

# Clark Twin Blocks

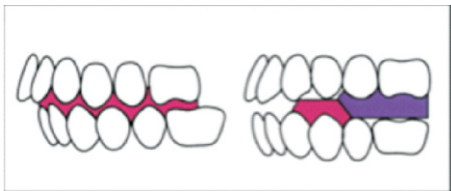
Dr. William J. Clark & Dr. Derek Mahony

Department of Orthodontics, 49 Botany Street Randwick NSW 2031, Australia

The author developed twin blocks in 1977 as removable functional appliances using inter-active occlusal Inclined planes to guide the mandible forward for correction of a class ii malocclusion.

Twin block appliances are simple bite blocks that are designed for full-time wear. They achieve Rapid functional correction of malocclusion by the transmission of favourable occlusal forces to occlusal inclined planes that cover the posterior teeth. The forces of occlusion are used as the Functional mechanism to correct the malocclusion.

The occlusal inclined plane is the functional mechanism of the natural dentition. Twin blocks modify the occlusal inclined plane and use the forces of occlusion to correct a class ii malocclusion.

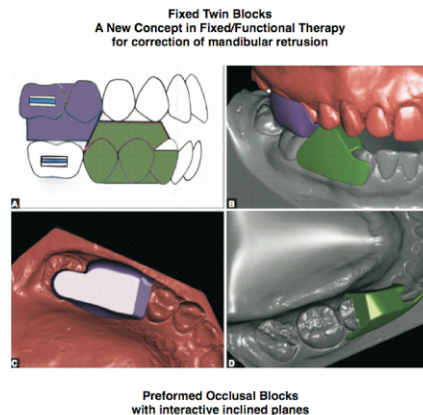


## Clark Twin Blocks

A new product has been developed for use as removable or fixed twin blocks, using preformed occlusal Inclined planes connected by preformed palatal and lingual wires. The concept of treatment is identical to the Removable appliance technique, with the advantage that the appliances may be fixed to the teeth during the period of corrective treatment.

### Treatment Objective

To correct malocclusion of the teeth due to a retrusive mandible by guiding the mandible forward on occlusal inclined planes. preformed occlusal blocks are moulded in biocompatible bis-acrylic material. They are signed as one size fits all".



## Clark Twin Blocks

Clark twin blocks are designed by Dr William Clark who invented twin blocks in 1977.

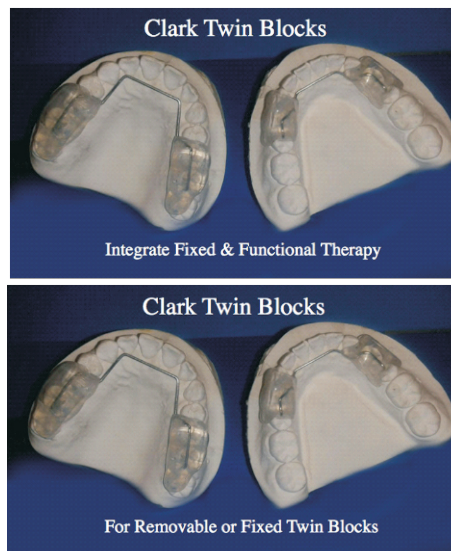
Dr Clark has presented courses and lectures worldwide for the past 35 years and removable twin blocks are now the most popular removable functional appliances.

It has been the author's ambition to design fixed twin blocks for the past 25 years, recognizing that many orthodontists are not prepared to use appliances that can be removed by the patient due to problems of compliance that may influence the response to treatment. After completing 12 years of clinical testing a new improved design finally achieves the objectives of providing a safe and effective design for fixed twin blocks.

The breakthrough is based on simple appliances with preformed occlusal blocks and preformed Lingual wires that can be placed on models in a trial set up and adapted to the patient's construction bite. The appliances are then filled with materials suitable for temporary or permanent fixation to the teeth. An indirect technique eliminates errors of positioning of the blocks in the mouth.

The new design is "patient friendly" as the palatal and lingual wires do not cover the palate and this allows the tongue freedom to adapt into the palate as treatment progresses. The appliances do not cover the anterior teeth. This is an important advantage as fixed appliances can be fitted on the anterior teeth and molar tubes may be placed on the buccal surface of the upper blocks. In the lower arch bands may be placed on lower first molars with a utility arch to control the lower incisors.

Clark Twin Blocks Enable Full Integration of Fixed & Functional Therapy



## Clark Twin Block Kit

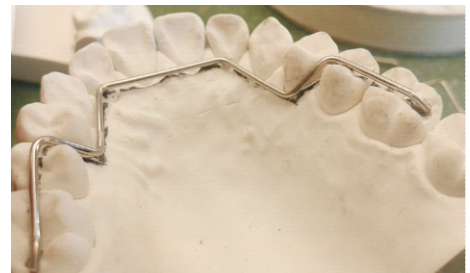
**Preformed Palatal & Lingual Wires: One Size Fits all Models:**

**Preformed Clark Twin Blocks:** can be assembled in the laboratory for fitting in 20 minutes compared to spending half a day making customized removable twin blocks.

The breakthrough is based on simple appliances with preformed occlusal blocks and preformed Lingual wires that can be placed on models in a trial set up and adapted to the patient's construction bite. The appliances are then filled with materials suitable for removable appliances or for Temporary or permanent fixation to the teeth. An indirect technique eliminates errors of positioning of the blocks in the mouth.

### Instructions:

- 1. Impressions & Construction Bite:** Impressions of the patient's dentition are taken with an intra-oral construction bite to register the mandibular advancement required to correct the malocclusion. The models are mounted on an articulator
- 2. Preformed Lingual Wires:** Place the wires on the models and adapt the width to fit.
- 3. The Upper Wire:** Designed to engage mesial to the second premolar and pass distally over the First molar.

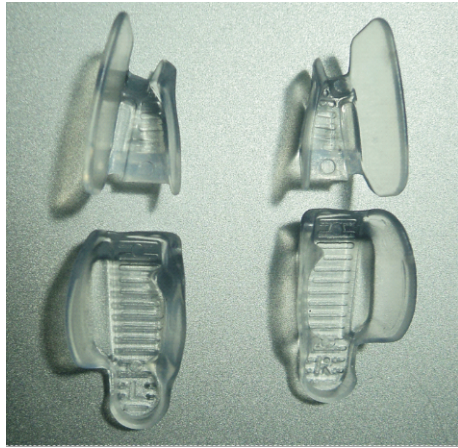


- 4. The Lower Wire:** Fits mesial to the first premolar and passes distally over the second premolar

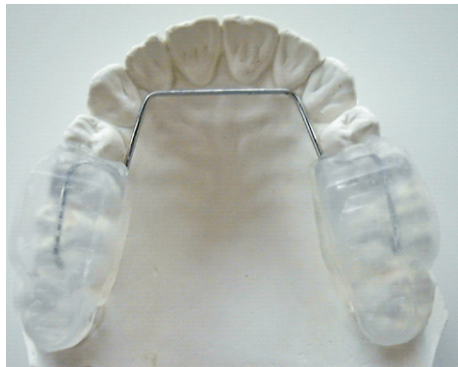


- 5. Preformed Blocks:** There are four preformed occlusal blocks in the kit, one for each quadrant Lower blocks.

Clark, et al.: Clark Twin Blocks



**Trial Set Up:**



6. Place the upper blocks on the model over the wires to fit mesial to the second premolar and extending distally over the molars.

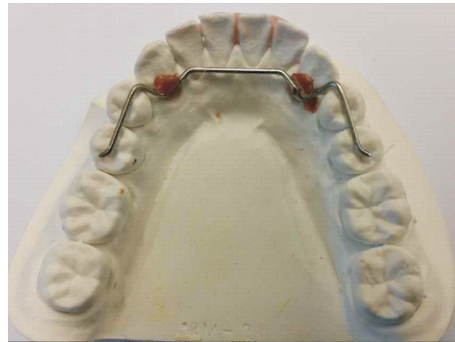
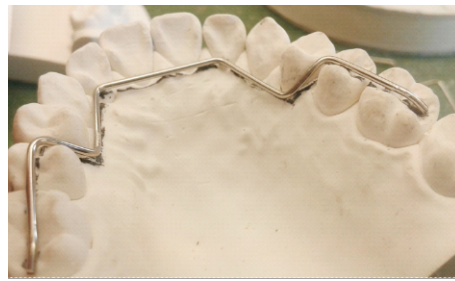


7. Place the lower blocks over the premolars with the buccal extension over the canines. The lower block is designed to move mesio-distally to occlude with the upper block according to the construction bite.

8. The lower block is designed to move mesio-distally to occlude with the upper block and adapt to the construction bite.

**Preformed Palatal & Lingual Wires** provided in the kit are adaptable and designed as “one size fits all models” and have been tested on a wide range of models. This greatly simplifies the construction and provides safety and stability

for fixed twin blocks.



**Instructions for Use:** Description of the product, components, how to use, for how long, precautions, indications, contraindications, maintenance of device.

Twin blocks are designed to be worn typically for 6 to 9 months to correct a class ii malocclusion by advancing the mandible to correct a mandibular retrusion.

Impressions of the patient's dentition are taken with an intra-oral construction bite to register the mandibular advancement required to correct the malocclusion. The patient's dental models are mounted on an articulator prior to placing the preformed blocks on the models. Individual blocks are designed to fit over the teeth in each quadrant so that they articulate on the occlusal inclined planes. The blocks are designed to cover the lingual, occlusal and buccal surfaces of the posterior teeth, the upper blocks extending distally from the second premolars to cover the first and second molars. The lower blocks cover the lower premolars and canines.

An indirect technique is described to customize the twin blocks on models prior to transferring the appliances to the mouth. Having first checked the occlusion with the blocks in place they are then filled with son mouldable material and customized to fit on the patient's models. The Material is then cured either by chemical or light cure device.

**Temporary Fixation of Twin Blocks**

Typical materials for this purpose are standard dental filler materials. The technique of fiong Fixed twin blocks in the mouth is essen:ally similar to temporary crowns and bridges. Temporary crown and bridge materials can be used to fill and fix the preformed blocks, for example integrity Multi-cure® bis- acrylic.

**Class 1a materials are suitable for temporary fixation in the mouth to adapt to full time wear. This resolves problems of patient compliance.**

- LC primer plasticiser is applied before filling the blocks
- Clear blokker® or durasplint® class 1a material from scheu dental may be used to fill Occlusal blocks to customize on models for temporary fixation for up to 30 days.
- Triad® provisional materials in a range of dental shades.

**Fixed Twin Blocks**

Class 2a materials are biocompatible to meet the international regulations for fixation in the mouth for an extended period of treatment. For example orthocryl clear supplied by dentaurum is suitable for use with fixed twin blocks. The material is used in an indirect technique to fill the blocks and customize them on models prior to transferring them to the mouth. A range of dental fixatives can be used to fix the blocks to the teeth.

For example glass ionomer cements may be used for temporary fixation. Alternatively composite material may be used to bond the customized blocks to the teeth, for example reliance excel®, which is commonly used to fit the bonded herbst appliance.

**Upper Appliance can be Expanded before Fitting To Adapt Arch Width & Correct Cross Bite**



**Clinical Testing**

Clinical testing by the author over a period of 12 years using blocks covering the occlusal and Lingual surfaces of the teeth proved to be effective over the period of treatment with no failures to complete treatment. In the author's experience there have been no significant adverse effects or biological reactivity during clinical testing. A chapter on fixed twin blocks in the 3rd edition of “twin block functional therapy: applications in dentofacial orthopedics” gives a full account of clinical testing.

**Clark Twin Blocks**

**For Removable or Fixed Twin Blocks**

Preformed appliances can be assembled in the laboratory for fitting in 20 minutes compared to spending half a day making customized removable twin blocks.

The new design is more retentive and meets health and safety standards because it extends over the occlusal, lingual and buccal surfaces of the teeth. The blocks are attached to preformed lingual arches as an additional safety precaution.

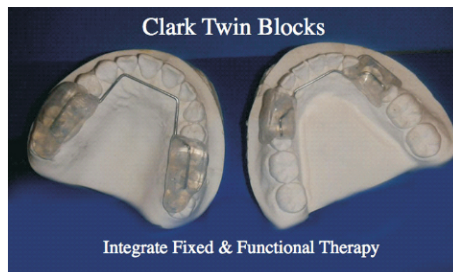
# Orthodontics

## Clark, et al.: Clark Twin Blocks

Adapt blocks for vertical control before fitting  
To Correct Deep Overbite



Trim to Gingival Margins



Clark twin blocks are designed by Dr William Clark who invented twin blocks in 1977. Dr Clark has presented courses and lectures worldwide for the past 35 years and removable twin blocks are now the most popular removable functional appliances.

It has been the author's ambition to design fixed twin blocks for the past 25 years, recognizing that many orthodontists are not prepared to use appliances that can be removed by the patient due to problems of compliance that may influence the response to treatment. After completing 12 years of clinical testing a new improved design finally achieves the objectives of providing a safe and effective design for fixed twin blocks.

**Class 2a materials** are biocompatible to meet the international regulations for fixation in the mouth for an extended period of treatment. For example orthocryl clear supplied by Dentaaurum is suitable for use with fixed twin blocks.

**Dental fixatives** can be used to fix the blocks to the teeth. For example glass ionomer cements may be used for temporary fixation.

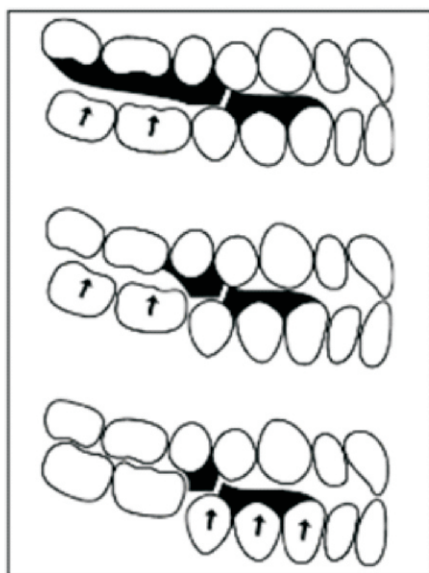
A range of **composite materials** may be used to bond the customized blocks to the teeth, for example **Reliance Excel®** is commonly used to fit the bonded herbst appliance.

### Integrating Fixed & Functional Therapy

**Clark Twin Blocks** do not cover the anterior teeth. This is an important advantage as fixed appliances can be fitted on the anterior teeth and molar tubes may be placed on the buccal surface of the upper blocks. In the lower arch bands may be placed on lower first molars with a utility arch to control the lower incisors.

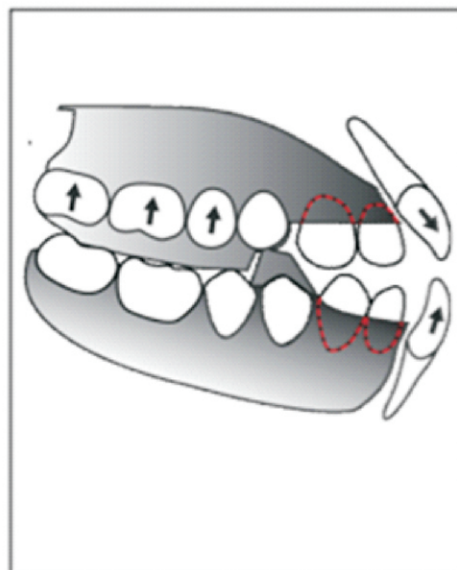
## Vertical Control

Deep Overbite



Trim Blocks to Erupt Lower Molars  
Customise Blocks on Models

Anterior Open Bite



To Correct Anterior Open Bite  
Maintain Contact on Occlusal Blocks