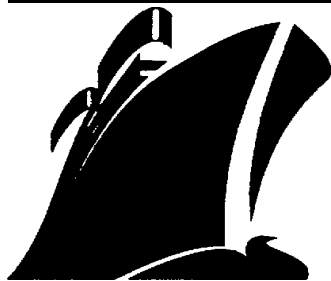


SEMINAR AT SEA —
OVER FIFTY ORTHODONTISTS SAIL THE
CARIBBEAN AND REFRESH WITH TIP-EDGE,
PAGE 4.



SPRING 1997

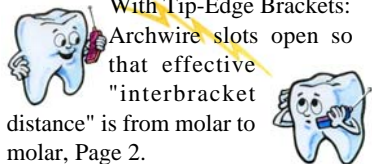
EDGE LINES

"Interbracket"

Long Distance

Interbracket = Long Distance

With Tip-Edge Brackets:
Archwire slots open so
that effective
"interbracket
distance" is from molar to
molar, Page 2.



Individual Root Torquing Auxiliaries Serve Dual Purpose:

IRT's can apply
root torque while
simultaneously ap-
plying the brakes, Q's
& A's, Page 3.



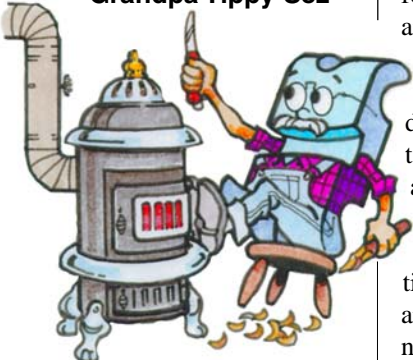
New Tip-Edge Video Released:

Expanded video in-
cludes time lapse,
case reports and
more rectangular
finishing, Page 3.



TIP-EDGE GRAPHIC

Grandpa Tippy Sez —



Yep, show me an orthodontist who
uses Tip-Edge and I'll show you an
orthodontist who has little need (if
any) for functional appliances, rapid
maxillary expansion, orthognathic sur-
gery, segmented arches or headgear.



Published Quarterly In The USA

COVER STORY

Rationale For .022" Archwire Slots In Tip-Edge Brackets

By R. Thomas Rocke, D.D.S., M.S.

Since their inception¹ Tip-Edge brackets were designed and manufactured with .022" wide archwire slots. When lecturing, I am often asked if and when they will be available in an .018" slot system. The .022" archwire slot size has been chosen for several reasons. This article will list the rationale for such relatively large archwire slots.

Conventional Edgewise Archwire Slot Sizes

Most plain and preadjusted edgewise brackets have either .018" or .022" archwire slots. A recent survey reported 47.1 percent of clinicians prefer an .018" x .025" slot, while 53.2 percent used a .022" x .028" slot.² Some prefer .018" archwire slots because when .018" x .025" rectangular wires are inserted, they produce kinder and gentler forces than full size rectangular archwires in .022" slots. This is especially true if twin brackets with smaller interbracket distances are used. Unless the teeth and their respective archwire slots are well leveled, .0215" x .028" archwires can be quite violent in their action. For this reason, full size archwires are seldom used. This necessitates using undersized rectangular archwires that will not deliver full expression of torque and tip, or flexible archwires (i.e. nickel titanium)

that may not maintain the integrity of the occlusal plane.

Tip-Edge Archwire Slots Open To Eliminate Second or Third Order Flexing of Archwires

This is not the case with Tip-Edge brackets. Due to the unique design of the Tip-Edge archwire slot, the crowns of the teeth tip distally or mesially toward their new positions—their archwire slots, in effect, becoming larger. Even a tip as small as 1 degree will cause the archwire slot to open to .0224" as determined by computer analysis (Figure 1).

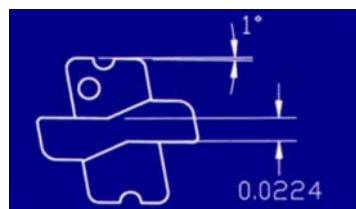


Figure 1. A tip as little as 1 degree opens a Tip-Edge archwire slot to .0224".

This feature allows a zero degree .0215" x .028" archwire to lie passively in a tipped Tip-Edge

bracket after anterior retraction without pressure on upper or lower slot surfaces to cause archwire twisting. Therefore, there is no discomfort to the patient and no inadvertent round tripping of adjacent teeth. (Figure 2).



Figure 2. A straight, .0215" x .028" archwire without torque fits comfortably in a tipped archwire slot.

If a case requires considerable torque, slight distal tipping of maxillary incisors is desirable since the archwire slots will open wider to allow easy insertion of archwires (Figure 3).

100 Percent Interbracket/ Tube Distance Facilitates Molar Torque Control

When it is desirable to utilize rectangular archwires, the

10° TIP

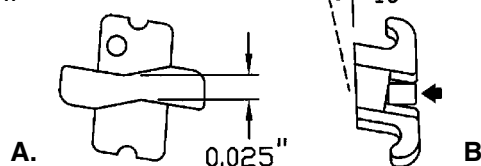


Figure 3. A) A distal tip of as little as 10 degrees can open a Tip-Edge archwire slot to .025". B) Even though the tooth (bracket) may require 10 degrees of torque, a full size rectangular archwire can then seat passively into the archwire slot which is temporarily enlarged.

Please see COVER STORY next page

COVER STORY - Rationale For .022"...

Tip-Edge archwire slots will be enlarged. Each tooth will have either one point or no contact with the archwire. Therefore, it can be stated that in this situation "interbracket" distance is from molar tube to molar tube (Figure 4).

If the anchor molar crowns require torque adjustment, either buccally or lingually, the ends of the rectangular archwire can easily be twisted before insertion into the rectangular tubes. Because of the 100 percent intertube distance, the molars are the only teeth that feel the corrective torque forces which are extremely light but appropriate.

Larger Archwires Are Better For Finishing Treatment With Tip-Edge Brackets

Torque and torsion describe the twisting of a beam or wire.

Torque is the force (stress) which causes the twist. Torsion is the actual twisting (strain) which takes place as a result of torque. A .0215" x .028" archwire is almost twice as stiff as an .018" x .025" (Table 1). This extra stiffness ensures better control of the occlusal plane during torquing and uprighting in the last stage (Figure 5).

To prevent torsion from occurring, heavy .0215" x .028" archwires are necessary for rigidity. Using .018" x .025" wires with .018" slot could allow deflection of the archwire, temporarily upsetting torque values around the entire dental arch (Figure 6).

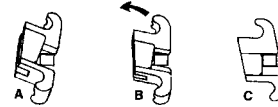


Figure 6A-C. A) When a rectangular archwire without torque is placed in a tipped bracket and a Side-Winder spring placed (Side-Winder spring eliminated for clarity), the archwire slot closes (B). A heavy .0215" x .028" archwire resists torquing of the archwire by pressure from the uprighting surfaces of the archwire slot as it closes to .022" (C).

Also if .018" x .025" archwires were used with an .018" Tip-Edge archwire slot system, it is possible that the archwire would deflect in the vertical dimension under the loads from the arms of the Side-Winder springs that engage the archwire.

Treatment Demonstrates Ease And Control When Finishing With Large, Passive Archwires

A Class I, second premolar extraction case illustrates the ease of placement of .0215" x .028" archwires into brackets of tipped teeth (Figure 7). After the crowns of the teeth were tipped back during space closure, coordinated .0215" x .028" archwires were easily placed into the enlarged archwire slots. Side-Winder springs were placed on all teeth needing torquing and uprighting. Excellent control was maintained as teeth moved toward their respective bracket prescriptions.



Figure 7A. Start model. Note the small size of the maxillary second premolar. Because of this and facial considerations, second premolars were extracted.



Figure 7B. Posterior spaces were closed on .022" round archwires in stage two. Open archwire slots make for easy insertion of .0215" x .028" rectangular archwires.



Figure 7C. Side-Winder springs provide for torquing and uprighting all teeth to the bracket prescriptions.



Figure 7D. Appliance removal. Note the excellent torque of the maxillary incisors.

Conclusion

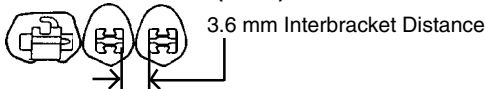
Based on the above, it should be apparent that there are many advantages and few disadvantages to be gained from using .0215" x .028" stainless steel archwires. It seems the only reason for considering the manufacture and use of .018" Tip-Edge archwire slots would be to fill a potential demand—not need. If this is necessary to permit some orthodontists to begin incorporating Tip-Edge brackets (canines, for example)^{3,4} into their existing .018" archwire slot systems. TP Orthodontics has made .018" Tip-Edge cuspid and bicuspid brackets available.

References

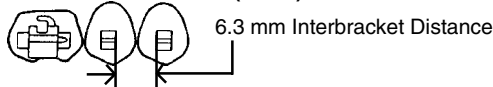
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Average, Effective Interbracket/Tube Distances During Rectangular Wire Finishing

Conventional Wide (5 mm) Brackets



Conventional Narrow (2 mm) Brackets



Tip-Edge Brackets



Figure 4. When conventional edgewise brackets (wide or narrow) are utilized, effective interbracket distances are short. Torque values on adjacent teeth from twisted rectangular archwires can be excessive. With Tip-Edge the effective distance is between tubes, not brackets. Torque forces on molars are always light and appropriate. Note: Distances approximate and illustration not full size.

Table 1
Properties of wires — stiffness

Q's and A's

Q. I understand how Tip-Edge brackets aid in cases where first bicusps have been extracted, but would they be of any benefit if the second molars were extracted? Ontario, CANADA

A. Yes — absolutely. The Tip-Edge archwire slots would permit free distal tipping of all teeth in the maxillary arch (assuming the maxillary second molars were extracted). In the mandibular arch the design of the Tip-Edge slots would, under mesial pressure — as from Class II elastic force, turn every tooth into an anchor tooth.

This would cause rapid correction of a dental Class II malocclusion with minimal mesial displacement of mandibular teeth. Procedures would be the same as for nonextraction treatment.

Q. Five months after beginning treatment of a 38-year-old female, her maxillary canines have become sensitive to hot and cold and percussion. The four first premolars were extracted, the archwires are .016" stainless steel and she is wearing TP yellow Class II elastics. The canine crowns have tipped distally as desired and the case is otherwise progressing well. The canine root apices have become somewhat prominent as is often the case when tipping crowns distally. While I don't believe this is the cause of the discomfort, how can I quickly torque them palatally and apply the brakes at the same time?

Tipsboro, VERMONT

A. The simplest, most direct means would be to apply an Individual Root Torquing auxiliary (IRT) to each tooth. The legs of the auxiliaries within the vertical slots would not only deliver palatal torque forces, but control the mesiodistal inclinations of the crown as well.

P.S. There have been reports that toothpastes with tartar control additives can cause similiar sensitivities to temperature changes. 📌

Expanded and Updated Tip-Edge Video



A new, 24-minute Tip-Edge video "Tip-Edge—The Preadjusted Appliance For The 21st Century," was released by TP Orthodontics in December of 1996. Based on the original video, it has been expanded by the inclusion of a time lapse segment depicting treatment from start to finish utilizing the dynamics of the Tip-Edge archwire slot.

Also added are eight, one-minute case reports—four extraction and four nonextraction. Even though condensed, they clearly show the versatility and simplicity of treatment following the Differential Straight-Arch® Technique.

Appliance updates include the use of Torque Bars, elimination of Tip-Edge rings and revision of molar tubes. Also more emphasis is placed on the use of Side-Winder springs with rectangular archwires to produce torque as well as mesiodistal uprighting.

Great viewing to give current Tip-Edge practitioners and their staffs "a shot in the arm." Also recommended as a provocative gift for a colleague who is still struggling to practice within the restrictive confines of conventional (out-of-date?), edgewise archwire slots. 📌

Order Information:

101-917 VHS (For United States)	\$32.85
101-939 SECAM VHS	\$32.85
101-931 PAL VHS	\$32.85

CASE REPORT

A 12-year-old female exhibited a skeletal Class II, Division 1 as shown by a +5.0 mm Wits. Mandibular forward growth was poor. Mandibular tooth alignment was good and, since the mandibular incisors were -1.0 mm to the A-Po line, nonextraction treatment was indicated.



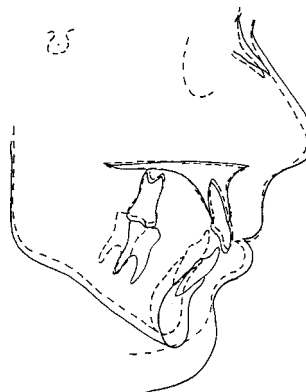
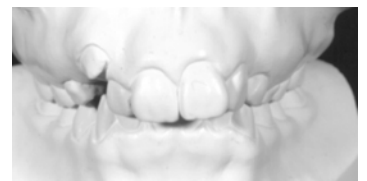
Starting .016" Wilcock stainless steel archwires were placed. A maxillary looped archwire was used to bring down the canine. Light (2 oz.) Class II elastics opened the bite and corrected the Class II.



After overbite, overjet, and Class II correction, the premolars were bracketed and leveled. Archwires (.022") were then placed. Note distal canine tipping.



The .022" archwires were followed by .0215" x .028" archwires for final torquing and uprighting. Usually premolars in nonextraction cases need no Side-Winder springs. No extraoral force was used for this patient.



K.C. Female, 12 Years
Class II, Division 1
Nonextraction
Archwires Used 7 (4U, 3L)
Adjustments 17, **Time:** 24 Months
Retention Maxillary retainer
Mandibular 3-to-3

Cephalometric Changes:

	Start-Dotted	Finish-Solid
1 A-Po	-1.0 mm	+2.0 mm
Wits	+5.0 mm	+1.5 mm
SN-MP	40.5°	41.0°
ANB	78.0°	77.5°
SNA	71.0°	71.5°
SNB	7.0°	6.0°
1-SN	94.0°	91.5°

Graduate Students' Tip-Edge Course

Over 50 second year, orthodontic graduate students and faculty participated in a Tip-Edge course at the Orthodontic Center, November 22nd and 23rd. The course included lectures, diagnosis and typodont exercises on the use of Tip-Edge brackets in conjunction with the Differential Straight-Arch Technique. Actual patients in various stages of treatment by the Kesling and Rocke Orthodontic Group were also examined. Also present were five practicing orthodontists from the U.S. and foreign countries.



Participating universities: Albert Einstein Medical Center, Case Western Reserve University, Columbia University, Harvard School of Dental Medicine, Howard University, Montefiore Medical Center, Saint Louis University, University of Manitoba and University of Missouri at Kansas City. 📄



¿Spanish Tip-Edge ?, Si Madrid

Dr. Arturo Vela, guest lecturer at the Universities of Santiago de Compostela in Barcelona and Seville, presented a Tip-Edge course in Madrid, Spain. The January course was both theoretical and practical working with typodonts. The records of treatment of over 40 patients were the highlight for the 14 participating doctors.

Dr. Vela is currently beginning to instruct students at the Odontological Clinic in Barcelona to treat patients with Tip-Edge. 📄

Correction: The Differential Straight-Arch Technique utilizing Tip-Edge brackets is taught as a regular part of the curriculum at Strasbourg University in France. Tip-Edge Today had reported that it was only taught occasionally. Our apologies to Professor Charles Bolender who set us straight. 📄

Third Seminar At Sea Cruises The Western Caribbean



TP Orthodontics conducted the third Seminar at Sea, February 1st through the 8th. Fifty-six practicing orthodontists were in attendance for the seminar. Dr. R. Thomas Rocke conducted the lectures which covered treatment goals and mechanics of various malocclusions with Tip-Edge brackets. The seminar took place on the Sun Princess which cruised the Western Caribbean. Ports of call included the Princess Cays, Montego Bay, Grand Cayman and Cozumel. Including spouses, guests and staff there were in excess of 150 people from the group on board who enjoyed the amenities of the ship and the sunny Caribbean weather. 📄

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