Wires



**3/27/09**  
(4 Months)

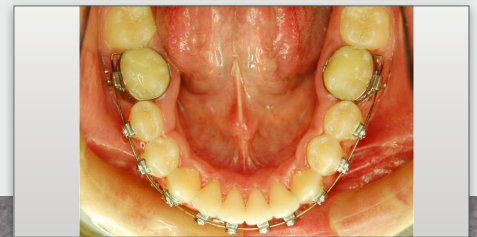


## Stage 2

Wire: .016 TenBrook T1™ Working Wires

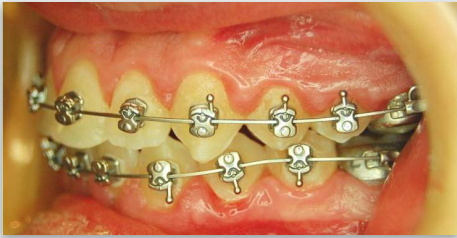
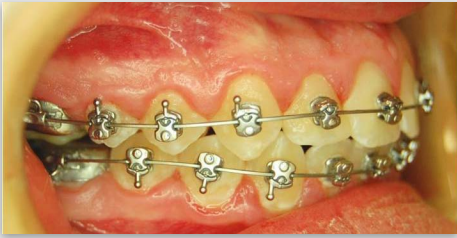


**4/22/09**  
(5 Months)

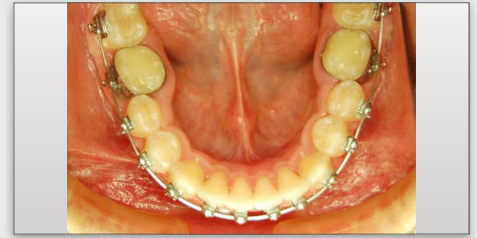


### Stage 3

Wire: 16×22 TenBrook T1™ Medium Thermal NiTi

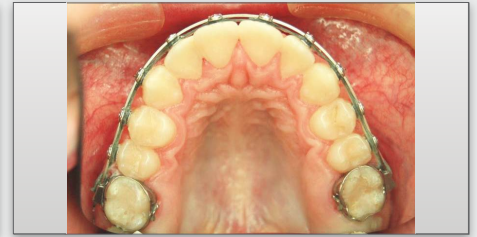


**5/22/09**  
(6 Months)

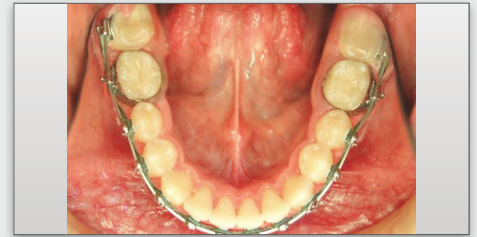


### Stage 3

Wire: 17×22 TenBrook T1™ Super Elastic NiTi



**8/19/09**  
(9 Months)

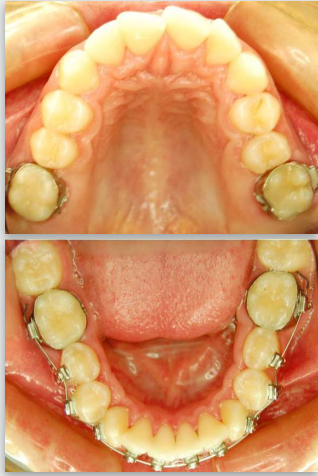


# Patient: A.K. Results

**Starting Records**  
Prior to Treatment

## 11/3/08 - 8/24/10

**Final Records**  
Treatment Complete  
(9 Months)



# TenBrook T1 Case Study—Patient: R.S.



Class 2, Division 1 Malocclusion

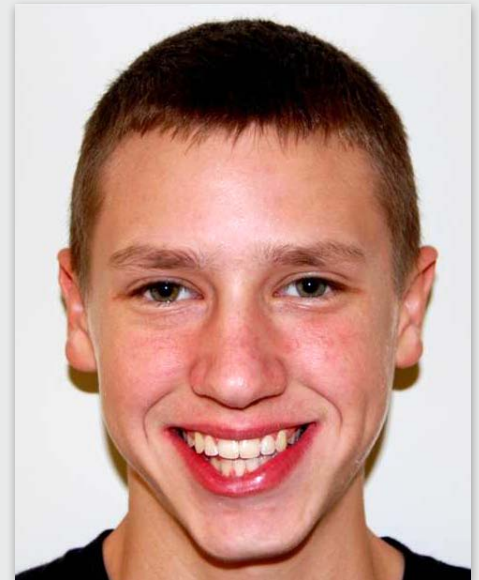
Ectopic Maxillary and  
Mandibular Canines

Moderate to Severe Maxillary and  
Mandibular Crowding

Anterior Crossbite and Maxillary Left  
Lateral Incisor

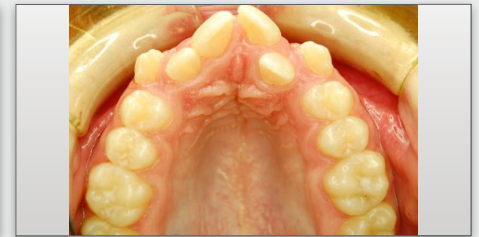
**T1 Treatment:**

Non-Extraction, 15 Months



## Starting Records

Prior to Treatment



**8/15/08**

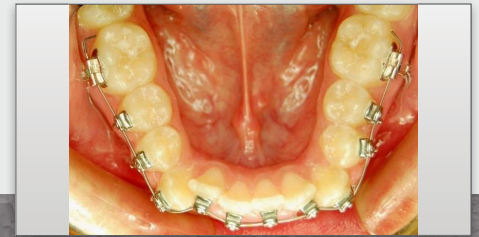


## Initial Bonding - Stage 1

**Wire:** .014 TenBrook T1™ Premium Thermal NiTi



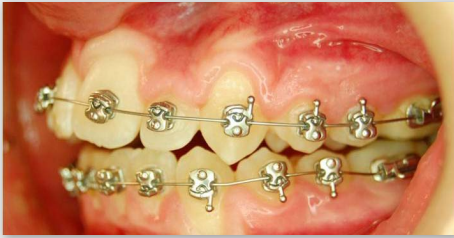
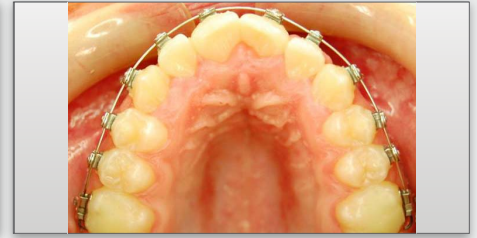
**8/15/08**



# TenBrook T1 Case Study—Patient: R.S.

## Stage 1

Wire: .014 TenBrook T1™ Premium Thermal NiTi

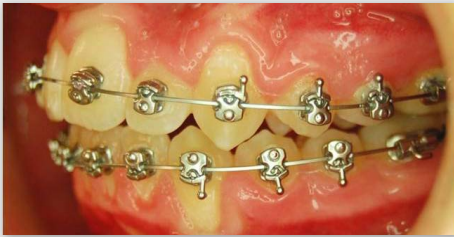


**11/19/08**  
(3 Months)



## Stage 2

Wire: 16×16 TenBrook T1™ Premium Thermal NiTi Delivery

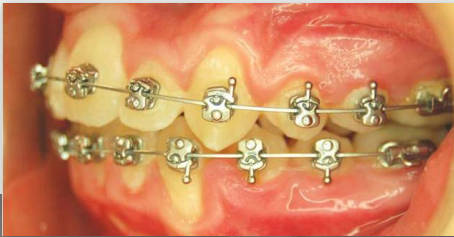


**1/21/09**  
(5 Months)

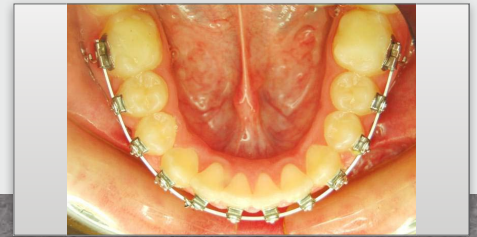


## Stage 2

Wire: 16×22 TenBrook T1™ Premium Thermal NiTi Delivery



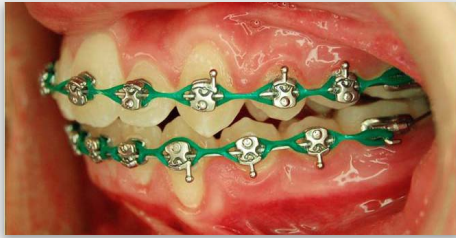
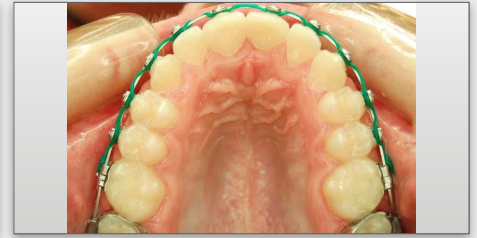
**3/19/09**  
(7 Months)



# Patient: R.S. Results

## Stage 3

Wire: 16×22 TenBrook T1™ Premium Thermal NiTi Band: 7's



**6/25/09**  
(10 Months)



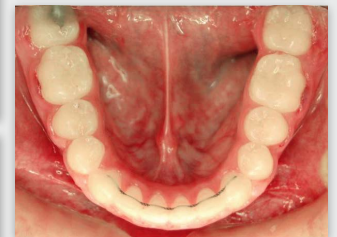
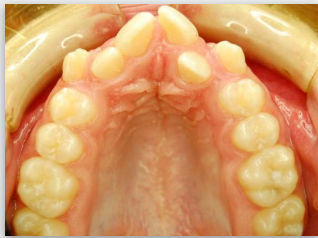
## Starting Records

Prior to Treatment

**8/15/08 - 12/3/09**

## Final Records

Treatment Complete  
(16 Months)



# TenBrook T1 Case Study—Patient: K.L.



Class 1 Malocclusion

Severe Maxillary and  
Mandibular Crowding

Anterior Crossbite and Maxillary  
lateral incisors

Mild Class 3 Skeletal Pattern

T1 Treatment:

Extract  $\frac{5|5}{1|1}$  9 Months Progress

## Starting Records

Prior to Treatment

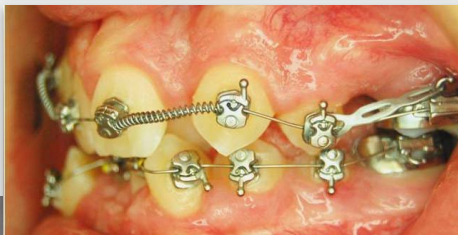


12/16/08



## Initial Bonding - Stage 1

Wire: .013 TenBrook T1™ Thermal NiTi



2/10/09

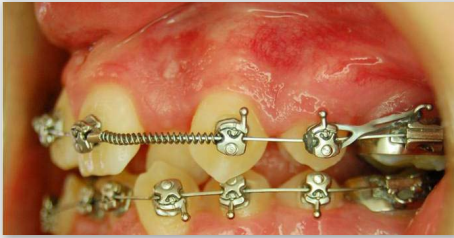
(2 Months Pre-Treatment)





## Progress

Wire: 12×16 TenBrook T1™ Thermal NiTi



**3/17/09**  
(1 Month + 2 Months Pre-Treatment)

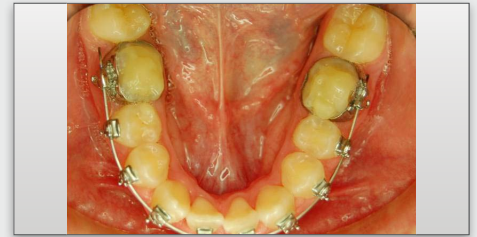


## Progress

Upper Wire: .014 TenBrook T1™ NiTi Lower Wire: 14×16 TenBrook T1™ NiTi



**6/22/09**  
(4 Months + 2 Months Pre-Treatment)

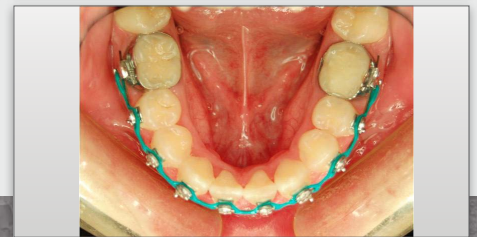


## Progress

Wire: AWS Start Light Class 2 ELS



**11/6/09**  
(9 Months + 2 Months Pre-Treatment)

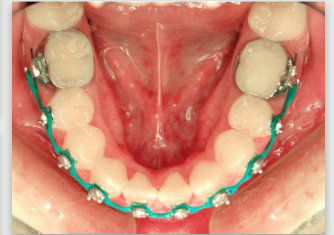
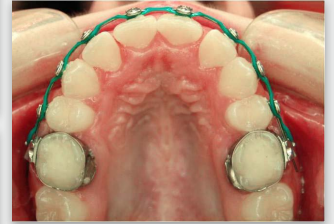


# Patient: K.L. Results

**Starting Records**  
Prior to Treatment

## 12/16/08 - 11/6/09

**Progress Records**  
Treatment Incomplete  
(9 Months)



# ALL ABOUT TENBROOK

Dr. James J. TenBrook received his Bachelor of Arts Degree in Biology from Gettysburg College in Gettysburg, Pennsylvania. He then proceeded to the Medical University of South Carolina in Charleston, where he earned his Doctorate of Dental Medicine degree. Afterwards, Dr. TenBrook trained at Emory University where he performed his internship in Oral and Maxillofacial Surgery. Finally, he went on to Harvard University, where he earned his Masters of Medical Sciences and Orthodontic Degree from the Harvard Medical School and Forsyth Dental Center respectively.



Dr. TenBrook returned to his grassroots in Southern New Jersey, realizing his dream of bringing high quality orthodontic treatment at a reasonable cost. Dr. TenBrook currently owns and operates six offices in Southern New Jersey as well as TenBrook Orthodontics Practice Management Services, which focuses on high efficiency treatment in a private orthodontic practice setting. TenBrook Orthodontics is recognized as one of the finest practices in the United States.

Dr. TenBrook is active in many areas of his orthodontic profession. He has been a guest speaker, both nationally and internationally, from Palm Springs, California to Pretoria, South Africa, where he lectured on treatment efficiencies and practice management solutions. Dr. TenBrook is an active member of the American Dental Association, American Association of Orthodontists, and the Harvard Society for the Advancement of Orthodontics. Dr. TenBrook's most recent accomplishment is the new TenBrook T1 Self-Ligating System. His key role in the design and development of the system and the "TenBrook Technique" arch wire sequencing has created one of the most efficient, easy-to-use, passive self-ligating systems on the market.

# A Conversation with Dr. James TenBrook

## How long have you been practicing?

I started practicing February 1993, so 18 years. In that time I have treated over 14,000 patients.

## Wow, that's a lot of patients! How long have you been involved in Self-Ligation?

I started using the Damon bracket, with my wire sequence, in June of 2002; so I have been involved with self-ligation close to 7 years. I have treated about 7,000 patients with self-ligating brackets, using about 6 different brackets, both passive and active systems.



“ I am a lot more efficient because I use fewer wires to get the same result! ”

## What are the advantages of self-ligating brackets?

Because the teeth move faster, more efficiently, and with relatively no pain; I have more time in my schedule, my assistants are more productive, and most importantly my patients are happy!

## That's great. Tell me what makes the TenBrook T1 so innovative.

The design of the T1 is revolutionary. Radial contours and a low profile make this bracket the most comfortable and easiest to clean around. Also, the cap design and chamfered slot optimize the arch wires performance through “radial flow” and increased inter-bracket distance. The teeth just move very quickly with minimal discomfort.

Lastly, the rotating cap is easy to open and close because it deflects “material alba” and plaque away, so the door never gets stuck closed or never becomes hard to open; like you see with columnar slides and clips. Oh, and I almost forgot the T1 Tool! It holds the T1 cap precisely rotating it around to the open and closed positions. It works better than any tool I have ever used!

## Can you tell me more about hygiene and the T1?

The TenBrook T1 Bracket was designed to follow the basic forms of dental anatomy, thus providing natural “sluice ways” for food and bio-material to move down

and away from the T1. This is hygienic in that it will stay naturally cleaner during eating, and be more accessible to tooth brushing.

## How does the treatment time differ with TenBrook T1 over traditional bracket use?

Treatment times are much less; in most cases half the time of traditional braces, and significantly less than other self-ligating bracket systems I have used. A typical 24 month case with other bracket systems becomes a 12 month case with the TenBrook T1™ System. The patients love it! And for the doctor you are finished with fewer appointments, better appointment control of your schedules, less overhead, and more money in your pocket!

## How is the T1 different from other self-ligating brackets on the market?

The unique design. Most other self-ligating brackets are variations of twin brackets redesigned with a clumsy door or clip. I thought twin brackets and tie wings were for ligature ties! You will find that the TenBrook T1™ bracket was built from the ground up with the patient and doctor in mind. Every design feature was precisely thought out for patient comfort, ease of operator use, and the doctor's treatment efficiency in mind. This is a well thought out bracket for the modern orthodontic practice.

### How important is the archwire selection during treatment?

Arch wire selection is very important if you want optimal treatment results; meaning faster treatment times, fewer appointments, greater patient comfort, and fewer emergencies! That is why I have outlined the TenBrook T1 System of wires for the best results.

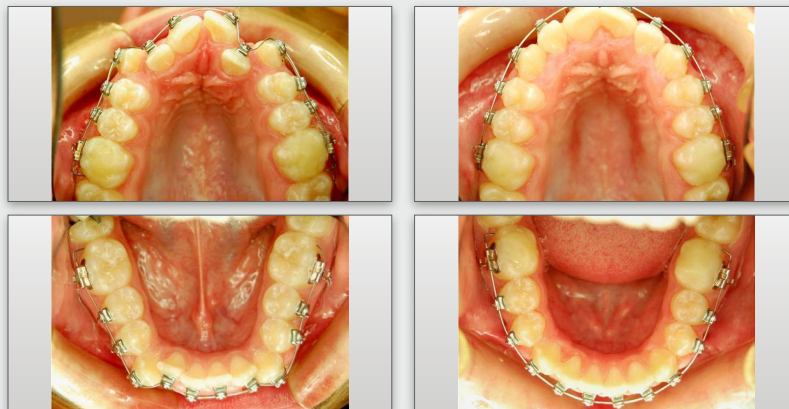
### Can a doctor use his own wire sequence and still have a successful treatment?

The TenBrook T1 System is a synthesis of the better elements of self-ligation, Begg light wire, and Edgewise techniques; and can accomplish more than anyone of them alone. The wire sequences specified are distillations of multiple clinical events that are calibrated to maximize treatment efficiencies. As my clinical professor at Harvard told me, "there are many ways to skin a cat, but there can only be one best way!"

### Why do you use a broader arch form?

A broad arch is esthetic and beautiful, it exudes health and self confidence. A broad arch is the underpinning scaffold of the midface, and enhances upper lip support. A broad arch is functional. It allows for a more natural axial inclination of teeth and a more functional occlusion that is more in harmony with the anatomy and function of the temporomandibular joints.

Initial Bonding



3 Months Progress

### What are the advantages of having a smaller slot dimension?

The advantages of a smaller slot dimension are that I can use smaller wires with less force, and have more control over my teeth throughout the entire treatment. I don't have to "back down" wire sizes during active treatment to pick up mal-positioned teeth, like second molars. I am a lot more efficient because I use fewer wires to get the same result! Also, it is well known in the orthodontic

literature that light continuous forces, with smaller resilient wires, are more conducive to efficient tooth movement because the cell biology system remains in a constant responsive state.

### How do the chamfered slots work with a class two and class three cases?

The chamfered slot design functions to allow "radial flow" of flexible arch wires like Nickel titanium, to align teeth faster. Also, the chamfered slot coupled with light round, resilient wires, enables sliding mechanics to occur with less friction, thus allowing for dental compensations to occur more rapidly and efficiently, like in Class 2 and Class 3 cases.

### How would you solve the issue with inter-bracket distance?

Inter-bracket distance is maximized in the TenBrook T1 Bracket allowing for the greatest ease in archwire engagement, and the most effective bite opening

mechanics. Any further reduction mesio-distally in the T1's design would result in a loss of angular control of individual teeth.

### What is the role of force in orthodontic treatment?

It is critical that the arch wires are calibrated to function in an optimal physiologic zone or "biozone". The wires should deliver optimal force as to not cause capillary occlusion, but to stimulate chemical messengers in such a precise way as to recruit bone remodelers, osteoblasts and osteoclasts, to the site of activation very quickly. At these favorable force values, teeth move at the most rapid rate, with the

# A Conversation with Dr. James TenBrook

least amount of tissue damage and pain. I have found that optimum physiologic tooth movement occurs between 30 and 300 grams of force. The TenBrook T1™ System of wires is designed to perform at this ideal force range.

## What are the force levels in the first phase of treatment?

Ideal force levels in the Stage 1 Alignment Phase are between 50 and 95 grams of force; 30 grams in cases of severe crowding and periodontal bone loss, and recession. All of the Stage 1 Alignment wires in the TenBrook T1™ System are precisely calibrated to function in this “biozone” or optimal physiologic zone.

## How does base retention differ from other self-ligating brackets?

The bracket base design on the TenBrook T1™ Bracket is proprietary. It is a reverse engineered 80 gauge mesh that establishes a tenacious mechanical lock with all flowable resin materials. Microscopically the base has resin flow channels that are of perfect size to allow for viscous resin to flow down and around metallic pillars. These pillars have special retentive features that act as barbs to the cured resin tags, which effectively seal the mechanical lock. It is quite amazing.

## How does rotational control differ from other self-ligating brackets?

Rotational control is well calibrated in the TenBrook T1™ Bracket design. The coupling arm facio-lingually, along with the unique bracket dimensions, allow for almost perfect “mating” of finishing wires.

This almost perfect fit (within manufacturing tolerances) allows for ideal three dimensional controls of individual teeth.

## So is the rotating cap better than the traditional slide?

The rotating cap of the TenBrook T1™ bracket has a number of advantages over the traditional slide or vertically displaced door.

1) The nature of a columnar slide lends to multiple points of friction along a linear tract. These multiple points of friction are susceptible to binding and “build up” of “material alba” and calculus mineral deposits from normal salivary flow. I equate it to a sliding door that over time develops binding friction, and subsequently goes off track. The rotating nature of the cap of the TenBrook T1 bracket displaces and deflects “materia alba” and calculus away from the mechanism, allowing it too freely glide and rotate to its intended open or closed position. This would be analogous to a door knob that turns to open or close a door in your house. Years later it turns without incident.

2) Opening or closing a slide or clip requires a sheering force by nature that is incongruous to bracket retention. The T1 rotating cap is opened and closed with little force, and the tool holds the bracket in place without jeopardizing retention and potentially knocking the T1 off with lateral forces.

3) The rotating cap works harmoniously with the radial contours of the T1, self enveloped, in a protected clockwork channel; thus erroneous displacement of the cap is never a worry as is seen with broken clips and doors.

## How do the cut outs on the rotating cap add to the performance of the bracket?

The cut outs on the rotating cap of the TenBrook T1™ bracket add performance by allowing the flexible wires easier passing engagement from one bracket to another, increasing inter-bracket distance, and enhancing the radial performance of NiTi wires. The cut outs are also the engagement points for the T1 tools.

# Three Stages of Archwire Progression

## Is there a special adhesive that should be used?

No, most bis-GMA resin products that are out there will do just fine, as long as they have good reology (flow) and strength.

## Why do you preach .018 rather than .022?

.018 slot technique is more efficient because you use less wires, lower forces, and have more control because the wire/ slot dimension is minimized. This is an advantage, especially in self-ligation.

## Can a doctor still use .022?

Sure, if that is his or her desire, but I find finishing especially challenging with .022 slot in self-ligation, because in order to finalize your tooth positions by “full slotting” the T1, the wires become increasingly stiff and difficult to use, not to mention the high, potentially detrimental forces they can deliver to the teeth and underlying periodontium.

## Can you explain the three stages of the TenBrook T1 system?

Absolutely, here it is in detail.

# Three Stages of Archwire Progression

## STAGE 1 ALIGNMENT

In Stage 1 Alignment the goal is to align the teeth with optimal physiologic forces and minimal friction. We also need intra-arch disclusion so that the teeth are able to move freely without any interferences, traumatic occlusion, or encumbrances from occluding teeth in the opposing arch. The bracket form and design must accept the flexible Nickel Titanium wires in a radial fashion as it enters and leaves the engaged bracket from mesial to distal. This optimizes the wires performances by allowing the cubic arrangement of the wires molecules to slide by each other uniformly as it changes phases from martensitic to austenitic. This radial displacement of the flexible archwire allows for uniform flow of the wire molecules. This is enhanced by an increased inter-bracket distance (as seen with the cut outs on the cap and chamfered slot design). NiTi wire engagements on 90 degree corners as seen in other bracket designs leads to molecular dislocations leading to permanent deformations of the arch wire past its elastic limit, causing the NiTi wire to lose its force delivery at the point of engagement. When this occurs you will typically see permanent sets or kinks in the NiTi wires.

The TenBrook T1™ Bracket is designed to optimize the NiTi wires performance; therefore the wires are free to recover from martensitic to austenitic, back



to martensitic phases delivering optimal, constant force without wire performance deficiencies. This leads to the fastest and most efficient tooth movement possible in Phase 1 Alignment. Optimal physiologic tooth movement occurs between 30 and 300 grams of force. Ideal alignment phase forces are between 50 and 95 grams of force; 30 grams in cases of severe crowding and periodontal bone loss and recession. The TenBrook T1 System of wires is designed to perform at this ideal force range. All of our wires designated for Stage 1 Alignment are precisely calibrated to function in this “biozone” or optimal physiologic

# Three Stages of Archwire Progression

zone. The wires forces deliver optimal force as to not cause capillary occlusion, but to stimulate chemical messengers in such a precise way as to recruit bone remodelers, osteoclasts and osteo-blasts, to the site of activation very quickly, resulting in extremely fast and efficient tooth movement. The light rectangular wires give you an edge in most cases when differential forces are desired to disengage juxtaposed crowded teeth away from each other, dispersing the teeth to a wider form more quickly, like a flower in bloom. This differential force effect may be our way of relieving interproximal interferences without loss of enamel due to iatrogenic stripping or ARS, as is seen in many other techniques (clear aligners and braces), to relieve crowded or malaligned teeth. The Stage 1 round (.013, .014 and, 016) TenBrook T1™ wires is also a good choice in cases of severe crowding, to optimize your engagement, and start the alignment process. In summary, our goals are 1) to maximize inter-bracket distance, allowing for more wire flexibility from tooth to tooth engagement (sometimes skipping the severely displaced tooth until adjacent teeth move allowing for better access to engagement). 2) Optimize the wires performance by radial flow engagements (T1 bracket design), 3) work within the "biozone" of 50 to 95 grams of force.

## STAGE 2 WORKING

The Stage 2 Working Phase of the TenBrook T1 System is truly a light wire technique phase. At this phase most techniques employ heavy, edgewise style mechanics that are counter to the "true" advantages of self-ligating brackets! Less friction should mean less force, less force means lighter, more physiologic and more efficient wires. Round wires in a rectangular lumen or tube do not cause rotational binding; they are free to spin with negligible friction. Rectangular arch wires however are constantly binding in slots as teeth trolley and move down wires

resulting in a ratcheting effect, as teeth bind and release upon movement, resulting in a binding friction. This binding friction slows tooth movement, causing the orthodontist to use higher force to overcome frictional binding that result. These excessive forces cause pain to the patient and damage tooth roots and investing tissues. This is counter intuitive to the dogma of light physiologic forces that is preached many orthodontists.

Heavy class one force is needed to overcome the binding friction that results from using rectangular arch wires in a rectangular lumen. Also the orthodontist must use larger, stiffer arch wires to maintain wire shape integrity, and arch form, when using such high force levels. Friction is the killer here! We are trying to avoid the negative effects of friction by using a self-ligating bracket technique!

P.R. Begg introduced to the world a light wire technique that has many distinct advantages over edgewise bracket therapy. Begg was a pioneer in the concept of longer appointment intervals, due to longer, consistent activations with tensile round wires. His light, differential force technique allowed for low force applications for tooth movement, resulting in less pain and less harm to tooth roots and investing periodontal tissues. Rapid bite opening and rapid space closure, with minimal friction, and low physiologic forces are hallmarks of this technique. The TenBrook T1™ System takes advantage of these principles and employees light round wire philosophy to working phase mechanics for superior results.

The TenBrook T1 bracket design has superior bite opening advantages over other brackets due to its increased interbracket distance due to the unique cap and chamfered slot design. The nature of the passive self-ligating design allows for the light tensile stiff round wires to slide effortlessly through the bracket slot lumens, efficiently sliding teeth to their final destination with little force. Because



little force is needed to slide teeth, anchorage control of posterior teeth is a non issue. Ideal force for tooth movement in Stage 2 Working mechanics is between 75 and 150 grams of force. The light curves in the wires provide for differential forces that can be quantified in horizontal (class1) and vertical (class2) force vectors. This is very effective for incisor inclination control (torque), intrusion and extrusion mechanics; essentially controlling incisors in all 3 orders of space. (Every mm of effective curve in the wires equates to 7 to 9 grams of force. For example 10mm of curve equals between 70 and 90 grams of force. It takes about 75 grams of force to intrude a maxillary central incisor. Power chain or light elastics deliver roughly 75 grams of class 1 force.)

Please note that force levels above 150 grams will result in tooth movement in posterior anchorage units, resulting in “slipping” of anchorage, even with tip back in the wire. This is why round wire and low force, due to minimal friction allows for rapid space closure, overjet and overbite reduction, with no tax on anchorage; because the force never gets high enough to move posterior molars.

In Summary, the goals of this phase are 1) space closure, 2) overjet and overbite resolution (First molar to first molar) 3) work at the optimal sliding mechanic force levels for round wire of 75 to 150 grams. The Working Phase is a light; flowing phase centered on inter-arch alignment and dental compensations that meet the individual patients skeletal parameters.

## STAGE 3 FINISHING

In Stage 3 Finishing the goal is to take advantage the true binding functionality of the edgewise slot by gaining three dimensional control of the individual tooth units with rectangular wires, and realizing the “built in” straight wire prescription in the customized

brackets slots. The TenBrook T1 bracket prescription is a true hybrid of modern day prescriptions, taking advantage of higher torque values and a wider arch form. In addition, the posterior wall of the bracket slot is “full length” taking advantage of an ideal coupling arm between posterior and anterior bracket walls, for full rotational control.

The TenBrook T1 System Finishing wires are designed with the slot dimension in mind. The wires “mate” with the dimensions of the bracket slots 4 walls, almost exactly (within tolerances); thus effectively the bracket becomes “active” in the final stages of treatment.

The ideal force range for finalizing tooth positions and arch form is between 150 and 300 grams. The Finishing arch wires are calibrated to these physiologic force levels with 3 ranges of malleability or flexibility. Premium Thermal NiTi Light is very soft and pliable; Premium Thermal NiTi Medium has ideal hysteresis and force levels; and Premium NiTi is super elastic and is stiffer with higher force. The 3 grades of wires allows for dimensional control of teeth for varying clinical situations. (For example, picking up inclined second molars, without having to step down to a smaller dimensioned wire for flexibility, thus losing rotational control of anterior incisors.) Premium Thermal NiTi Light wire will allow you the flexibility to engage the second molars without losing dimensional control of other teeth.

In summary, the goals for this final phase of treatment are 1) finalize tooth positions in all three planes of space, 2) finalize arch form for the most esthetic broad smile, 3) finish at ideal force levels of 150 to 300 grams of force to optimize tooth positions, while maintaining our physiologic goals of no pain and no harm to the roots of the teeth and periodontal tissues.

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