**BiteStrip**

A low cost, single use home screening device to accurately determine the existence and frequency of bruxism.

The BiteStrip, exclusively from Great Lakes, is an invaluable diagnostic tool providing the scientific evidence you need for those patients who don’t believe that they bruise. Use this accurate, low cost, single use home screening device to determine the existence and frequency of bruxism. It is ideal when treatment planning for your bruxing patient... whose bruxing is caused by an occlusal trigger...

...who requires a restorative procedure...

...who suffers from sleep apnea...

...with temporomandibular joint pain

**The BiteStrip “How To” CD**

(available upon request)

This step-by-step CD contains everything you need to successfully use the BiteStrip; including... how to discuss the issue with your bruxing patient... how to help your patient understand the damaging and costly effects of bruxing... how to introduce the BiteStrip to your patient... how to get the results you want from the study... how to bill for the device

The CD includes patient support materials such as informational handouts, a questionnaire, and detailed instructions.

Value Pack (includes 3 BiteStrips): 255-020

**SleepStrip**

A reliable, cost-effective, single use screening device that can help...

...identify patients with obstructive sleep apnea... determine the effectiveness of oral appliance therapy

The patient positions the self-adhesive device on the face. Three miniature flow sensors monitor respiration throughout the night.

The integrated CPU analyzes respiration patterns to detect and count each apnea and hypopnea event. Results are ready in the morning.

**The Inman Power Component**

Great Holding Power, Easy To Activate, Won't Back Up, (and it can multi-task)

**Infinitely Versatile**

Ideal for molar distalization and regaining space, the Inman Power Component (IPC) can be used in many ways and in a variety of appliances. The IPC can even perform multiple movements in one appliance. Used in conjunction with a Niti coil spring, the IPC provides light, controllable forces. Activation is easy, precise, and requires no special tools. The IPC’s low profile makes it comfortable for patients.

**Superbly Designed**

How the IPC works... The IPC is formed by a series of conical offsets with an integrated one-way sliding lock. The component compresses the coil spring as the lock is advanced in 1mm increments over each cone. The lock’s finger-like prongs securely grip the neck of the cone until the next activation.

This simple, reliable design makes advancement easy and accurate—without the worry of stripping, binding, or back up.

For more information or FREE Rx forms and shipping supplies:

1-800-828-7626

www.greatlakesorrino.com

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**Diagnostic Equipment & Appliance Supplies**
Shipping To and From Our Laboratory

For Our United States Customers
We provide postage paid U.S. Priority mailing supplies for forwarding your cases to our laboratory. All cases are returned via UPS unless otherwise requested.

In appreciation of your patronage and volume usage, our freight charges are based on the number of appliance requests received in each package. Feel free to tape boxes together to get the best rates. Also available is UPS 2-Day “On Call” service for traceable forwarding of cases to the laboratory. An additional fee per box will be added and your case will automatically be returned, UPS 2-Day air, with no further expense. The fees charged are substantially less than actual costs and when compared to other commercial laboratories.

For Our Canadian Customers
When forwarding cases to the laboratory, send them prepaid or billed directly to your office to:

Great Lakes Orthodontics, Ltd.
c/o K & N Customs
1243 Garrison Road - Unit #4
Fort Erie, Ontario L2A 1P2

Great Lakes will return all cases via UPS Worldwide Express unless otherwise specified. Standard freight fees will be applied to your invoice including brokerage fees.

For Our International Customers
Forward all cases to the laboratory prepaid or billed directly to your office. In some countries UPS pick up can be arranged, please inquire. We will return all cases UPS Worldwide Express unless otherwise requested. All return freight fees, taxes and duties will be applied to your account approximately two weeks after the shipment date. These charges are discounted due to Great Lakes volume usage with UPS and we pass these savings along to you.

Laboratory Lead Times
We respectfully request a due date be provided on each prescription. This date should be one day prior to the actual appointment date. We appreciate advance notice for all RUSH cases and add no surcharge except overnight delivery fee if required. Lead times may vary based on fluctuations in volume. We will contact you if we are ever unable to meet your requested due date. Contact Laboratory Customer Service for all special arrangements. All lead times are quoted as business days in the laboratory.

Retainers, Active Plates, (Fixed), Soldered, and Splints 3 Days
Positioner, Functional, Herbst, Herbst Sleep, and NAPA 5 Days
Elastodontic, Klearway Sleep, and Study Models 7 Days

ABO-Board Presentation Models
Reservations must be made in advance of forwarding your models to the laboratory. Please allow eight weeks to process. We offer early registration discounts; see our Study Model section or contact Laboratory Customer Service.

Ongoing Infection Control Program
In our effort to ensure the healthcare of your staff and patients, Great Lakes provides an on going Infection Control Program, which meets all OSHA requirements. It is our belief that this program will result in a safer environment for all concerned. If you have any questions or need assistance, please consult with our on-staff safety coordinator.

Appliance Protection Program
Great Lakes understands that appliances may be lost or destroyed through the course of treatment. This obviously creates extra expense for your patient. In an effort to reduce that expense, we have developed the Appliance Protection Program. This may also be referred to as insurance. Inquire for further details, as the protection program may be an asset in furthering the growth of your practice. Let us absorb the liability for you. Call us now - toll free!

Master Prescription Program
This catalog will show many appliances and design options for a variety of treatment plans. We are aware that your technical specifications may vary from our standards. With this program, we will keep your specifications on file and issue a design number to each. This will assure consistently accurate fabrication of all your appliance designs. Please call the laboratory to discuss your designs today!

Replacement, Credit & Repair Policies
If upon receipt of any appliance you find the need to return it, we respectfully ask your cooperation with the following provisions:

Please return the appliance, original construction model(s), setup and bite registration if applicable. Clearly indicate your reason for return on the reverse side of the “Return Copy” of the packing slip/invoice you received. All returns are examined by our technical staff and customer service department. Warranty is voided if original model(s) or bite is not returned.

• Returns after 30 days are subject to a 15% restocking charge unless the item is damaged in shipping or shipped in error. This does not apply to custom made devices.

• Lifetime warranty on acrylic. Any appliance fabricated by Great Lakes with Biocryl or Great Lakes acrylic will be repaired in case of fracture at no charge with the receipt of the original models (abuse or misuse excluded).

• Lifetime warranty on material defects in every appliance fabricated by Great Lakes.

• One year warranty on athletic mouthguard material, Hard/Soft and Variflex™.

• 90-day wire repair, expansion screw, and plastic pontic warranty.

• 90-day warranty on Elastomeric material. Facebow mounting, and/or cephalometric tracing necessary to ensure warranty. Contraindications for use of Elastodontic appliances include patients with significant airway restrictions and/or bruxing habits.

• Sleep Apnea Appliances: one year warranty on material, 90-day warranty on clasps, expansion screws, and hardware.

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• Sleep Apnea Appliances: one year warranty on material, 90-day warranty on clasps, expansion screws, and hardware.
Great Lakes brings over 35 years of appliance design and fabrication experience to every case you entrust to us. This experience allows us to follow your design specifications precisely or, at your request, to draw on that experience to discuss all the design options available to you. What follows is a brief overview of the most common components of Removable appliances. Components can be referred to by several different names, but by using these terms, you can ensure clear communications of the design you intended.

**Clasps**

**Ball Clasp**
Most retentive when used on deciduous teeth. Provides firm grip, when a sufficient undercut is created by two adjacent teeth.

**Arrow (Eye) Clasp**
The arrow clasp is a highly stable interproximal clasp. One of the most commonly used clasps, it is simple to adjust.

**Adams Clasp**
The adams clasp provides optimal retention when buccal undercuts are evident.

**Delta Clasp**
Similar to the adams clasp, the highly retentive delta clasp uses single helixes at the mesio-buccal and disto-buccal line angles of the molars. Commonly used with the Twin Block appliance.

**Finger Clasp**
The small size of the finger clasp provides excellent retention on deciduous teeth. It locks into the mesial or distal buccal undercut and is simple to adjust.

**Occlusal Rest**
Used for providing posterior stability, occlusal rests prevent the appliance from impinging on the gingiva. Also used to prevent eruption of selected teeth when utilizing posterior bite plates.

**Elastic Hook**
Hooks can be added to removable, bonded, or metal appliances to provide for attachment of elastics for a variety of treatment objectives.

**Circumferential “C” Clasp**
“C” clasps are often used in lieu of adams clasps when occlusal interference is a concern. As with the adams clasp, the tooth must be erupted enough to expose buccal undercuts. Also commonly requested soldered to a labial bow, again providing retention with no occlusal interference.

**Springs**

**Molar Retractor Spring**
This coil spring is most commonly used to distalize molars. It can be used in reverse to move teeth mesially when needed.

**Finger Spring**
This very versatile spring can be used for distal/mesial movement of anterior teeth.

**“S” Spring**
Used to labialize or correct rotation of teeth.

**Mousetrap Spring**
Used to flare or align incisors and round the anterior segment arch. A labial bow should be used in conjunction with this spring.

**Crossover Springs**
These lingually placed springs are used to flare the incisors and round out the anterior portion of the dental arch.

**Spring with Helixes**
Used for greater distance in tooth movement while applying a gentler force.
**Expansion Screws**

**Transverse (Standard or Spring Loaded)**
Used for upper or lower lateral expansion. Standard screw also available in pure titanium for the nickel sensitive patient.

**Sagittal**
Used for anterior/posterior movement and additional arch width when midline screw is also used.

**One Tooth**
Used to produce the movement of a single tooth with minimal palatal bulk.

**Micro Screw**
Used to produce precise movement of a single tooth. It has a spring-loaded tip which provides a gentle but constant pressure (micro screwdriver required).
Available in 4mm, 6mm, and 8mm.

**Fan Type**
Used in cases when anterior section needs to be expanded more than posterior. The screw could also be used in reverse to expand the posterior more than anterior.

**3-Way**
Moves anterior teeth labially and posterior teeth transversely. Type B (2 points of activation) is standard. Also available in Type A (3 points of activation).

**Retraction (Open) Screw**
Used to close space. *(not shown)*
Plaster

First impressions are important. High-quality plaster consultation models, professionally sculpted and finished, can enhance your case presentation. Models are also available without polish or just a pour and trim, depending on your needs.

1. When forwarding your impressions to our laboratory, please fill the void of the impression with cotton rolls or damp paper towels to hold the impression shape. Please wrap impressions in a damp paper towel and place in a plastic bag to retain moisture. Pre-poured models will not be accepted unless duplication is requested.

2. Personal preference by the clinician will determine trimming specifications. Great Lakes’ standard is the “Tweed” trim angles at 2-3/4” height. Please include a wax bite with each model to facilitate accurate registration of occlusion.

3. Each set of models will be identified with a label on the back of both the upper and lower model, unless otherwise noted. Again, the label information contained depends on the clinician’s preference.

Acrylic

These durable, lightweight models are ideal for study group, table clinic, and parent/patient consultation purposes. Models are white, with or without plastic hinge or spring hinge articulator.

Pre-selected models are available in standard malocclusions, perfect occlusion, deciduous, mixed, and permanent dentition. Each model is custom fabricated to your order.

For consultation or demonstration purposes, any personal design of a removable, metal, or functional appliance may be custom fabricated on acrylic models.

A.B.O. Study Models

No lab we know of has more experience fabricating quality A.B.O. Study Models than Great Lakes.

Because these models require the utmost attention to detail and because such a large volume of requests are received near the presentation deadline, Great Lakes is forced to decline a number of cases every year. To reserve your spot for the upcoming board season, please contact Great Lakes for pre-registration and shipping supplies.

- Over 35 Years of Experience
- Highly-Skilled Technicians
- Quality Reproduction of Anatomy (even from damaged original records)
- Free Consultation Prior to Fabrication

Requirements:
- Please allow eight weeks fabrication time for all models.
- Please call for your free processing consultation prior to sending any materials for A.B.O. models.
From its inception, Great Lakes has been a company committed to responding to the needs of our customers. In 1990, when we began our employee ownership program, that vision was further instilled in all Great Lakes employees. Today, whether developing new products, providing technical assistance, or setting new standards for service, Great Lakes continually endeavors to fulfill our customers’ needs.

I invite you to see for yourself, the kind of service our dedicated employee owners can provide, and as always, we look forward to being of service to you.”

Jim Kunkemoeller
President and CEO
Great Lakes Orthodontics, Ltd.

- Precision bracket placement
- Rapid turn-around (3 days in-house)
- Reliable customer service

Save chair time while maintaining accuracy and control. Great Lakes provides fast and reliable labial indirect bonding services. Based on your instructions, brackets are positioned precisely on the maloccluded model. A two-tray system is fabricated using the Biostar® pressure forming technique. Send us your own brackets or use Great Lakes standard laboratory brackets (McLaughlin, Bennett, and Trevisi). Sectioning options available.

- Reduce bracket placement time
- Improve patient comfort

Fabrication Requirements:
Upper and lower models must be provided.

Lab Tip: Take advantage of our Appliance Protection Program to help your patients in the event their appliance is lost or irreparably damaged. Contact Lab Customer Service for details.
Active Loop Space Regainer
B101
The Active Loop Space Regainer utilizes a finger spring that is activated by a simple adjustment of the loop.

Band and Loop Space Maintainer
B103
The Band and Loop appliance is a unilateral space maintainer that is used to prevent the drifting of adjacent teeth in edentulous areas after exfoliation or extraction. Variations of this appliance may include the distal shoe, which is used subgingivally to guide the eruption of a permanent tooth. Omega loops will be added for ease in adjustment due to shifting or closure when space permits.

Active Loop Space Regainer
B101
The Active Loop Space Regainer utilizes a finger spring that is activated by a simple adjustment of the loop.

Jack Screw Space Regainer
B102
The Jack Screw Space Regainer exerts consistent force on adjacent teeth by activation of a segment of the open coil with compression lugs.

IPC 6x6 Unilateral Space Regainer
B134
Effective for opening space where premature loss of a permanent or deciduous tooth has occurred, while maintaining arch length. Space is regained by compressing the labial and lingual NiTi open coil springs against the molar tubes. Distal movement of the posterior segment as well as mesial movement of the anterior segment is achieved.

When fabricating metal appliances attached to bands, Great Lakes incorporates the use of premium-grade solder and pretested expansion screws.

Fabrication Requirements: Please provide upper and/or lower stone work models. To ensure the most accurate fit, we recommend that wherever possible bands should be prefitted to the patient and either placed on the work model, fitted into the impression, or enclosed separately with the plain model.
Tongue Crib
B104
The Tongue Crib appliance features a vertical crib inhibiting the access of the tongue to the anterior dentition and surrounding tissue. Tongue Crib appliances may incorporate the standard wire framework, or they can be fabricated with custom designs, such as patient’s initials, a heart, or other imaginative symbols.

Bluegrass
B106
Used for patients with a thumb sucking habit with mixed or permanent dentition. The Bluegrass appliance is an alternative to the Rake or Crib design. Patients are instructed to turn the Teflon™* roller which replaces the desire to suck the thumb. The device works through a counter-conditioning stimulus for thumb sucking. The Bluegrass appliance was developed by Bruce S. Haskell, DMD, PhD, University of Louisville, and John R. Mink, DDS, MSD, University of Kentucky.

Thumb Crib
B105
The Thumb Crib is closely adapted to the rugae area of the palate, to serve as a reminder to discourage thumb or finger sucking. Persistent habits may require the use of more aggressive designs.

Note: This appliance has no vertical component.

DeLuke Oral Trainer (DOT)
R105
Help patients correct parafunctional habits such as:
- forward, lateral, and fan tongue thrust
- reverse swallow
- mouth breathing

The DeLuke Oral Trainer...
- Confirms swallow dysfunction diagnosis
- Prevents ‘tongue between the teeth’ swallow
- Stops ‘tongue between the teeth’ sleeping posture
- Encourages/trains nasal breathing
- Promotes normal tongue position
- Maintains maxillary expansion therapy

Made of soft, flexible 2mm mouthguard material (EVA), the durable DeLuke Oral Trainer is custom-made to ensure an effective, comfortable fit. Upper and lower model required.

Note: Habit appliances require an opposing model.

Inman Fixed Habit
B137
Used to break tongue or thumb/finger habits, the Inman Fixed Habit appliance guides the pre-maxilla back in and down as the habit is broken. The appliance can be fabricated with any type of crib, rake, or tongue roller.
“Great Lakes Orthodontics has always done great work for me and the staff is always prompt and courteous.”

William E. Altman, DDS, PC Surfside Beach, SC

“New York University College of Dentistry Program in Postgraduate Orthodontics during the last two years has utilized various services provided by Great Lakes. Among those services were finished diagnostic study casts and fabrication of a wide variety of removable, functional, and retentive appliances. The quality of work was consistently very high and always met high standards demanded by an educational program.”

Mladen M. Kuftinec, DMD, ScD New York, NY

Pontics and Partials

Groper Pedo Partial B108
The Groper Pedo Partial is a somewhat more hygienic and durable variation of the standard Pedo Partial. Wire mesh pads are utilized to secure artificial teeth to the lingual wire, thus eliminating the need for an acrylic saddle.*

Pedo Partial B107
The Pedo Partial is fabricated with a lingual arch and primary teeth imbedded into an acrylic saddle. The appliance will effectively restore function while simultaneously preventing malocclusions and speech difficulty.*

Pontic/Flipper A102
Pontics are used to replace missing teeth. They can be made in a variety of shades to match patient’s natural teeth. Please specify shade color and manufacturer when ordering on an appliance. Retention clasps are provided unless otherwise noted on your prescription.

*Note: When fabricating an appliance that includes pontics, it is important to send an opposing arch to ensure proper fit.

Lab Tip: To prevent damage to models, never ship them in occlusion or with the bite in place.
Expansion and Arch Development is a broad term used to describe appliances designed to treat “crowding,” the most common type of malocclusion in mixed-dentition patients. These appliances can be used to gain both arch width and length, can use a variety of forces, and may be either fixed or removable. Designed properly, expansion appliances can be used to alleviate crowding in the posterior segments, develop immature premaxillae, and relieve anterior crowding. They can move teeth on either side of the arch unilaterally or bilaterally.

Fabrication Requirements: Please provide upper and/or lower stone work model(s). To ensure the most accurate fit, we recommend that whenever possible, bands should be prefitted to the patient and either placed on the work model, fitted into the impression, or enclosed separately with the plain model.

**Bonded Rapid Palatal Expander**

The Bonded RPE is similar to the banded version with the exception of the method of attachment to the teeth. This appliance is constructed with an acrylic cap over the posterior segments, which is then bonded directly to the teeth. To aid in the debonding of the RPE at the end of treatment, Great Lakes offers the option of Debonding Loops. The buccal portion of the framework is eliminated and wire loops are incorporated into the acrylic. The end of the loop rests on the occlusal surface, the rounded portion extends beyond the appliance allowing it to be gripped and twisted, thereby breaking the seal. Auxiliaries such as face mask hooks, cribs, archwire tubes, and headgear tubes can be added.

**Optional Screws:**

**Fan Type RPE Screws**

This screw option is ideal for cleft palate patients and uses a 9mm fan type expansion screw to symmetrically expand anteriors laterally with minimal posterior tooth movement. This expansion screw is also available with an 8 or 9mm screw set in a Haas-style acrylic for both tissue and tooth borne anchorage. The screw is activated from front to back.

**Compact RPE Screws**

This 12mm compact expansion screw increases tongue space, reduces tissue impingement, allows easier access for hygiene and increased patient comfort.

**Hilgers Pendex**

This appliance is designed to produce orthopedic expansion of the maxilla, as well as rotate and distalize maxillary first molars, without much cooperation from the patient. It utilizes the components of both the Haas and Quad Helix appliances. The acrylic button is an effective anchoring component and .032 TMA* springs produce a light and continuous force against the molars.

* TMA wire is a trademark of Ormco Corporation, Glendora, CA

**Hygienic Rapid Palatal Expander**

The Rapid Palatal Expander is an all-metal expansion appliance typically providing sutural separation of 11mm within a very short period of wear. Up to 13mm is possible. Appliance screw is activated from front to back. Each activation of the screw produces approximately .2mm of lateral expansion. Our standard design is a two-banded style, this aids in cases with a difficult path of insertion or missing teeth. A four-banded version is available when path of insertion is not a concern and a more rigid appliance is desired.

**DeLuke Contoured Expander (DCE)**

Although similar in appearance and function to a bonded rapid maxillary/palatal expander, the DCE eliminates the need for metal framework. This innovative frameless design makes the DCE easy to insert and remove, improving patient comfort. The DCE is fabricated on the Biostar® using Splint Biocryl to ensure uniform thickness. This fabrication technique, along with a simple one-step cementation process, results in less chair time. The natural anatomic contour at buccal and gingival margins eliminates plaque trap and reduces inflammation, making the DCE extremely hygienic.
**Hilgers T-Rex**  
*B140*  
This appliance is designed similar to the Hilgers Pendex with the addition of anchor arms soldered to the molar bands. This allows expansion before molar distalization by cutting the anchor arm connection. It utilizes the components of the Haas and Quad Helix appliances. It produces orthopedic expansion of the maxilla, as well as rotate and distalize maxillary first molars. .032 TMA* springs produce light and continuous force against the molars. The acrylic button is an effective anchoring component.

**IPC Rapid Palatal Expander**  
*B131*  
Designed for orthopedic expansion along with labial alignment of incisors. As expansion occurs, the IPC controls the NiTi open coil spring force applied to the lingual surface of the anterior teeth. Wire around the distal end of the lateral incisors limits the midline diastema that often occurs during RPE treatment.

**Haas Palatal Expander**  
*B110*  
The Haas appliance is both tissue and tooth borne and has an extensive amount of palatal acrylic which acts on the palatal mucosa.

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**Quad Helix** (pictured)  
*B112*  
The Quad Helix is a versatile appliance used to correct unilateral or bilateral crossbites, expand posterior segments, and align crowded teeth. This appliance has many adjustment points, most of which can be activated intraorally using a three-prong plier. It is also commonly fabricated as a removable appliance for extraoral adjusting.

**Bi Helix**  
The Bi Helix is an adaptation of the Quad Helix designed for the mandibular arch. The absence of anterior helixes aids in patient comfort.

**3D* Quad Helix Appliance 3D™ Modular (Wilson) Appliances**  
*B114*  
This group of appliances is a series of prefabricated modulars that can be quickly adapted to the molar bands. They serve as an adjunct to a variety of treatment approaches, as well as achieving a wide range of orthodontic movement when used individually.

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**Expansion “W”**  
*(pictured)*  
*B113*  
The Expansion “W” is the simplest version of a Quad Helix expansion appliance and is suitable for use on either the maxillary or mandibular arch.

**Porter Appliance**  
The Porter appliance is a removable version of the “W” appliance. This feature allows for the appliance to be activated and adjusted extraorally.
Expansion/Arch Development

Fixed Transverse
B117
The Fixed Transverse appliance is an excellent alternative to a removable Schwartz plate, particularly in cases where poor retention is present or patient cooperation is questionable. The adaptability of this appliance to other treatment modalities is an added feature.

Spring Jet* 1 - Slow Expansion
B141
Precise force-counterforce mechanics achieve slow arch expansion with controlled, continuous NiTi spring force.

Spring Jet* 2 - Rapid Expansion
B142
Alternative for screw or pre-set wire expanders, the Spring Jet 2’s unique delivery system offers reliable results with minimal tipping and no patient compliance.

The simple, comfortable Spring Jet allows a constant expansion force. After correction, the Spring Jet can be easily inactivated and kept in place as a retainer. The molars will move with little change in angulation, and can be used for anchorage during correction of the other dental inclinations.

The active components of the appliance are soldered or attached to the molar bands in the same way as a traditional expander. The transpalatal arch is replaced by a telescopic unit with a nickel titanium coil spring and a lock screw. Activation of the coil spring is achieved by moving the lock screw horizontally along the telescopic tube. A ball stop on the transpalatal wire allows the spring to be compressed.

* Spring Jet is a product of American Orthodontics.

Nitanium Palatal Expander
B126
The Nitanium Palatal Expander is a fixed/removable nickel titanium appliance. The expander incorporates a lingual attachment that fits into a horizontal lingual sheath welded to the maxillary molar bands. The appliance exerts a continuous low force on the maxillary teeth and midpalatal suture. This is provided by harnessing the wire’s shape memory at body temperature. If 6mm or more of expansion is needed, two separate removable expanders should be used sequentially.

Lab Tip: We’ll keep your technical specifications on file when you enroll in our FREE Master Prescription Program. Contact Lab Customer Service for details.

IPC E-Arch (Arnold) Expander
B135
Ideal for transverse expansion of maxillary or mandibular arches where patient compliance is a concern. A tube-like framework is located on half of the arch which is connected to the Inman Power Component (IPC) on the opposing side. Activation occurs by sliding the collar anteriorly along the IPC compressing the NiTi open coil springs against the tube.

Joe Panara, Sales & Marketing

1-800-828-7626
www.greatlakesortho.com
Transverse
A103
The Transverse appliance is recommended when there is an arch width deficiency in the maxilla. It features multiple clasping and two sutural expansion screws placed on the midline for added rigidity.

Nord
A106
The Nord appliance is designed for correction of a unilateral cross bite. It uses a smooth posterior bite plane on the side to be expanded and an indexed posterior bite plane and lingual flange on the opposite side for support and anchorage.

Inman Bonded Cross-Bite
C112
For anterior cross-bite correction. NiTi coil springs create piston-like forces to move anterior teeth forward. Eliminates the need for finger springs, screws, or adjustments. The force is constant and does not deflect towards the incisal, unlike finger springs. Ideal if patient cooperation is a concern.

3-Way Sagittal
C101
Two- and Three-way Sagittals are primarily used in cases where the cuspids are labially displaced. Correction is achieved through activation of the sagittal screws. When additional arch width is required, the sutural screw is activated. Retention is obtained by incorporating ball and Adams clasps.

IPC Mandibular Sagittal
B132
In addition to molar distalizing force, this appliance applies pressure to the anterior teeth to move them in a labial direction. Activation occurs as the Inman Power Component (IPC) collar compresses the NiTi open coil spring against the molar tube.

Upper Schwarz
A104
This appliance is used for bilateral cross bites and also to help eliminate anterior crowding.

Lower Schwarz
A117
When expansion is required in the mandibular arch, the Schwarz can be fabricated to fit the lower.
Molar Distalizing Appliances

**Hilgers Pendulum**
B120
This appliance is intended to produce a molar distalizing effect in the maxilla in the range of approximately 5mm. A large acrylic button is used as an anchoring component and .032 TMA* springs produce a light and continuous force against the molars. The anchoring component is secured to the bicuspids or primary molars with bands or bonding.

* TMA wire is a trademark of Ormco Corporation, Glendora, CA.

**Lower Fixed Sagittal**
B127
The Lower Fixed Sagittal appliance serves as an alternative to a removable sagittal in cases where retention is difficult or patient compliance is an issue.

**SDDA**
B128
The screw driven distalizing appliance (SDDA) utilizes a full size expansion screw to distally drive molars using a Nance button for anchorage and stability. Also available in unilateral.

**IPC Maxillary Molar Distalizer**
B133
This appliance provides effective distal molar movement and limits mesial movement through the incorporation of a Nance button. The Inman Power component (IPC) extends through tubes to guide the maxillary first molars during distalization. Activation takes place by compressing the NiTi open coil springs against the molar tubes.

**Bilateral Distal Jet**
B124

**Unilateral Distal Jet**
B125
The Distal Jet is a fixed lingual appliance that can produce unilateral or bilateral molar distalization and rotation corrections. NiTi coil springs provide the distalizing forces. By adding Helical loops to the molar bayonet wire, the molars can be rotated or uprighted. The Distal Jet can also be converted to a Nance holding arch without removing the appliance.

**Hilgers/Tracey Mini Distalizer**
B130
An excellent choice to expand the maxilla, distalize upper molars, create room for erupting cuspids, and unlock the anterior occlusion. Tooth movement generally begins in three to six weeks. A mini expansion screw provides up to 12mm of expansion. Two .045" stabilizing wires extend from the bicuspids to the molars to add rigidity and simplify placement of the appliance as a single unit. This unique design provides consistent, reliable overall expansion while rendering the preactivated distalizing springs passive during the expansion phase. The compact, yet exceptionally stable design makes it comfortable without compromising effectiveness. The absence of palatal coverage increases tongue space, eliminates tissue impingement, and provides easy access for hygiene.

**Fabrication Requirements:** An accurate model with stainless steel bands with .036" sheaths. If you prefer, our lab will place the lingual sheaths on bands for a nominal fee.
**Lip Bumper with Acrylic Pad**

*B119*

Lip Bumpers may be used on the maxillary or mandibular arches to distalize the first permanent molars. They may also function to disengage a hyperactive mentalis or orbicularis oris muscle. The appliance consists of a labial wire which terminates in buccal tubes on molar bands.

**ACCO**

*A107*

The ACCO is used to distalize the molars while maintaining anterior position. Headgear loops are used for additional force. An anterior bite plate is used to disclude the posterior teeth.

**Shamy**

*A108*

The Shamy is used to distalize a molar. Adams clasps are used for retention on the first bicuspid and on the opposite molar that is being distalized. An anterior bite plate is used to disclude the posterior teeth.

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**Fixed Transpalatal Arch**

*B121*

The appliance is excellent at maintaining acquired expansion. It can be designed with a solid transpalatal bar or with an omega loop allowing for adjustment and producing molar rotation. This appliance can also be fabricated in a removable version.

**Lingual Arch with Loops**

*B122*

Lingual arches are available in various lengths. Arches can either be ideally shaped or closely contoured to the existing arch configuration. They may include loops for adjustment and can also be made removable from bands.

**Nance**

*B123*

The Nance appliance is available with either straight or re-curved arms. It can either be removable or soldered to the bands. The Nance is effective in preventing mesial molar drift, and in the curved arm design, facilitates expansion or rotation of the molars.

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**Holding Appliances**

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**Lab Tip:** When shipping your case, wrap bands and small components separately so that they are not lost or accidentally discarded when the package is opened.
The Herbst® appliance is used in the treatment of Class II mandibular retrusion malocclusions. It is recommended for patients who do not readily cooperate with traditional removable functional appliance therapy. In growing patients, mandibular growth is achieved. In older patients, the Herbst® appliance re-trains the action of the pterygoid and masseter muscles. The average treatment time is approximately six months to one year, during which the mandible is advanced initially about 3-4mm, and then incrementally, until the desired resting position is achieved.

All variations of Herbst® appliances are fabricated by Great Lakes. Auxiliaries such as sutural expanders, buccal tubes, habit crib, clasps, springs, or stops can be added as your treatment plan requires. Our standard hardware utilizes a slothead screw, but hexhead screws are available upon request. Fliplock hardware is also available.

**Fabrication Requirements:**

1. A set of work models, poured in dental stone, reflecting both the maxillary and mandibular dental arches. An alginate impression is recommended for high occlusal definition. Voids should be filled and imperfections should be removed, when possible. Trimming the backs of the models to the construction bite is also advised.

2. A construction bite that is 2-3mm thick at the incisors and reflects the desired advanced position of the mandible (+4mm recommended). It is important to align the skeletal midlines of the patient.

**Acrylic Splint Herbst®**

*1104*

This Herbst® design is fabricated with a wire support frame and placement of the Herbst® attachments at the upper molars and lower first bicuspid areas. The acrylic coverage can be trimmed to accommodate bonded or removable styles. The most common are:

- **Standard Upper Removable** - Full cuspid coverage with option available to include incisal cap.
- **Standard Lower Removable** - Full occlusal coverage including incisal cap with option to omit incisal cap and only cover cuspids.
- **Standard Upper Bonded** - Lingual extension on cuspids.
- **Standard Lower Bonded** - Posterior coverage with lingual extensions on cuspids.

The laboratory will relieve the acrylic for erupting teeth in the bonded or removable styles unless otherwise specified. Auxiliaries such as RPE screws can be added for arch expansion and or posterior cross bite cases. A lower expansion screw can be added if needed. An incisal cap is recommended.

For bonded styles, it is recommended that a two-part bonding agent be used, with a plastic primer added to the appliance. For further information regarding materials and techniques used in conjunction with the Herbst® appliance, please contact the laboratory.

*Herbst® is a registered trademark of Dentaurum, Inc.*
Cantilever Herbst®
1103
The upper has crowns with axles on the first molars. The lower axle is part of a cantilevered arm attached to crowns on the first molars and lower lingual wire. Auxiliaries such as an RPE screw, upper transpalatal bar, lower lingual arch, or archwire tubes can be added. Also available with reinforced bands.

The Banded Herbst®
1105
Stainless steel bands are placed on the first bicuspids and first molars of the upper and lower arch. An upper transpalatal bar and lower lingual wire are provided to stabilize the appliance. Support wire is added to the occlusal aspect of the bands to increase strength. Auxiliaries such as an RPE screw or archwire tubes can be added.

Crowned Herbst®
1106
Axles can be attached directly to stainless steel crowns on the maxillary first molars and mandibular first bicuspids. Soldering a lingual frame to mandibular first molars adds stability. A transpalatal bar, RPE screw, and archwire tubes can be added.

With all Herbst® appliances fabricated to crowns, whenever possible, crowns should be prefitted to the patient and either placed on the work model, fitted to the impression, or enclosed separately with the model. Great Lakes can supply and fit crowns to the model.

Lab Tip: Review the basic requirements for the appliance you are ordering to ensure that you are providing the correct bite registration.

*Herbst® is a registered trademark of Dentaurum, Inc.
Functional appliances are used to treat orthopedic discrepancies as well as muscular dysfunction. They disrupt abnormal influences and facilitate a return to normal functional patterns. Functional appliances are most often used in growing patients.

### Xbow™
**Higgins Crossbow Class II Corrector**

The Xbow™ (Crossbow) appliance is an alternative to the Herbst® appliance for treatment of Class II malocclusions in children and adolescents. The Phase I appliance allows simultaneous anteroposterior and transverse correction.

The Xbow™ pits the entire mandibular arch against the maxillary bicuspids and molars, which opens space for the erupting canines. Used in conjunction with the Forsus™ Fatigue Resistant Device from 3M Unitek, the Xbow appliance allows overcorrection of the molars into a Class III relationship.

### Xbow™ appliance consists of:
- Maxillary expansion appliance
- Triple “L” Arch™ (lower labial lingual arch)
- Forsus™ Fatigue Resistant Device (25mm Direct Push Rod) and Gurin locks (allow for easy activation).

Available from your 3M Unitek representative.

**Fabrication Requirements:**
1. Upper and lower models
2. Bands on upper 6’s (with occlusal headgear tubes) and upper 4’s (if serial extraction of all first bicuspids, band the upper e’s or f’s and 6’s.)
3. Bands on lower 6’s

**Note:** Functional appliances are only available with cold cure.

### The Eganhouse Class III Appliance*

**C106**

This appliance delivers forces to the facial complex to counter Class III growth problems. The Eganhouse appliance allows the maxillary and mandibular arches to work against each other in a frictionless fashion using modified splint appliances.

The design of the appliance includes upper and lower flat plane splints which articulate together. An anterior guide block and guide block groove balance the force vectors working against the Class III growth pattern. Facial hooks are incorporated into the splints to hold 3/16” - 6 oz. or 8 oz. elastics, or 1/4” - 1 oz. or 8 oz. elastics (depending on what the patient can tolerate) between the upper molar and lower cuspid hooks on each side. 1/8” - 6 oz. elastics are placed between the upper anterior and lower cuspid hooks to keep the splints together. The third set of hooks may be attached to Reverse-Pull headgear. A lower labial bow is incorporated into the lower splint design to increase anterior anchorage.

*Patent #5678991 Issued October 21, 1997
*Patent held by; Gerald R. Eganhouse, DDS, MS, Cedar Rapids, IA.

**Fabrication Requirements:** Maxillary and mandibular casts with a construction bite 4-5mm incisial opening.
McNamara Modification
Great Lakes recommends the modifications to the Twin Block developed by Dr. James A. McNamara. The upper has two expansion screws for stability during transverse development. The lower lingual acrylic is extended distally to the last tooth with a lingual support wire, and a labial bow with acrylic is added. This serves to make the appliance more stable and retentive.

The Clark Twin Block
C105
The Twin Block technique was developed by Dr. William Clark of Scotland during the early 1980’s. This technique develops a new principle in functional orthopedics by using the forces of occlusion as the functional mechanism to correct the malocclusion. Twin Blocks are worn 24 hours per day. This means that the patient eats with the appliances in the mouth and the forces of mastication are harnessed to maximize the functional response to treatment. Cooperation is excellent with Twin Blocks because the appliance is not removed for two to three days after it is fitted. There are no aesthetic cheek pads, lip pads, uncomfortable lingual extensions, as well as no anterior wires. Twin Blocks can be modified to treat a wide range of malocclusions to achieve sagittal and vertical correction of Class II division I, Class II division II, and Class III, malocclusions. Twin Blocks are also indicated in treatment of temporomandibular joint dysfunction.

The basic appliances are separate upper and lower plates. The upper plate includes an expansion screw for lateral development and occlusal pads that cover the molars. The lower plate includes occlusal pads to cover the lower bicuspids. These plates interface at 70° angles and posture the mandible in a forward position.

Deviations from standard design are Twin Block sagittal design, Twin Blocks to expand (i.e. Schwarz and Jackson), Twin Block Quad Helix for arch development, Twin Block Crozet for adult treatment, Fixed Twin Blocks, Magnetic Twin Blocks, and Sagittal Twin Blocks for TM Joint therapy.

Fabrication Requirements: Upper and lower models and a wax construction bite advanced 5-7mm, leaving 5mm vertical opening in the deciduous molar/bicuspid area.

Lab Tip: Be sure to check your models for distortion, and broken or chipped teeth before sending them to the lab.
Bionators

The Bionator appliance has become widely accepted as a result of the reliable orthopedic corrections it produces. Other major advantages of these appliances are their extreme durability, ease of patient acceptance, and delivery.

**Standard Bionator I**
(to open bite)
C107

The Bionator I is designed to aid in correction of Class II malocclusions by maintaining the mandible in an advanced position and guiding eruption of the posterior teeth. In order to prevent the super eruption of the anterior teeth, the mandibular anteriors are covered with an acrylic cap which comes in contact with the maxillary anteriors. An expansion screw can be added to maintain a tight fit of the appliance.

**Standard Bionator II**
(to close bite)
C108

The Bionator II is designed to aid in correction of Class II malocclusions and the reduction of an anterior open bite. The latter is achieved by keeping the acrylic coverage over the occlusal surfaces of the posterior teeth. An expansion screw can be added to maintain a tight fit of the appliance.

**Fabrication Requirements:**
1. Upper and lower models must be provided.
2. Bite registration for Bionators to open should be in an edge-to-edge incisal relationship with a 2-3mm anterior vertical opening. For Bionators to close, a 2-3mm posterior vertical opening is required.

**Dr. Sondhi Modifications**
Whip springs are used instead of the lingual bar to control maxillary incisor inclination and a tongue crib is incorporated for open bite cases.
**Fränkel Appliances**

The Fränkel appliance (Functional Regulator) is a removable orthodontic appliance used in the growing individual to affect the development of muscle, bone, and the dentition simultaneously. It provides a framework that promotes the interruption of abnormal function and facilitates the establishment of harmonious functional patterns. It also provides an environment in which inhibiting factors are removed and in which structural harmony can be achieved. The goal of Fränkel treatment is facial balance.

**Orthopedic Corrector I**

*(to open bite)*

C109

The purpose of the Orthopedic Corrector I is to correct Class II malocclusions, as well as to reduce the overbite. It is also capable of increasing the arch width and the length of the maxilla and/or mandible by means of expansion screws. The mandible can be subsequently advanced by the clinician with minor adjustments made to the acrylic.

**Fabrication Requirements:**
1. Upper and lower models with detailed tissue definition must be provided.
2. Bite registration should reflect a mandibular advancement of 2-6mm, and vertical opening of approximately 2mm between the upper and lower bicuspids.

**Orthopedic Corrector II**

*(to close bite)*

C110

The Orthopedic Corrector II is constructed to allow for a Class II correction, along with the ability to assist in closing an anterior open bite. This is achieved by holding the mandible in an advanced position and restricting the eruption of the posterior teeth with an acrylic cap. This appliance can also affect the arch length and width in a manner similar to that of an Orthopedic Corrector I.

**Fabrication Requirements:**
1. Upper and lower models must be provided.
2. Bite registration for Orthopedic Correctors to open should be in an edge-to-edge incisal relationship with a 2-3mm anterior vertical opening. For Orthopedic Correctors to close, a 2-3mm posterior vertical opening is required.

**Fränkel I**

D101

The Fränkel I is utilized to promote transverse arch development both dentally and skeletally. This is accomplished by the vestibular shields removing external muscle pressure from both the maxillary and mandibular arches. The appliance is also effective for interruption of abnormal mentalis function. Since there is an absence of dental contact, the appliance will also promote facial development.

**Fabrication Requirements:**
1. Upper and lower models with detailed tissue definition must be provided.
2. Bite registration should be taken with a 3-4mm minimal mandibular advancement and vertical opening of 2-3mm between the upper and lower premolars.

**Fränkel II**

D102

The primary thrust of the Fränkel II will also accomplish transverse and vertical development of both the maxillary and mandibular arches. The construction of this appliance allows for subsequent additional advancement of the mandibular portion of the appliance, thus largely eliminating the necessity for replacement appliances as mandibular growth occurs. Consultation with our laboratory is recommended to determine the optimum method of additional advancement techniques.

**Fabrication Requirements:**
1. Upper and lower models with detailed tissue definition must be provided.
2. Bite registration should reflect a mandibular advancement of 2-6mm, and vertical opening of approximately 2mm between the upper and lower bicuspids.
**Fränkel III**

D103

This appliance is used to aid in the correction of Class III malocclusions. This can be achieved by retarding further development of the mandible while simultaneously allowing for the development of the maxilla to its fullest growth potential. It is also effective in conjunction with other treatment modalities such as the Adaptable Class III Mask.

**Fabrication Requirements:**
1. Upper and lower models with detailed tissue definition must be provided.
2. Bite registration should be taken in habitual or mildly retruded position. The vertical opening should be 1mm between upper and lower molars or a sufficient opening to clear anterior cross bite.

**Fränkel IV**

The Fränkel IV is used exclusively in Class I malocclusions where skeletal open bite, arch width deficiency, or abnormal muscle function are present. Wire or acrylic stops are placed on posterior teeth allowing anterior tooth eruption. The vestibular shields will aid arch expansion and muscle stimulation. Please note that the Fränkel IV will not sustain any advancement or retrusion of the mandible.

**Fränkel V**

The Fränkel V is a modification of the Fränkel II and is intended for Class II malocclusions, particularly in cases where an increase in vertical dimension is undesirable. The Fränkel V is often used in conjunction with extraoral traction devices.

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**Lab Tip:** Make sure your bite registration reflects the correct midline relationship for appliance fabrication.
Elastodontics is a family of appliances that applies elastic forces to teeth to move them more accurately and efficiently with less patient trauma. All of the appliances in the Elastodontic family align the teeth to a predetermined ideal position in wax before they are fabricated (see Zero Based Occlusion Section which follows).

**Elasto-Aligner**
(w/Inner and Outer Bow)
K103

- Orthopedic correction
- Arch expansion
- Minor/moderate anterior rotations
- Occlusal plane control
- Maxillary incisor control
- Vertical dimension control
- Class III correction (functional)

The Elasto-Aligner with Inner and Outer Bow is a functional orthopedic appliance that will align teeth while applying an orthopedic influence. By incorporating headgear into the active appliance, exceptional arch development and anterior correction of Class II, Division I cases can be obtained. Incorporating a headgear can also control the occlusal plane angle, develop arch form and retract maxillary anteriors.

**Benefits of this appliance:**
- Accelerated anterior development of the mandible.
- Maxillary and mandibular arches can be developed.
- Maxillary anteriors can be retruded.
- Maxillary and mandibular teeth can be aligned.
- Control of the occlusal plane angle.

Mounted cases are sent to the laboratory and wax bite registration as follows:

**Class I/Class III (functional)**
- C.R. bite 1mm from first contact

**Class II**
- Intraoral advancement
  - Wax reference in advance position
  - (Use molars as reference.)
  - C.R. bite
  - 1mm from first contact
  - Reference to be advanced (at the lab) using arbitrary or axiograph settings

**Elastodontic Color Options**

*Choose any of these color options for your Elastodontic appliance:*

**Solid Colors:** Clear, Red, Green, Blue, & Yellow

**Glitter Colors:** Gold, Silver, Red, Blue, & Purple

(Glitter can be added to any of the solid colors.)

We recommend New Gear™ cervical and high-pull orthodontic headgear for use with this appliance. Ask your representative for more information.
Elastodontics

Impression Technique For Appliances Fabricated Over Brackets

1. Remove arch wires and fill buccal tubes with wax or chap stick (or deband molars).
2. Take alginate impression of each arch in the usual manner with an adequate size tray.
3. Remove impression and pour stone. Coat the coronal portion of the impression by shaking excess stone after partial fill. Pouring is then continued over this initial layer. Voids in alginate on the gingival side of the cap are normal in this procedure and the excess plaster will be carved in the lab.
4. Arch wires are replaced and secured in preferred manner.
5. Proceed with facebow transfer and mounting.
6. Wax bite registration requirements are centric relation with 1mm from first tooth contact.

Elasto-Aligner
K102
- Space closure
- Minor anterior rotation
- Detailing
- Midline correction where spaces are available

This Elasto-Aligner appliance attaches directly to the teeth, over brackets, to apply forces that move teeth to a predetermined ideal position. Research for this project was made possible when Great Lakes was funded by a grant from the National Institute of Dental Research. The project met and overcame two primary obstacles:

1. Material Development: We now have an innovative material that is medical grade, highly elastic, tear resistant, resilient, and does not absorb moisture and bacteria.
2. Occlusion Control: We have developed a wax setup standard that is derived from gnathologic and state-of-the-art orthodontic concepts. (See Zero Based Occlusion section that follows.).

Elasto-Aligners
(w/Inner Bow only)
- Orthopedic correction
- Arch expansion
- Minor/moderate anterior rotation

The appliance incorporates arch expansion and alignment with mandibular advancement without extra oral forces. The mandibular stabilizer may assist nighttime retention of all Elastodontic and Functional appliances. Please provide mounted casts and wax bite registration as follows:

Class I/Class III (functional)
- C.R. bite 1mm from first contact

Class II
- Intraoral advancement
  a. Wax reference in advance position (Use molars as reference.)
  b. C.R. bite
  a. 1mm from first contact
  b. Reference to be advanced (at the lab) using arbitrary or axiograph settings

The Aligner allows the orthodontist to effectively treat minor malocclusions, in some cases within a six-month period (ie: Class I open-spaced cases). Mounted casts are sent to our laboratory with no attachments.

Wax bite registration requirements are centric relation with 1mm from first tooth contact.

The teeth are repositioned and an elastic appliance stretches to conform to the malocclusions applying pressure to the teeth, moving them to the ideal arch. The patient will wear the Elasto-Aligner an average of ten hours per day, while at home and sleeping.

The Aligner is intended to take the patient from start to finish based on patient selection.

Kim Stitt, Linda Jufer
Study Models

Lab Tip: Completely fill out your Rx form to ensure the best possible service.
Zero Based Occlusion:
Used for any appliance where teeth are reset to a predetermined position

Great Lakes zero based occlusion is derived from gnathologic and state-of-the-art orthodontic concepts. To have a reference base that you can modify puts YOU IN CONTROL OF YOUR PATIENT’S SETUP. In order to bridge zero base occlusion, we have established reference standard controls. We are able to regulate the occlusal plane angle and arch form. Our instrumentation allows us to control the Curve of Spee and Wilson. The following is an outline of our step-by-step procedures as they relate to our zero based occlusion standards.

Mandibular Arch

Occlusal Plane Relationships: Based on mean vertical height of the buccal cusps of mandibular 1st molars and the central incisor edges. Instrumentation mechanically maintains relationship of SAM® hinge axis to occlusal plane, arch form, and location.

Curve of Wilson: The mandibular 1st and 2nd molar cusps contact the curve created by an 8” sphere of occlusion.

Curve of Spee: Select the occlusal sphere that corresponds to the existing Curve of Spee unless otherwise stated, ie. 8”, 10”, or 12” Curve of Spee or flat.

Arch Form: Select the preformed pentamorphic arch that most closely represents the patient’s average arch form.

Central Incisors:
The incisor will be approximately 90° to the axis rotation incisal angle** and aligned with central with an approximate 2° coronal long axis angle in a frontal view.

Lateral Incisors:
The incisors will be approximately 90° to the axis rotation incisal angle** and aligned with central with an approximate 4° coronal long axis angle in a frontal view.

Cuspids:
Cusps will be 1.5mm above the occlusal sphere, with an approximate 10° coronal long axis angle (sagittal view) so that imaginary apex of the cuspid is positioned distal to crown for protection of lower incisal stability after treatment.*

Align imaginary apex in the labiolingual plane of the four incisors forming a parallel concentricity of the anterior apices to the arch form.*

Note: Check that root apices are sufficiently spread so that when other treatment keys are attained, stability of the lower incisors without retention can be expected.*

1st Bicuspids:
Rotate so the line formed by the buccal lingual cusps bisects the distal buccal cusp of the opposite first molar with a 0° coronal long axis angle (sagittal view) and buccal cusp on sphere.

2nd Bicuspids:
Rotate so the line formed by the buccal lingual cusps bisects the distal buccal cusp of the opposite first molar with 0° coronal long axis angle (sagittal view) and buccal lingual cusps on sphere.

1st Molars:
Buccal and lingual cusps contact selected sphere (Curve of Spee) with an 8” Curve of Wilson.

2nd Molars:
Buccal and lingual cusps contact selected sphere (Curve of Spee) with an 8” Curve of Wilson.

Functional Evaluation:
Adjust coronal long axis angles of posterior teeth to achieve tooth-to-tooth mesial distal marginal ridge height continuity. * R. Williams ** C. Stewart
The Maxillary Arch

Use the following SAM® 2 Articulator settings, unless protrusive lateral check bites are available or axiographic recordings have been taken.

- Condylar housing No. 1, 40° guidance.
- Bennett 5°

Central Incisors:
- 2mm overbite/overjet with an approximate 2° coronal long axis angle (frontal view).

Lateral Incisors:
- 1mm overbite/overjet with an approximate 6° coronal long axis angle (frontal view).

Cuspids:
- Class I buccal segment interdigitation with 3mm overbite/overjet with an approximate 10° coronal long axis angle (sagittal view) and cusp rise.

1st and 2nd Bicuspids:
- Class I buccal segment interdigitation with 0° coronal long axis angle (sagittal view) and centric stops in contact.

1st Molars:
- Class I buccal segment interdigitation with centric stops in contact, Stollerize, and rotate so transverse ridge is bisecting distal 3rd of the opposing side cuspids.

2nd Molars:
- Class I buccal segment interdigitation and centric stops in contact.

Check Maxillary Setup
- Confirm that no interferences exist during excursions (lateral and protrusive).
- Symmetry of aesthetics.
- Visually check centric stops.

Fabrication Requirements For Elastodontics

A centric relation wax bite with minimal opening is required for the fabrication of the Elastodontic appliance. For the Class II Elastodontic appliances, please provide a protrusive wax bite Class I molar relationship with minimal opening.

It is recommended to pour casts and mount only the upper casts with a facebow transfer. Fill in prescription completely. Patient education literature is provided with every case. Please note we require 7-10 business days in-lab for fabrication.

Zero Based Occlusion
Custom Positioners

R102
Tooth Positioners have routinely been part of orthodontic treatment since the mid 1990’s. Unlike other labs, Great Lakes fabricates Positioners by thermal forming individual layers of material for optimal results. The advantages of this process include:

- Detailed formation
- Low cost
- Minimal appliance bulk
- Durability
- Color combinations

The most accurate system is with the use of a facebow. The mounted casts are ideally positioned* using precision instrumentation. Great Lakes has access to the following articulating systems:

- SAM®
- Hanau™
- Whip Mix®
- Panadent®
- Denar®
- Artex®
- Stratos®
- KaVo

Fabrication requirements: Upper mounted model/lower unmounted and centric bite.

Positioner Options

Firm
The firm Positioner is made of an ethyl vinyl acetate. This appliance is extremely effective when used in the detailing and/or retention phase of orthodontic treatment. This Positioner can be used for athletic mouthguards requiring no diagnostic setup. It is available in a variety of colors.

Light
The light Positioner is made of a low durometer vinyl acetate. This softer appliance can be used when more stretch is necessary, over the original malocclusion, to obtain the setup (ideal) positioning.

Auxiliaries
Positioner clasps, rotation inserts, air holes (standard), bracket and band carving.

Colors
Blue, Yellow, Green, Red, Black, White, Purple, and Orange are available. May be designed as a single or dual arch color combination. Colors available in Firm only.

Diagnostic Setup

R104
The teeth are repositioned as prescribed. Used for pre-treatment to determine tooth size discrepancies.

Fabrication requirements: Upper and lower models with centric bite.

Lab Tip: To prevent damage to mounted models during shipping, carefully wrap and cushion models and fill voids in box.

*See Zero Base Occlusion for detailed tooth settings.
Inman Spring Aligner

The Inman Spring Aligner offers an effective alternative Inman Spring Aligner if patient compliance is an issue. Bands are placed on first permanent molars and like the removable design, the fixed spring aligner moves teeth with controlled, continuous force using NiTi coil springs.

Fabrication Requirements: Both upper and lower models are requested to avoid occlusal interference.

Inman Fixed Spring Aligner

B138
The Fixed Inman Spring Aligner offers an effective alternative Inman Spring Aligner if patient compliance is an issue. Bands are placed on first permanent molars and like the removable design, the fixed spring aligner moves teeth with controlled, continuous force using NiTi coil springs.

Option: Lingual to Labial Movement Only
Similar in function to the Inman Aligner, this modification is ideal for individuals requiring lingual-to-labial incisor alignment, with limited labial-to-lingual correction needs. The lingual component works as a piston-like force to move teeth in a labial direction. The acrylic bow helps control incisor alignment from the labial as teeth are pushed outward.

Quickly correct anterior rotations, crowding, and adult relapse without the need for multiple appliances.

The Inman Aligner appliances use NiTi coil springs to apply steady, gentle forces to teeth without the need for costly multiple appliances to complete correction. Both lingual and labial components work together as opposing piston-like forces to move teeth. These appliances are ideal for correction of incisor rotations, crowding, and adult relapse. The Inman Aligner appliances achieve controlled, continuous movement of the anterior teeth (2x2). These pre-programmed appliances make adjustments virtually unnecessary. Precision alignment is accomplished with just one appliance.

Inman Spring Aligner

A119
This appliance is designed for maxillary or mandibular incisor correction. Moderate tooth movement from lingual-to-labial, as well as labial-to-lingual, can be obtained through the use of both lingual and labial components working together as opposing piston-like forces.

Spring Aligners

Spring Aligners, also called Spring Retainers, are designed to correct incisal crowding or rotation. This is achieved by exerting a light force on the central and lateral incisors. It is recommended that no more than a 2mm reset per tooth be attempted or retention will be compromised. More severe correction may take two appliances. The first is made to an intermediate setup; the next is fabricated to ideal position. Both appliances can be fabricated initially.

The Inman appliances on this page are designed to make corrections with just one appliance.

Finishing Appliances

The appliances A Great Lakes Exclusive!
Spring Aligners (continued)

3 X 3 Spring Aligner
A109
The 3 X 3 is designed to be the most comfortable to the patient but is also the least retentive. This smallest of the Spring Aligners is used for limited correction.

The Bloore Removable Aligner
A112
The Bloore Removable Aligner is an alternative for correcting crowded or displaced incisors without fixed appliances. This appliance moves individual incisors labially, lingually, and will also rotate them. Exact tooth alignment is delivered by controlled pressure exerted by the appliance’s adjustable Eyelet Arm Springs, placed on the lingual surface of each incisor.

- Lingual to labial movement is achieved by progressively opening the “eyelet,” which increases the spring length and force exerted.
- Unrotating a tooth is performed by bending the “arm” to precisely position the eyelet from mesial to distal on the lingual surface.
- Labial to lingual movement is accomplished by standard adjustment of a labial bow.
- Arch length discrepancy is corrected by reducing the widths of anterior teeth. When treatment is complete, the Eyelet Arm Springs™ are made passive and the appliance serves as a retainer.

Modified Spring Aligner
A110
This popular design maximizes retention.

Super Spring Aligner
A111
The addition of the helical coil springs of the Super Spring Aligner provide for maximum force in correction.

The Bloore Removable Aligner
A112
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- Labial to lingual movement is accomplished by standard adjustment of a labial bow.
- Arch length discrepancy is corrected by reducing the widths of anterior teeth. When treatment is complete, the Eyelet Arm Springs™ are made passive and the appliance serves as a retainer.

Option: Labial to Lingual Movement Only

Bowman Consolidator
A121
This appliance uses a piston-like labial component to close anterior space or to close minor relapse space on previously treated orthodontic extraction cases. The lingual component is used to correct rotational alignment of the incisors, as determined from the lab setup model. A circumferential clasp with a soldered cantilever extension bar is used for retention and holds the facial tubes that house the labial component.

This modification is similar in function to the standard Bowman Consolidator but eliminates the need for a lingual component or model setup/reset. Labial and lingual acrylic is relieved to represent normal arch form. Spring force from the labial component moves anterior teeth against the lingual acrylic, using a circumferential clasp with a soldered cantilever extension bar.
Removable Retainers

Great Lakes fabricates a large variety of removable appliances designed for retention or minor tooth movement. The components and accessories outlined on pages 2 and 3 give you a myriad of design options. You will also see a wide selection of choices in colors and patterns offered to promote patient cooperation.

The Tremont Cantilever Wrap Around Appliance
Maximizes Retention without Occlusal or Interproximal Interference

The Tremont appliance, ideal for maxillary retention, is designed without support wires to interfere with occlusal or interproximal surfaces. Contoured around the first and second molars, the labial bow can be positioned up or down by adjusting the cantilever arm with a three-prong plier. The cantilever arm is superior and parallel to the labial bow and provides exceptional stability without coming in contact with the soft tissue.

The redesigned QCM labial bow still features an inconspicuous clear facial component, making it ideal for patients who are concerned about aesthetics. The new design allows the labial component to be removed and replaced in case of breakage or discoloration without the need for a new appliance. It can be screwed on easily to the posterior wire component and can still be refitted if necessary by heating the facial surface.

Fabrication Requirements:
When forwarding a Removable appliance to the laboratory, we suggest the following:

1. Stone work model.
   NOTE: Thickness of the base should be 7mm in the deepest portion of the palatal area.
2. Opposing arch should be included with any case where occlusal interference of clasps is a concern.
3. A wax bite should be included when a bite plate is to be added, as well as the opposing model.
4. A QCM appliance (shown soldered to Adams clasps) should be included in any case where occlusal interference of clasps is a concern.

Our standard fabrications include:

- **Appliance Identification** - The patient’s name is permanently sealed into the acrylic when possible.
- **Duraloy Wire** - Extra strong with twice the breakage resistance of stainless steel.
- **Reinforced Solder Joints** - When possible, wires are reinforced with banding material before soldering to prevent breakage and protect solder from erosion in the mouth.

**Biocryl II (Thermal Formed Material)** - We have a variety of color choices available. Please indicate your color preference on your prescription: Red, Blue, Green, Purple, Light Pink, Light Blue, or Clear.

Please consult the following pages for all your color and pattern options.
Custom Patterns
When patients have choices, compliance improves. Let your patients personalize their appliances with color or pattern options.

**Glitters** (cold cure)
These are available in Multicolor, Silver, Gold, Red, or Blue. They show up best in any transparent or semi-transparent color option shown.

**Stardust** (cold cure)
Available in any “Rainbow” color option shown.

**Polka Dot** (cold cure)
Choose any base color and we will place multicolored dots inside unless otherwise noted.

---

Decals (Can be added to cold cure or Biocryl retainers.) We have dozens of patterns to choose from. Plus, we can incorporate just about any picture your patients may want. If it fits into a space the size of a penny, we can use it. Just send the picture along with your order and we’ll take care of the rest.

**Creatures Big & Small**

**Sports & Activities**

**Graphics & Symbols**

**The Elements**

* Up to 3 colors

**Note:** All patterns shown are cold cure.

---

* Up to 3 colors

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Note: Actual decal sizes shown may vary according to individual appliance fabrication requirements.
of decals to suit any patient’s interest or such as a favorite sports star or team logo. with your case!

### Tropical Tones
- Bright, vibrant colors
- Semi-transparent to opaque, depending on color chosen
- Cold cure

<table>
<thead>
<tr>
<th>Color</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocean Blue</td>
<td><img src="image" alt="Ocean Blue" /></td>
</tr>
<tr>
<td>Mango Orange</td>
<td><img src="image" alt="Mango Orange" /></td>
</tr>
<tr>
<td>Paradise Pink</td>
<td><img src="image" alt="Paradise Pink" /></td>
</tr>
<tr>
<td>Banana Yellow</td>
<td><img src="image" alt="Banana Yellow" /></td>
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<tr>
<td>Lava Red</td>
<td><img src="image" alt="Lava Red" /></td>
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<tr>
<td>Key Lime Green</td>
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<tr>
<td>Tidewater Teal</td>
<td><img src="image" alt="Tidewater Teal" /></td>
</tr>
<tr>
<td>Purple Sunset</td>
<td><img src="image" alt="Purple Sunset" /></td>
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</tbody>
</table>

### Contemporary
- “Taffy-like” colors
- Opaque
- Cold cure

<table>
<thead>
<tr>
<th>Color</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snow White</td>
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<tr>
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<tr>
<td>Lime</td>
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</tbody>
</table>

### Neon Glow
- Glow in the dark
- Opaque
- Cold cure

<table>
<thead>
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<th>Color</th>
<th>Image</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>Green</td>
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<tr>
<td>Yellow</td>
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<td>Strawberry</td>
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<tr>
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<tr>
<td>Teal</td>
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</tbody>
</table>

### Rainbow
- Standard “Color Wheel” colors
- Transparent, like colored glass
- Cold cure

<table>
<thead>
<tr>
<th>Color</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td><img src="image" alt="Red" /></td>
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<td>Green</td>
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<tr>
<td>Clear Blue</td>
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<tr>
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<td><img src="image" alt="Clear" /></td>
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<tr>
<td>Yellow</td>
<td><img src="image" alt="Yellow" /></td>
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<tr>
<td>Dark Blue</td>
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</tr>
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</tr>
<tr>
<td>Clear Pink</td>
<td><img src="image" alt="Clear Pink" /></td>
</tr>
</tbody>
</table>
Finishing/Retention

**Biocryl**
- Standard “Color Wheel” colors
- Transparent, like colored glass
- Thermal-formed Biostar® discs

![Color Wheel](Image)

**Summer Shades Biocryl**
- Bold and beautiful bright colors
- Thermal-formed Biostar® discs

![Summer Shades Biocryl](Image)

*Summer Shades Biocryl is no longer available as an option.*

**Patterned Biocryl**
- “Consistent pattern quality
- Thermal-formed Biostar® discs

![Patterned Biocryl](Image)

**Glitter Biocryl**
- Even glitter distribution
- Thermal-formed Biostar® discs

![Glitter Biocryl](Image)

Appliances made from Biocryl discs are fabricated on the Biostar® positive pressure thermal-forming machine. The Biostar provides flawless adaptation by using a combination of positive pressure and forming the heated side of the material over the model. The Biostar and MINISTAR S®, the economical Biostar alternative, also can be purchased through our Products Division.
**Invisible Retainer**

A127

Initially designed for temporary retention, improvements in materials have led to Invisible Retainers lasting longer and becoming the option of choice for the appearance-conscious patient. They can be used to align a maximum of two teeth per arch with 1mm of movement per tooth.

A number of Invisible Retainers can be fabricated over a series of setups to achieve greater tooth movement without wires. It is highly recommended to provide a PVS (Poly Vinyl Siloxane) impression to maintain model accuracy due to multiple pours.

---

**Essix™ Retainer**

A128

The Essix™ Invisible Retainer is a cuspid-to-cuspid version of the standard full arch appliance. Minor tooth movement is possible.

*Essix™ is a trademark of Raintree Essix, Inc.*

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**Bonded Retainer**

B143

Bonded Retainers offer the advantages of being inconspicuous as well as hygienic. Two or more bonds may be utilized according to individual preference. Indirect delivery trays are also available.

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**Krause Retainer**

B136

Used to stabilize excessively mobile upper and lower anterior teeth. The Krause appliance is constructed with bondable mesh pads connected by wire spines. The appliance can be adapted to the surface of the enamel or recessed into the teeth, depending on occlusal considerations.

---

**Bleaching Tray**

A114

A common style of bleaching tray is similar in construction to an athletic mouthguard. Die relief is placed on the labial surface of the teeth as specified on the prescription, usually 5-5. This allows for a space between the tooth surface and the appliance for holding the bleaching agent during wear.

Further variation of this design was developed by Dr. Ronald Lemon, Louisiana State University. His design (pictured) calls for the use of Hard/Soft material instead of mouthguard material. Hard/Soft is soft against the dentition and hard against the opposing arch, providing a more stable tray. Its use offers greater patient comfort and minimizes gingival irritation due to leakage because of its close, contoured fit. The Lemon Bleaching Tray can be requested two ways: marginal (standard) 2mm above the gingival margin, or scalloped for patients with periodontal disease or tissue sensitivity.
Splints For Temporomandibular Joint Dysfunction

When Temporomandibular Joint relationships do not coincide with dental occlusion or teeth occlude abnormally, muscles may become tender and other symptoms such as headaches, sinus pain, clicking jaw joints, and chronic neck and shoulder pain can occur. Temporomandibular Joint problems, when left untreated, lead to osteoarthritis, osteoarthrosis, and degenerative joint disease.

The technical staff at Great Lakes has seen many changes in the design of appliances to treat TMJ symptoms throughout the years. Our technical staff consistently attends seminars given by leading international clinicians. This expertise is reflected in the quality and broad range of applications that are provided as part of the Great Lakes’ standard of excellence.

Our normal in-lab fabrication time is five days; however, we realize that on occasion you may need an appliance fabricated in a shorter period. Feel free to call our toll-free number to prearrange any priority cases.

Please refer to the specific appliance for fabrication requirements. For the highest degree of accuracy and fewer chairside adjustments, a set of facebow-mounted models is recommended.

When unmounted models are received, our technical staff will mount them to a SAM® articulator. This is done with a jig, which provides average measurements of the distances between the condyles and the lower incisal edge, degree of inclination of the mandible, and centering of the midlines. These distances were derived from a measurement study of human skulls. In this way, we can provide you with the most accurate splint without facebow-mounted models. Great Lakes technicians have experience with nearly every type of articulator currently on the market.

Full Contact Splint with Anterior Guidance

J102

This splint is also known as the Superior Repositioning Splint. It is used for symptoms as stated above, without the presence of a clicking jaw joint.

This Splint is usually fabricated of clear Splint Biocryl material to fit over the maxillary or mandibular arch. Cold cure acrylic is added to achieve centric stops from the lower posterior buccal tips or upper lingual tips. Acrylic is added to the anterior region to form a ramp, providing incisal guidance and cuspid protection. The grinding of the ramp is accomplished on a semi-adjustable articulator which duplicates, as precisely as possible, the range of motion of the human jaw.

Material Options: Can be fabricated using Splint Biocryl (standard), Variflex™, or Hard/Soft.

Fabrication Requirements: Upper and lower stone models with a centric relation wax bite open a minimum of 2mm.

No need to ship your articulator!

Whether you use a SAM®, Denar®, Hanau™, Artex®, Panadent®, Whip Mix®, KaVo or Stratos®, we have the most common models of these articulators in house.
Anterior Repositioning Splint
J103
The Anterior Repositioning Splint, also known as the Pull Forward Splint, is used for the same symptoms as the Full Contact Splint with Anterior Guidance, coupled with a presence of a click in the joint. This splint is used to recapture anteriorly displaced discs.
This full coverage maxillary splint is used for night wear. These splints are usually fabricated with a wax bite bringing the mandible into a protrusive position.
The upper splint position is maintained by means of an acrylic flange, which rests lingual to the lower anteriors and indexes the lower buccal cusps. The flange maintains position even at night when the jaw relaxes.
The lower splint maintains position with deep buccal, lingual, and incisal indexing of the upper cusp tips.
*Material Options:* Can be fabricated using Splint Biocryl (standard), Variflex™, or Hard/Soft.
*Fabrication Requirements:* Upper and lower stone models and a protrusive bite open a minimum of 2mm.

Flat Occlusal Plane Splint (Full Contact)
J105
The Flat Occlusal Plane Splint is also known as a hard nightguard. The symptoms for using this splint are the same as for the Full Contact Splint with Anterior Guidance with no clicking joint present.
It is fabricated on the maxillary or mandibular arch. It is a full-coverage splint with an even, flat occlusal surface for the opposing teeth to contact. The Flat Splint opens the vertical slightly and allows the mandibular arch to sit comfortably in its own position coinciding with the Temporomandibular Joint.
*Material Options:* Can be fabricated using Splint Biocryl (standard), Variflex™, or Hard/Soft.
*Fabrication Requirements:* Upper and lower stone models and a centric occlusion bite open a minimum of 2mm.

Overlay Splint
J104
The Overlay Splint is fabricated on the Biostar® machine on either arch. It is usually constructed of an exceptionally hard polycarbonate material known as Splint Biocryl. As an option, the overlay can be made of Hard/Soft material. Hard/Soft is a dual laminate of hard polycarbonate and soft vinyl laminate material. The appliance is formed so that the soft side contacts the teeth on the arch the appliance fits onto and the hard side faces the opposing arch. This appliance can be used for bruxing patients or can be used as a base onto which acrylic can be added for other splint designs.
*Material Options:* Can be fabricated using Splint Biocryl (standard), Variflex™, or Hard/Soft.
*Fabrication Requirements:* Either an upper or lower stone model.

Tanner Splint
J109
The Tanner or Combination Splint is fabricated, using cold cure, on the posterior segments on the mandibular arch. A lingual bar connects the acrylic segments and ball clasps are customarily used for retention. An acrylic cap is placed over the lower anterior teeth that also contacts the lingual of the upper anteriors. Incisal guidance and cuspid protection are built onto the cap. Slight contact of the upper posterior lingual cusps are present to help maintain mandibular positioning.
*Fabrication Requirements:* Upper and lower stone models with a centric relation bite open a minimum of 2mm.
**Splints**

**Gelb Splint**  
J106  
The Gelb Splint is used to reposition the mandible and can also be used to recapture the disc. The Gelb is fabricated on the mandibular arch. It is usually fabricated in cold cure to a wax bite that brings the condyle into a more anterior, inferior position in the fossa and increases the vertical opening. There is posterior coverage connected by a lingual bar. The standard clasping is two ball clasps for retention. Slight indexing of the upper lingual cusps is used to maintain the position.

**Fabrication Requirements:** Upper and lower stone models and a bite to the desired protrusive position open a minimum of 2mm.

**Kois Deprogrammer**  
A125  
The Kois Deprogrammer features a small anterior stop contacting the lower central incisors and slightly discludes all teeth. It can be worn at night to relieve muscle fatigue and headaches. It can also be used as a diagnostic tool as well as to determine centric relation and facilitate centric relation records.

**Fabrication Requirements:** Upper and lower stone models. Models will be mounted in the maximum intercuspal position.

**Cranham Deprogrammer**  
A123  
The Cranham Deprogrammer can be used for equilibration, centric relation records, or as a nightguard. This appliance features a small anterior stop contacting the lower central incisors and slightly discludes all teeth. It is comfortable for the patient, requires no retention clasping, and is easy to use. It is thermal-formed on the Biostar®, using 1.5mm Splint Biocryl, for exceptional retention and fit.

**Fabrication Requirements:** Upper and lower stone models. Models will be mounted in the maximum intercuspal position.

**Mini Deprogrammer**  
J111  
Highly effective, the Mini Deprogrammer eliminates muscle-related TMJ facial pain for the vast majority of patients. Designed with an anterior bite plate contacting the centrals and laterals only, the appliance takes posterior teeth slightly out of contact to remove any interferences that can cause muscle disharmony and allows the condyles to properly seat. A flat bite plate option is also available but will require a greater anterior opening. To prevent super-eruption of posterior teeth, the appliance should not be worn more than 10 hours per day. The Mini Deprogrammer is thermal-formed on the Biostar®, using Splint Biocryl, for exceptional retention and fit. Designed for optimal comfort, the splint covers only the anterior teeth and palate. May be contraindicated for patients with internal derangement.

**Material Options:** Can be fabricated using Splint Biocryl (standard), or Hard/Soft.

**Fabrication Requirements:** Upper and lower stone model.

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**Lab Tip:** You can download Rx forms and shipping labels online at [www.greatlakesortho.com](http://www.greatlakesortho.com)
Heavy duty, rugged construction provides ultimate protection for your patients active in sports.

Great Lakes’ unique Biostar® fabrication process provides you with a seamless design and consistent thickness for a smooth and comfortable fit. This positive pressure forming process assures a tight fit to the dentition and allows your patient to communicate easily without removing the mouthguard.

The superior fit also means the mouthguard is more comfortable to wear, because it does not require as much musculature to hold it in place. It is far less likely to become dislodged during contact sports than a loose fitting appliance.

Our mouthguards are fabricated in a variety of styles and thicknesses, so you can choose the ones that are just right for your patients, depending on the type of sport they are involved in.

**Standard Single Arch Mouthguard**
2-3mm-thick single sheet of vinyl laminate, available in solid colors only. Ideal design for low-impact sports (universal style). Names and decals can be incorporated into this mouthguard type.

**Medium Weight Single Arch Mouthguard**
3-4mm-thick dual laminate vinyl sheets. Ideal for mixed or permanent dentition, adolescent to adult-sized dental arch in moderate contact sports.

**Heavy Weight Single Arch Mouthguard**
5-6mm-thick dual laminate vinyl sheets. Ideal for permanent dentition with large dental arch in heavy contact sports.

**Fabrication Requirements:** Upper and lower stone model.

**Dual Arch Mouthguard (Boxing)**
Maxillary and mandibular laminated mouthguards are articulated with bite registration provided and fused together. A 1-2mm airway tunnel is formed between the incisors of upper and lower arches. Available in solid two-color combinations; choose upper and lower arch colors.

**Fabrication Requirements:** Upper and lower stone models and a bite registration of 4-5mm vertical incisal freeway space is necessary to orient the models to each other on the articulator.

All mouthguards available in the following solid colors: Clear, Red, Blue, Green, Orange, Yellow, Purple, White and Black. Name and decals supplied by the customer can be incorporated into appliance at no additional cost.

**Additional Features**
- Custom Multicolor Combinations
- Orthodontic Relief
- Mesh Reinforcement
- Helmet Strap Attachment (Breakaway)
- Pattern Designs
- Occlusal Indexing
- Hard Plastic Reinforcement
- Great Lakes Lab-Supplied Decals
Chronic snoring may be more than a nuisance disorder. It can be a symptom of a serious medical condition.

Obstructive Sleep Apnea (OSA) is a disorder of the respiratory tract. Specifically, the airway at the level of the oropharynx is repeatedly obstructed, while sleeping, by the tongue being sucked back against the posterior wall of the pharynx. If this obstruction of the airway lasts more than ten seconds and occurs more than five times per hour, the next day the patient will usually suffer symptoms of sleep deprivation. Depending upon the number and duration of these breath stoppages, the daytime symptoms can range from mild lethargy to extreme somnolence. Severe cases can be life threatening.

Because of the proven effectiveness of many snoring/sleep apnea appliances, dentists play an important role in the treatment of this condition. Treatment should always be coordinated with a physician or sleep disorder center. Protocol can be obtained from the Sleep Disorder Dental Society or American Sleep Disorders Association.

Variflex™ heat-softening acrylic is used which will allow the utmost retention. The included instructions will advise the patient to run warm to hot tap water on the appliance (prior to placement and removal). This softens the material for simple insertion; it then hardens to a firm consistency intraorally. Clasping is incorporated into the appliance for added retention. *Patented #5,409,017  University of British Columbia*

**Fabrication Requirements:** Upper and lower study models, wax or silicone bite registration utilizing the 2mm or 5mm fork of the George Gauge, and 60-65% the distance from C.O. to full protrusion. This position will ensure your gradual control with 44 potential adjustments (1mm retrusive; 10mm protrusive), while still maintaining a minimal vertical opening.

**Herbst® Sleep Appliance**

There is now a large body of evidence showing the effectiveness of mandibular repositioning appliances for mild and moderate obstructive sleep apnea. To give an appliance the best chance to be successful, it should be retentive, comfortable to the patient, and adjustable from its original position. The Herbst® Sleep appliance (whether made of hard acrylic, soft vinyl material (EVA), or Variflex™ heat-softening acrylic) is more than adequately retentive. Herbst appliances have been used in orthodontics for decades and are well tolerated. The mandibular portion of the appliance can be advanced forward up to 5mm using telescopic hardware. This allows gradual advancement without the use of shims and allows the clinician a more precise means of positioning the mandible to the therapeutic position. Pre-cut tubing segments of the Herbst hardware can also be used which allows 1mm advancements.

**Fabrication Requirements:** Upper and lower stone models with a construction bite open 4-5mm incisally and 60-65% the distance from centric occlusion to full protrusion.

* Herbst is a registered trademark of Dentaurum, Inc.
The NAPA Appliance  
C102  
Developed by Dr. Peter T. George

The NAPA appliance has been very effective in reducing objective and subjective sleep apnea and snoring. In patients who have had overnight polysomnographic testing before and after the NAPA, the average reduction in the apnea index was 77%, with a range from 49% to 100%.

Snoring in nonobstructive sleep apnea individuals occurs when the tongue is posteriorly displaced, but not contacting the posterior pharyngeal wall. This narrows the airway which, due to the Venturi effect, causes the air to move more rapidly resulting in the vibrations of snoring. Most OSA patients are loud snorers, but not all snorers have OSA. It is important to screen all snorers for OSA. No OSA patient should be treated by a dentist without the referral of a physician or sleep disorder center.

Material Options: Hard acrylic with clasping (standard). Also can be fabricated with Variflex™, a thermal active material, (clasping optional). This variation will be trimmed scalloped to the gingival margin.

Fabrication Requirements: Upper and lower stone models with a construction bite open 5mm incisally that reflects a position of the mandible approximately 50-70% of maximum protrusive distance from centric occlusion to full protrusive. The midline should be the same relation as it is in centric.

Elastomeric Sleep Appliance  
K101

Studies conducted at the University of Kentucky Medical Center Sleep Apnea Laboratory have shown the Elastomeric Sleep appliance to be effective in the treatment of snoring and mild to moderate obstructive sleep apnea. The material used in this appliance is normally used for tooth movement procedures because of its elasticity. In the sleep appliance it is passive and exerts no tooth-moving forces. The Elastomeric Sleep appliance is made of soft silicone in a custom-injection process to yield the optimum in retention and patient comfort. This compares favorably in terms of comfort to other dental appliances, as well as the CPAP device commonly prescribed for sleep apnea patients by physicians. Not recommended for patients who brux.

Fabrication Requirements: Upper and lower stone models with a construction bite open 5mm incisally that reflects a position of the mandible approximately 50-70% the distance from centric occlusion to full protrusive.

Note: The George Gauge is highly recommended for all mandibular repositioning appliances.

aveo TSD – Tongue Stabilizing Device

This unique one size fits all device treats chronic snoring by repositioning the tongue forward instead of relying on the mandible. Uses gentle suction – rather than the alveolar ridge or dentition – to stay in place. Allows patient to swallow comfortably. Made of an injection-molded medical grade silicone. No impression needed. Ideal for these patient types:

- Edentulous
- Complicated dentition
- TMJ indicated
- Periodontal problems
- Large tongue
- Children

Discontinued
Keles Face Mask

Manufactured exclusively by Great Lakes

Clinical Features
- Corrects Class III malocclusion diagnosed with maxillary retrognathism
- Corrects anterior open bite by rotating the maxilla downward and forward and by intruding the molars
- Prevents downward and backward rotation of the mandible
- No chin cup and no distal force on the TMJ
- Force above center of resistance of the maxilla and parallel to the Frankfort horizontal plane
- Can be used with bonded or banded RPE
- Easy to size and adjust chairside

Patient Comfort
- Adjustable, designed to ensure a perfect fit for every face regardless of shape
- No headcap required
- Maximum stability
- Easy to place and remove
- Comfortable while sleeping
- No chin cup, patient can speak and move jaw comfortably
- No metal bars or elastics at mid-face
- Forehead rest molded of lightweight plastic

Elastics
- #76 1/2 inch 16 oz. from forehead pad to vertical arm

Two independent adjustment points
- Forehead width
- Horizontal and vertical dimensions

Washable, reusable Silopad™ liner effectively reduces:
- Friction
- Abrasion
- Shear Force
- Pressure

Appliance Management
The intraoral appliance is activated 1/4 turn (one activation) twice daily for the first five days. The patient will then begin to wear the Keles Face Mask for at least 14 hours daily, including sleep, for six months. After six months, records are taken (cephalometric x-ray, intraoral & extraoral photographs). Based on the amount of correction that has occurred, treatment is terminated or continued until desired correction is accomplished.
The Reverse-Pull Face Crib was initially designed for the treatment of maxillary insufficiencies and mandibular prognathism. When our customers reported additional applications for the forward pull of the crib (Class II and closing spaces), refinements were made. A chin cup was added to improve stability. The frame was modified to prevent shifting even during sleep. The mouthbow was redesigned for increased tension potential and optimal patient safety.

**Forehead Rest**
- Larger for improved patient comfort.
- Break-resistant clips attach securely to frame.
- Molded of lightweight plastic.

**Mouthbow**
- Upgraded to .075 gauge wire.
- Increased stability and tension potential.
- Used with your choice of intraoral anchor.

**Chin Cup**
- Molded to frame to eliminate rotation.
- Larger cup design for improved patient comfort.
- Molded of lightweight plastic.

**Total Visibility**
- No visual obstructions.
- Can be worn with glasses.

**Adjustment Points**
- Ensure a perfect fit for every face regardless of shape.

**Function**
- Class III: Allows forward pull to bring maxillary arch forward.
- Class II: Allows forward pull on the mandibular arch.
  Excellent for bringing teeth (individual or section) forward.

Elastics: #64-8 oz. 5/16”

Due to lightweight stainless steel construction and face-fitting conformity, the necessity of headstraps has been eliminated.

<table>
<thead>
<tr>
<th>Colors Available:</th>
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</thead>
<tbody>
<tr>
<td>Coral Blue</td>
</tr>
<tr>
<td>Strawberry Red</td>
</tr>
<tr>
<td>Tan</td>
</tr>
<tr>
<td>Grape</td>
</tr>
<tr>
<td>Hot Pink</td>
</tr>
</tbody>
</table>

**Sizes Available:** Small, Medium, Large

**Single use only.**

**Gel liner for forehead and chin cup maximizes comfort.**

Washable, reusable Silopad™ liner effectively reduces:
- Friction
- Abrasion
- Shear Force
- Pressure

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**Custom Fitting Instructions**

A. Adjustments and Fitting
To stay in place while sleeping, the face crib must conform closely to contour of forehead and cheeks. Adjustments should be made by applying an adjusting plier at points A and/or B.
* Adjusting Plier 220-022

B. Adjust to accommodate a longer or shorter face.

C. Pad should be above eyebrows for maximum surface contact allowing patient to talk without displacing face crib.

D. Prevent appliance from pressing against cheekbone.

E. Align mouthbow crib directly with the teeth mouthline. This pressure will hold the face crib more firmly in place.

F. Slight upward or downward adjustment may be necessary to accommodate individual mandibular position and/or chin musculature.
Adaptable Class III Mask

- Made in U.S.A.
- Best quality materials and workmanship
- Designed and approved by Dr. Henri Petit

The protocols for many orthopedic facial mask treatment of Class III cases require very heavy forces to be applied to the craniofacial complex. In these cases, the Adaptable Class III Mask is the ideal choice. Elastics with combined force levels from 2 to 16 pounds couple the face mask to an intraoral appliance(s) to elicit forward movement of the maxilla as a whole, rotation of the maxillary pyramid, or “dental drawer” movement of both arches.

High forward through downward pull is available through adjustment of the mouthbow position with the forehead rest locked and the chin cup free to slide. The Slide/Lok feature of the headrest and chin cup build in an option to increase downward pull. You can lock the chin cup near the bottom of the frame and unlock the headrest. Have patient close and adjust mouthbow for angle of pull. Upon opening or talking, a strong downward force is applied as the headrest remains stationary and the remainder of the mask is mobile.

Recommended sizing: This mask naturally adjusts to the proper fit and comfortable slide for the patients profile, reducing friction when speaking. Loosen the headrest and chin cup while holding the mask to the face; have the patient open and close their mouth. Tighten the component (chin or headrest) that binds, leaving the other free to slide. Align the crossbar (which holds the elastics) for appropriate angle for force, and tighten.

- Elastics Available – #76 1/2” 16 oz. recommended.
- Silopad™ gel liner forehead and chin cup replacements available (2 sets per pkg).

(A superior alternative to conventional padding, Silopad™ is designed to effectively reduce friction, shear force, abrasion, shock, vibration, and pressure. The padding can be washed with mild soap and lukewarm water.)

- Most metal replacement parts are available.

Warning: Do not place padding on an open wound. If irritation or discomfort occurs, instruct patient to discontinue use and notify dentist immediately. If padding becomes wet while being worn, it can be wiped with a dry cloth and lightly dusted with talcum powder, if desired.

Order No.
HST - Standard Mask
HSM - Pedo Mask

Single use only.

Forehead Rest
- Patient comfort is maximized with ample coverage for stability and heavy force diffusion.
- Silopad™ gel liner is washable and reusable.
- Shatter-resistant high-impact ABS plastic.

Chin Cup
- Peripheral design offers laterally extended coverage to diffuse force over the mandible while avoiding the soft area near the lip and under the chin.
- Silopad™ gel liner is washable and reusable.

Main Frame
- Arc of opening bend in lower portion simplifies adjustment.
- Length adjustable at both ends, utilizing the forehead rest Slide/Lok and chin cup guide position.
- Adjustable Pedo Size 3-1/2" - 6"
- Adjustable Standard Size 5-1/2" - 7"

*Measured from center of forehead to point of chin.

Mouthbow
- Looped ends for patient safety.
- Radial locking block is repeatedly adjustable from low to high pull.
- Welded crossbar.

Order No.
HST - Standard Mask
HSM - Pedo Mask

Single use only.
Grummons Protraction Face Mask

1. Maxillary protraction skeletally.
   a. with RPE appliance
   b. with Herbst appliance
   a. Correction of collapsed maxilla segments (when early cleft palate surgery), enhancing the optimal alignment of the teeth.

Dental Arch Protraction

Mandibular

1. If outer bow elastic pull is above the level of the archwire, the molars extrude with occlusal plane change.
2. If outer bow is at the level of the archwire, the lower dental arch protracts. This is usually the most favorable placement, and desired movement.
3. If outer bow is lower than the archwire, the incisors intrudeflare as they advance.
4. Mesial rotation ties to the lower first molars are suggested for counter-rotation effects against the extraoral elastics. A round archwire overlay with the utility arch permits advancement of the lower arch.
5. Treat the overbite before the overjet, otherwise the protraction of the lower dentition will contribute to associated mandibular condylar distalization as excessive incisor overlap persists.

Postorthognathic Surgery

1. Postsurgically to maintain maxillary advancement and anteroposterior correction.
2. Postsurgically to intentionally increase the antero-posterior maxillary advancement.
3. Postsurgically to maintainpromote inferior repositioning with increase in posterior facial height.

Maxillary

1. With fixed orthodontic appliances.

TMJ Management Aspects

1. Protraction of the upper dental arch permits repositioning of the mandible forward to optimize discondyle coordination, and condyle-disc-fossa relationships.
2. Avoidance of Class III elastic utilization, since these tend to compress/load the TMJ components unfavorably, while also promoting masticatory muscle hyperactivity and myalgia.
Vesco Protraction Units

Designed to efficiently correct dental and skeletal Class III malocclusions. This simple set of lip pad attachments are secured to the rectangular archwire of choice with a .018” x .025” buccal tube. This treatment enhancement will aid in achieving effective, rapid skeletal protraction of the maxilla and midface without proclination of the upper incisors or counter-clockwise maxillary rotation.

The lip pads relieve restrictive forces from the upper lip and act as a cleat to bridge elastics from the archwire to a reverse-pull face mask. Consequently, force is placed significantly above the occlusal plane, closer to the center of resistance of the maxilla, for efficient protraction. A separation is incorporated through the center of the acrylic lip pad to allow the orthodontist the option of adapting the pad to the oral anatomy, eliminating patient discomfort. Due to the cantilever effect of the reverse-pull elastics off the archwire, labial root torque is transmitted to the maxillary incisors to avoid their proclination during maxillary protraction. Also, because the maxillary protraction is anchored in the anterior segment, molar extrusion is prevented.

The Vesco Protraction Units can also be used to assist the alignment of the dental midlines or to open spaces to accommodate blocked-out maxillary cusps. They can be used alone or in conjunction with rapid maxillary expansion treatment.

Langlade Reciprocal Arch and Mini Chin Cup

Consists of two preformed components ideally suited for Dental Class II malocclusions with Class I skeletal patterns.

Reciprocal Arch

The Reciprocal Arch is designed with two hooks on each side to hold Class II elastics. These elastics extend to hooks on buccal tube attachments at the lower first permanent molar. This is worn 24 hours a day, applying a reciprocal force to both arches. If used with the Mini Chin Cup system, headgear tubes are secured at the corners of the step-up bends in the arch.

Note: The Langlade system is also available with custom-made components, depending on your patients’ needs. Please contact laboratory customer service for more information.

Mini Chin Cup

The Mini Chin Cup can be added and is worn at home to protract the lower arch and increase the maxillary headgear force, making the dental correction faster and easier. Recommend: 5/6” 3oz. elastics.

- Peripheral design offers laterally extended coverage to diffuse force over the mandible while avoiding the soft area near the lip and under the chin.
- Silopad™ gel liner is washable and reusable. It is designed to effectively reduce friction, shear force, abrasion, shock, vibration, and pressure.

Warning: Do not place padding on an open wound. If irritation or discomfort occurs, instruct patient to discontinue use and notify dentist immediately. If padding becomes wet while being worn, it can be wiped with a dry cloth and lightly dusted with talcum powder, if desired.

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Reciprocal Arch with Mini Chin Cup

Orthodontic Movement: 4-6 oz. / 100-175 grams per side
10-14 oz. total force

Orthopedic Treatment: 10-14 oz. / 300-400 grams per side
20-28 oz. total force
The Inman Power Component

Great Holding Power, Easy To Activate, Won't Back Up, (and it can multi-task)

Infinitely Versatile

Ideal for molar distalization and regaining space, the Inman Power Component (IPC) can be used in many ways and in a variety of appliances. The IPC can even perform multiple movements in one appliance. Used in conjunction with an NFI coil spring, the IPC provides light, continous forces. Activation is easy, precise, and requires no special tools. The IPC's low profile makes it comfortable for patients.

Superbly Designed

*How the IPC works...The IPC is formed by a series of conical offsets with an integrated one-way sliding lock. The component compresses the coil spring as the lock is advanced in 1mm increments over each cone. The lock's finger-like prongs securely grip the neck of the cone until the next activation.*

*This simple, reliable design makes advancement easy and accurate—without the worry of stripping, binding, or back up.*

For more information or FREE Rx forms and shipping supplies:

1-800-828-7626 www.greatlakesortho.com

Use the IPC to:

• Protrude anteriors
• Regain space
• Distalize molars and bicuspids
• Expand arches
• Perform multiple movements with one appliance!