

The  
Science  
Behind  
Incredible  
Smiles.

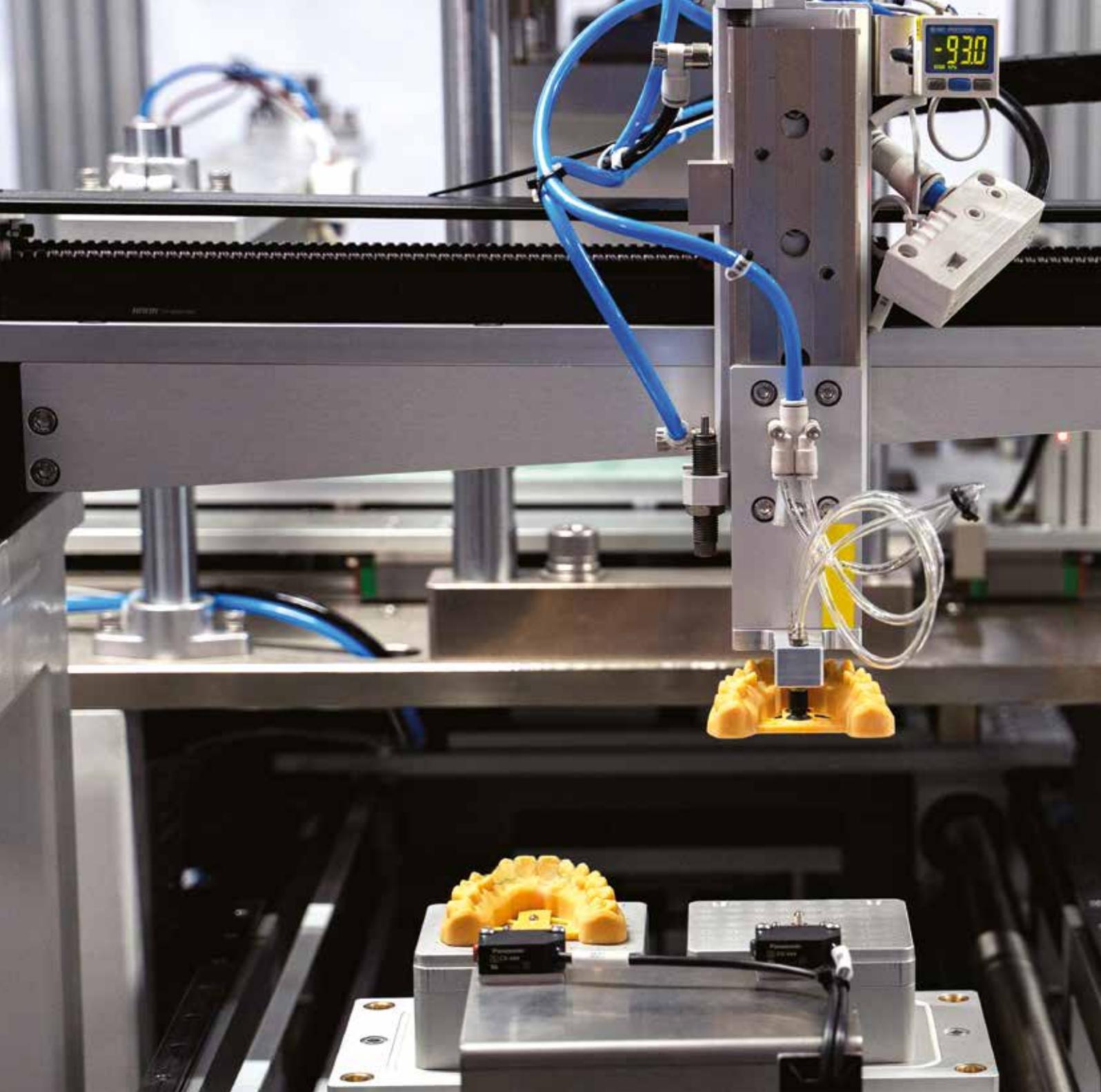
# The TrioClear™ Story Starts With a Clear Goal

To design clear aligners that make the orthodontic treatment process easier and more effective than ever. Our system uses multiple removable aligners as part of a unique – and uniquely-comfortable – progressive force concept. These nearly invisible aligners are custom-made to gradually move patients' teeth to the ideal position. In doing so, we can provide dentists with a predictable and practical aligner solution, while keeping chair time to a minimum.



**PROGRESS. EASIER PROCESSES. INCREDIBLE**

**TrioClear™**



## Why TrioClear™?

- We only work with dentists – as we believe any orthodontic treatment requires a professional
- Our aligners stay in place with minimal attachments and TrioDim Force™ Technology which improves the control of teeth movement
- Clinical simulation software helps you accurately visualise alignment and movement before it happens
- Safe movements are designed for mild to moderate cases
- Our trays are made with nearly invisible CE-marked, BPA-free material

# A Streamlined Process for Incredible Consistency

TrioClear™ is produced on a fully automated production line, which operates 24 hours a day. This state-of-the-art production system means we significantly improve the consistency, accuracy, efficiency of our aligners – while greatly decreasing the costs too.



24 hr automated production



Progressive Force Concept



FDA Cleared



Triple Layered Material



CE Marked Material



Bisphenol-A Free



Increased Gingival Coverage



Pre-Made Buttons



TrioDim Force™ Technology



Minimal Attachment



Trio iDesign™ Software

# How Does TrioClear™ Work?

Many dental professionals would know that direct bone resorption is associated with light force application that allows for vascular potency. Indirect resorption is associated with heavy forces that cause crushing injury to the periodontal ligament (PDL) tissues and ultimately cell death<sup>1</sup>.

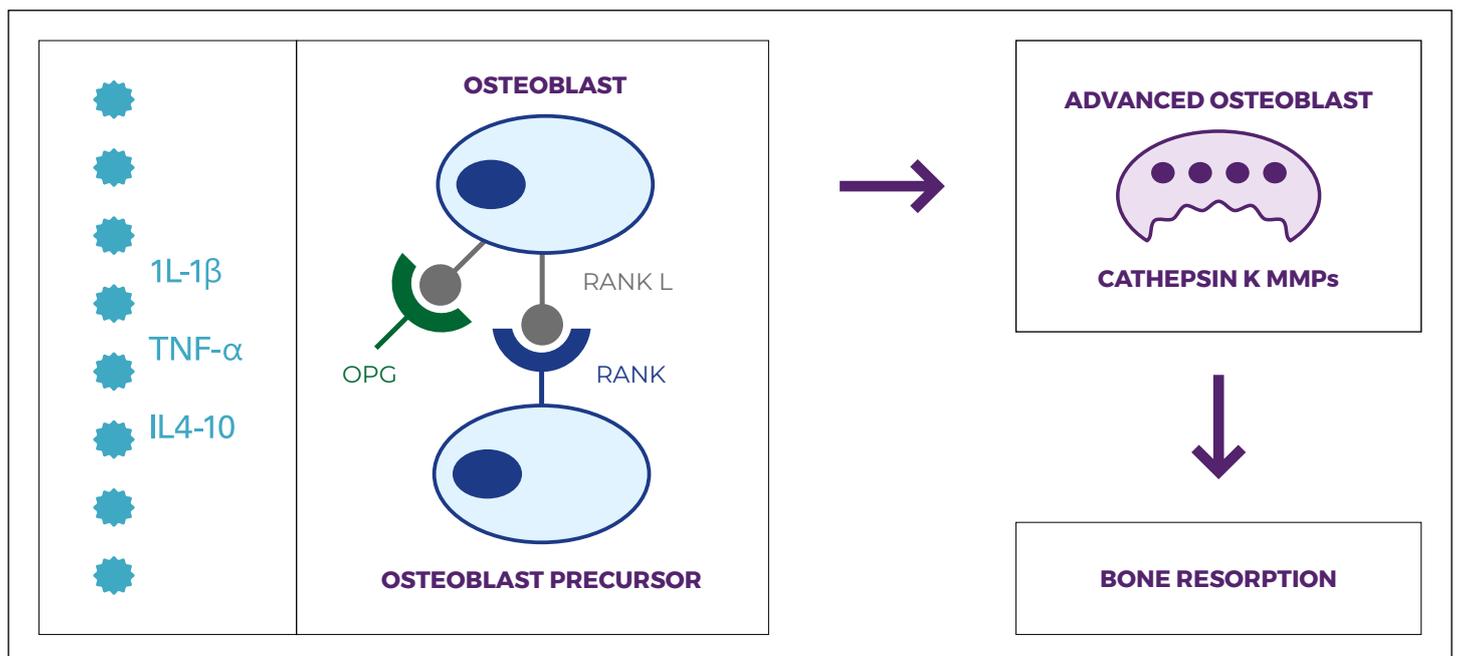
Intermittent low force (<0.3N/cm<sup>2</sup>) results in an inflammation process in the PDL – which leads to tooth movement through minimal root resorption (compared to a continuous force).

Further studies have also shown that forces between 0.20-0.26N/cm<sup>2</sup> allow for blood supply to be maintained, resulting in less cell damage and less root resorption<sup>1</sup>.



## ORTHODONTIC FORCE

The orthodontic force applied on the tooth structure documented below.



# Progressive Force Concept



**Soft** ~0.5mm thickness

Single-material aligner systems that use the same thickness for all aligners can often lead to forces that are too much for individual teeth – which has a higher chance of causing root resorption and unpredictable movements. Alternatively, combining one soft and one hard aligner contributes to around 0.6mm tooth movement.

By starting every sequence of movement with a soft aligner, we can make sure that any force that's first expressed is low – before finishing up the final movement with a hard aligner.

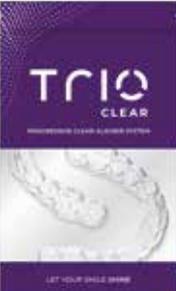
A study by Elkholy and Lapatki concluded that using a sequence of progressive thickness significantly reduces the force being exerted,

**Hard** ~0.7mm thickness

making for a relatively constant load increase for each individual set-up step<sup>2</sup>. It's also worth noting that treatment time is unaffected, since a larger range of movement can be accomplished compared to a single thickness aligner system.

Alternating between soft and hard aligners makes for the perfect range of orthodontic forces. The principle of this light force and then subsequent force reactivation might be compared with the principle of leveling and alignment in fixed appliance therapy<sup>1</sup>. It's a unique Progressive Force Concept that's been proven to make orthodontic tooth movements very predictable. We're certain you'll see the same when treating your patients.

|  | Days per step* | Aligner Thickness | Benefits  |
|--|----------------|-------------------|---|
|  | 7 days         | ~0.5mm            | <ul style="list-style-type: none"> <li>• Eases the patient in with greater comfort</li> <li>• Flexible and easy to insert/remove</li> <li>• Stretches ligaments</li> <li>• Stimulates bone remodelling</li> </ul> |

|  | Days per step* | Aligner Thickness | Benefits   |
|--|----------------|-------------------|--|
|  | 7 days         | ~0.7mm            | <ul style="list-style-type: none"> <li>• Increased rigidity for programmed movement</li> <li>• Holds teeth in place while remodelling occurs</li> <li>• More sustainable without material distorting or weakening</li> <li>• Protects against micro-relapse</li> </ul> |

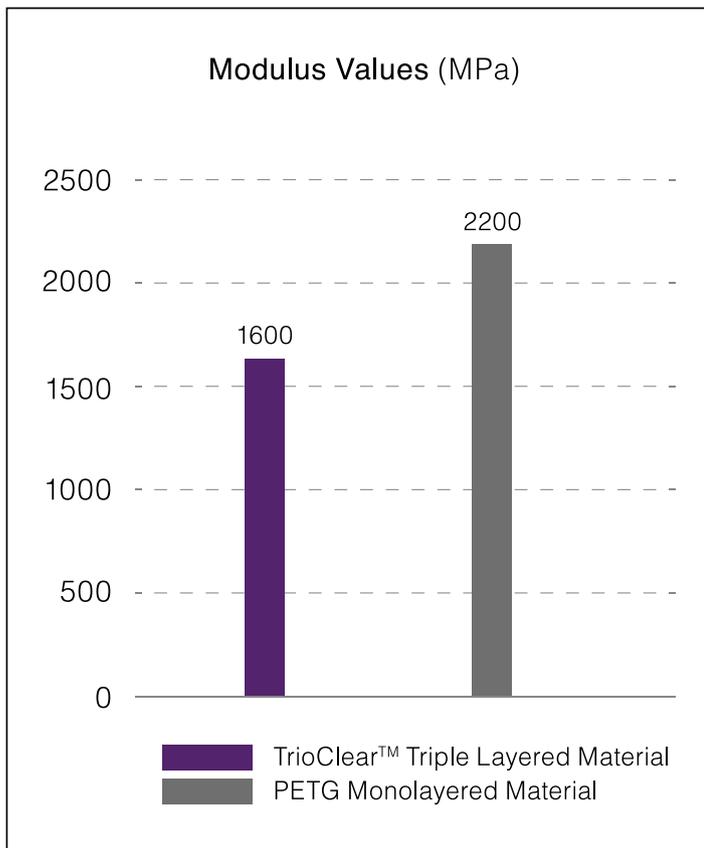
\* Each step's changing time may vary at the dentist's discretion, subjected to good compliance and fit as the patient progresses.

Reference:  
 1. Schupp, W., & Haubrich, J. (2023). Aligner Orthodontics and Orofacial Orthopedics (2nd ed.). Quintessence Publishing.  
 2. Elkholy, F., & Lapatki, B. G. (2018). Recommendation of a novel film-thickness sequence, 0.4, 0.5 and 0.75 mm, for aligner systems. Journal of Aligner Orthodontics, 2(4), 295-304.

# The Material That Makes TrioClear™

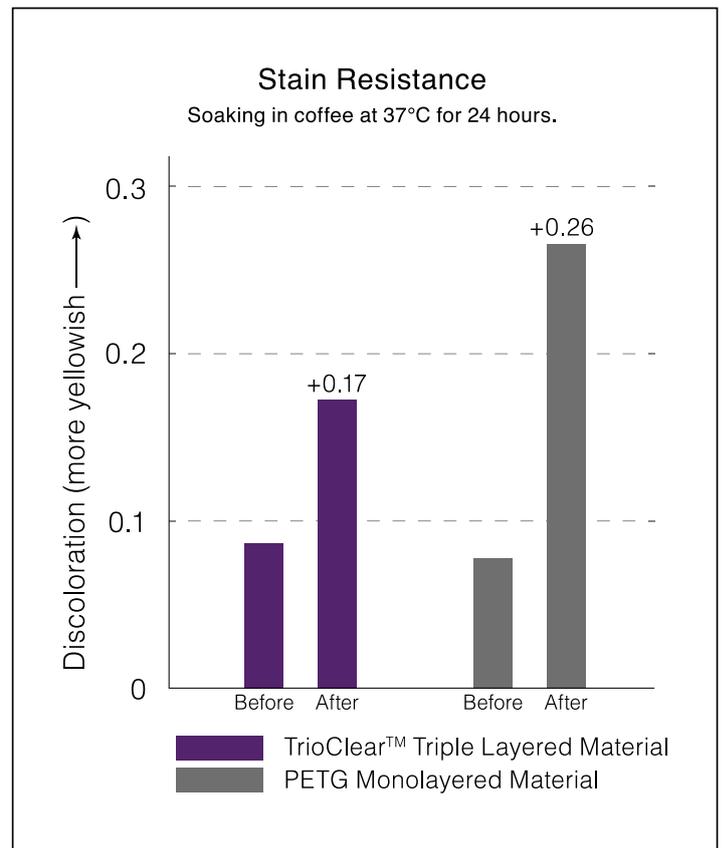


TrioClear's™ new triple-layered, CE-marked material offers a number of benefits compared to the PETG monolayered material which is found in many other aligner systems.



## 1. MORE COMFORT

Studies show that the new material has a balanced modulus – which enables more precise movement of teeth while providing extra comfort.



## 2. LESS STAINS

The new material has a greater stain resistance compared to the monolayered material – making TrioClear™ aligners less likely to become discoloured compared to some clear aligner plastics.

# Bisphenol-A Free Material

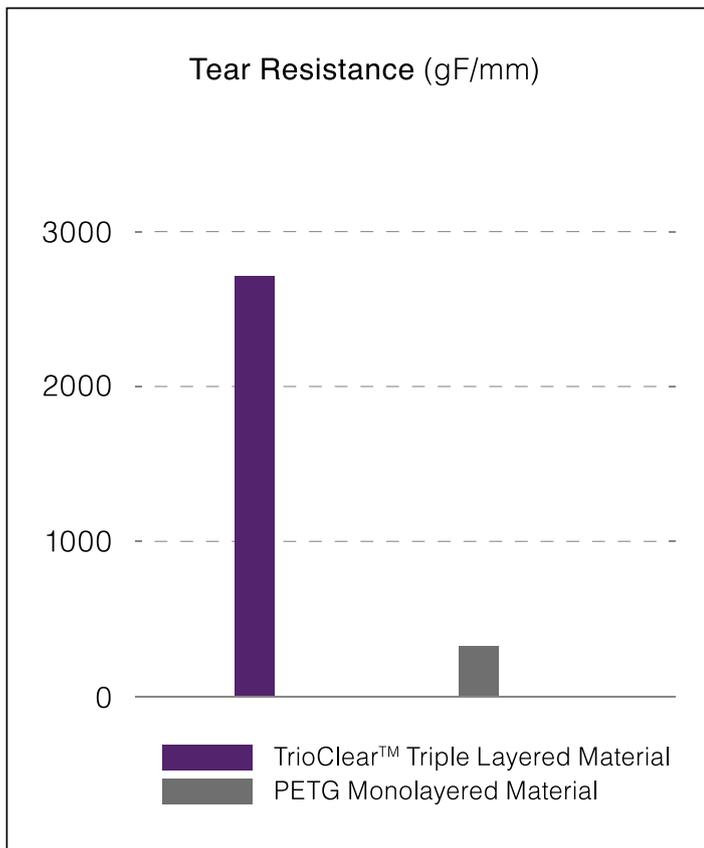


Bisphenol-A (BPA) is a chemical that's been commonly used to harden plastic for many years – which could potentially harm our health. This means BPA-free products are essentially the best choice for patients – and TrioClear™ products are all BPA-free.

# FDA Cleared

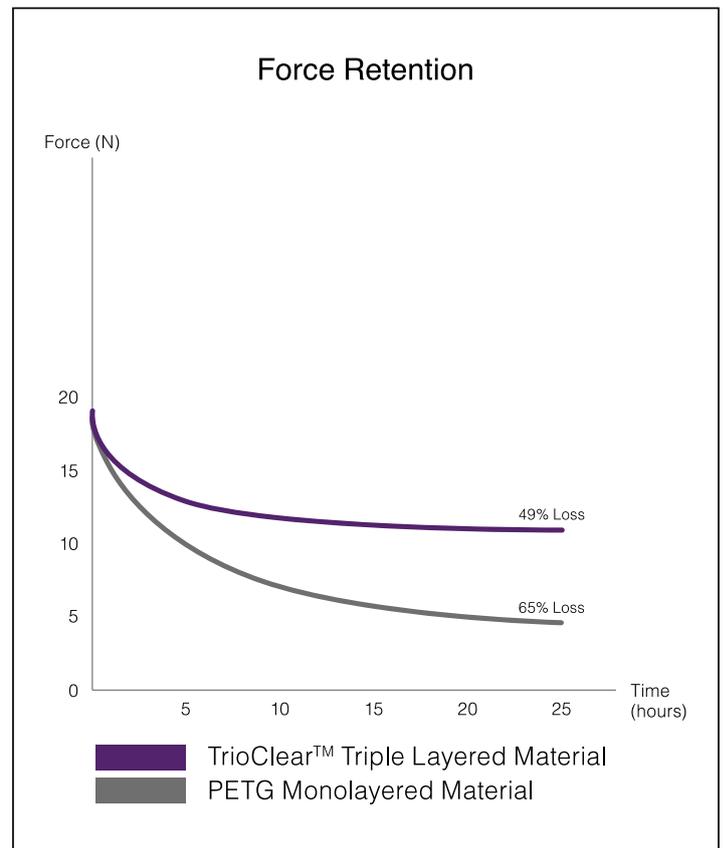


TrioClear™ progressive clear aligner system received US Food and Drug Administration (FDA) 510(k) clearance for the treatment of teeth malocclusion in patients with permanent dentitions. Utilising a series of soft and hard aligners for incremental tooth movements, it sequentially positions teeth with gentle force safely and effectively.



### 3. IMPROVED TEAR RESISTANCE

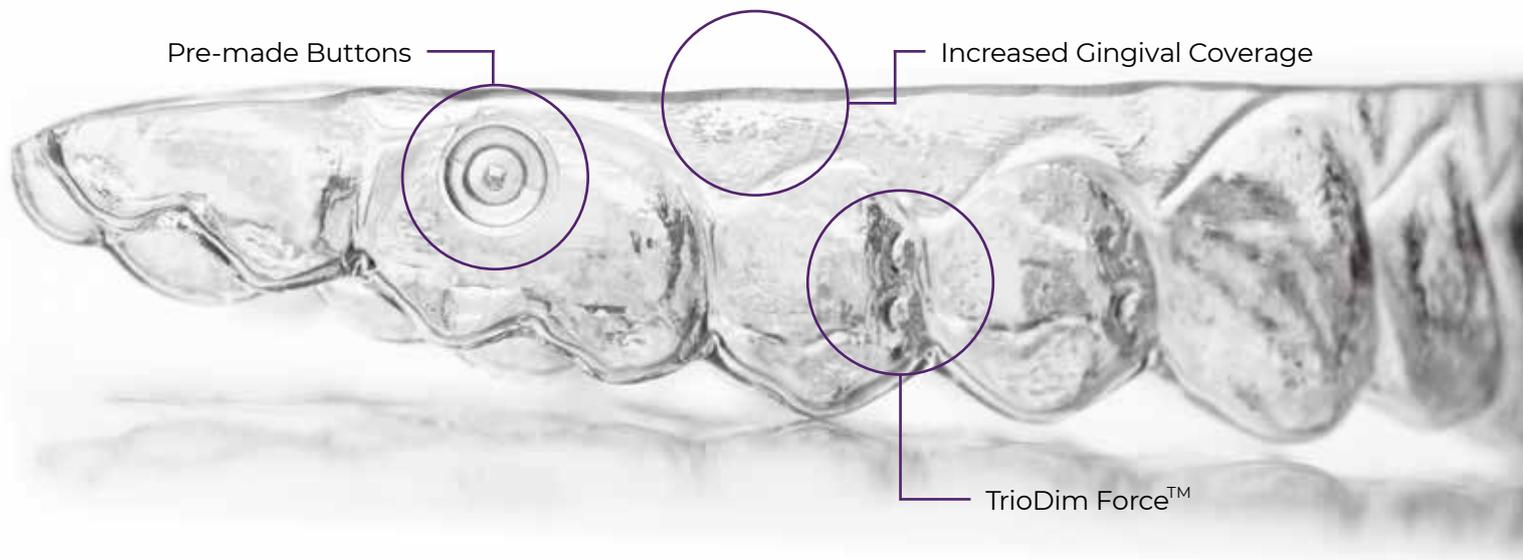
Studies show that the new triple-layered material with elastomers improves its tear resistance properties – making it more durable than other monolayered materials.



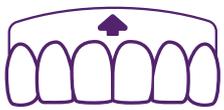
### 4. ENHANCED FORCE RETENTION

The new material can exert more orthodontic force over a longer period. This makes it easier to predict planned tooth movements – as the material continuously generates orthodontic forces over a longer period.

# Streamlined Treatment for Straighter Teeth



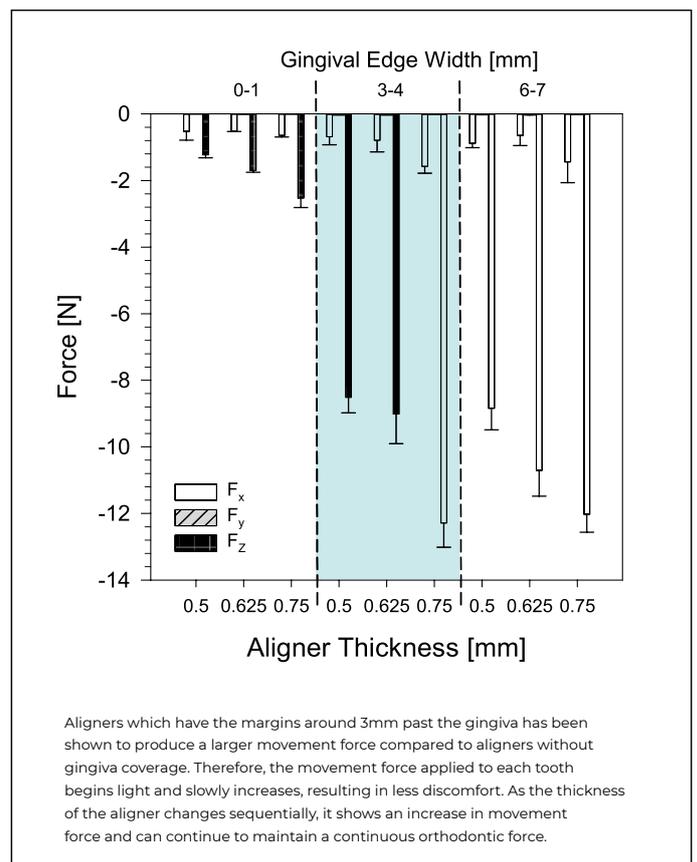
## Greater Gingival Coverage



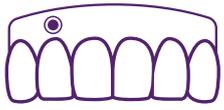
Extended gingival coverage means the aligners can cover a larger amount of area – particularly for teeth with short crown height. The margins of the aligners are also less visible, which makes for a better aesthetic. Studies have shown that aligners with margins that cover the gingiva have increased retention – compared to clear aligners with margins that follow the scallop of the teeth<sup>3</sup>.

This coverage also increases orthodontic forces in an acceptable amount. It gives our technicians room to make pre-formed buttons directly on every aligner – saving chair time since there’s no need to bond (and no risk of debonding).

We know that non-gingival coverage aligners have benefits for some situations, though. So you’re welcome to choose scalloped margins on request as well.



# Pre-Made Buttons Directly on Aligner



We place buttons directly on TrioClear™ aligners that work with elastics and auxiliaries, reducing the risk of debonding that might happen when buttons are placed directly on your patients' teeth. This also means less chair time in your practice, or emergency patient visits.

Our approach also makes different biomechanics possible. Buttons can be pressed higher in the gingival coverage area – and additional cutouts and engagement hooks on the aligners are also possible for certain tooth movements.

# Minimal Attachments



Attachments used in other clear aligner brands take up precious clinical time, as you need to apply them first – and then reapply them when they dislodge. Not only that, they can be easily stained or not fit as ideally as they should do because of excessive flush on the attachments.

Our TrioDim Force™ technology means we can use minimal attachments and still generate predictable and effective results, making it easier for you to achieve aesthetic results for your patients.

# TrioDim Force™ Technology



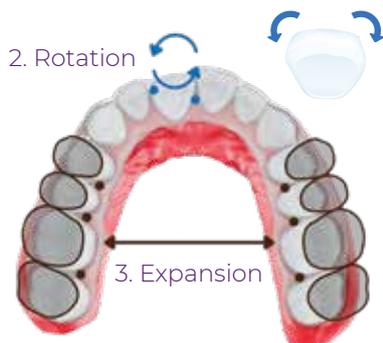
Our experienced technicians implement TrioDim Force™ technology in all TrioClear™ cases. This means divots will be designed at very specific locations – depending on the specific movement required.

Every divot is measured and specifically placed with special instruments for the most precise location. Here's a simple summary of different movement and the corresponding location of the divots below:

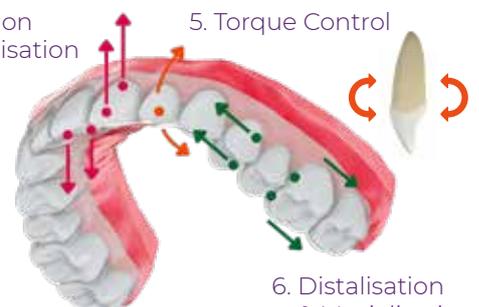
1. Tip Control



2. Rotation



4. Proclination & Lingualisation



6. Distalisation & Mesialisation

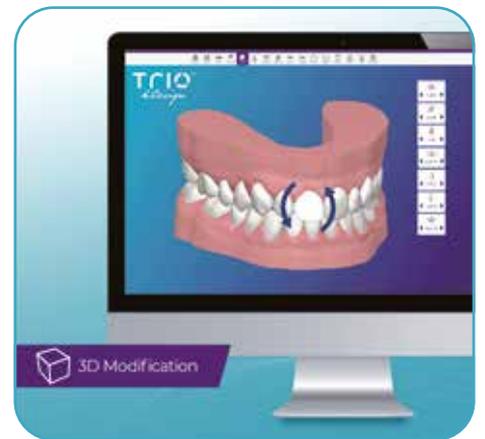
Reference:  
3. Lixia Gao and Andrea Wichelhaus (2017) Forces and movements delivered by the aligner to a maxillary central incisor for palatal tipping and intrusion. The Angle Orthodontist: July 2017, Vol. 87, No. 4, pp. 534-54

# Trio iDesign™ Software



**TRIO**  
*iDesign*

You'll be able to get a clear visualisation of each treatment with our Trio iDesign™ simulation software – which offers a number of different viewing angles and stages. Each simulation design has an external link that you can easily share it with other colleagues or patients and can be accessed on your mobile too.



# How TrioClear™ Compares

## TrioClear™

### 1. INCREASED GINGIVAL COVERAGE

Increased control of orthodontic force and provides extra protection to teeth movements

### 2. TRIODIM FORCE™ DIVOTS

Facilitates individual tooth movement to the ideal positions without attachments

### 3. PRE-MADE BUTTONS ON ALIGNERS

More comfortable and avoids scratched gums and ulcers during eating

### 4. MINIMAL ATTACHMENTS

Reduces chair time and increases aesthetics

## Other Aligner Brands

### 1. DOES NOT COVER GINGIVA

### 2. HIGH RELIANCE ON ATTACHMENTS

### 3. METAL BUTTON ON TEETH

### 4. STAINS EASILY





# Better for Your Patients. And the Planet.



The Ecodont™ Retainer is our 100% recyclable and Bisphenol-A free orthodontic product. It comes in two sets (two upper and two lower retainers) for extra convenience – as well as 3-months warranty and a retainer case. Ecodont™ Retainers are 1.0mm thick – the strongest material amongst all of the TrioClear™ products.

We're committed to making a positive difference to the planet – as well as for your patients. It's why we plant a tree for every TrioClear™ product made.

## This Is the Science Behind the TrioClear™ Process.

Ready to see how they can help you and your patients make incredible process?



**100% Recyclable**

**BPA<sup>FREE</sup>**

**Bisphenol-A Free**



**Raw Material from Germany**



**1.0mm Thickness**

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