fas

Aligner System

# WORKBOOK

(English)

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# INTRODUCTION

## What is FAS?

FAS is a new system that was created to bring function and excellence to the world of aligners. We are the first aligner system to do this. FAS was designed to bring vertical control into the treatment plan, based on the Arc of Closure. This allows you to finish with excellent occlusion, fewer aligners and minimal refinements.

## Why FAS?

Based on a comprehensive diagnostic process, FAS takes into account and creates a realistic treatment plan in the ideal vertical dimension. The management of the vertical dimension is one of the aspects of the diagnostic process that distinguishes FAS and is of outmost importance to obtain an esthetic and functional result. FAS diagnoses and plans based on the patient's stable Arc of Closure.

## Advantages of FAS

The great advantage of FAS is that it allows us to give our patients a correct chewing pattern and to place the teeth in harmony with their joints. The Arc of Closure allows us to achieve functional and esthetic goals as well as long term stability of the treatment results.

FAS uses innovative materials adapted to each stage of treatment optimizing follow-up and reducing treatment time. From diagnosis and planning to manufacturing with the FORESTADENT quality seal.

## The benefits at a glance:

1. Treatment planning in the Arc of Closure
2. Segmentation of real roots and gingiva
3. Visualization of the planned final position of the teeth
4. FAS Wizard guides you through the case planning in the three planes of space
5. Highly effective treatments with minimal refinements
6. Planning done by orthodontists
7. STOP and GO®

> "Those who never change their minds never change anything."
>
> *Winston S. Churchill*

# THE IMPORTANCE OF DIAGNOSIS

## Even more important in Aligner / Invisible Orthodontics

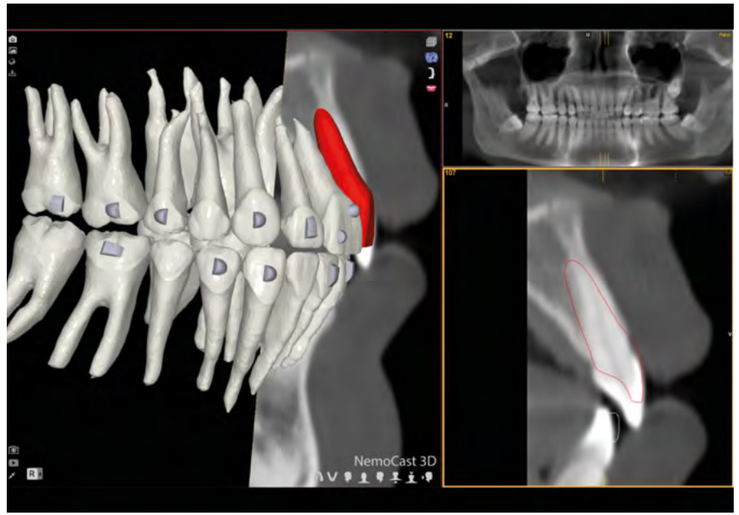
The key to an excellent result is based on an accurate diagnosis. A critical aspect of an accurate diagnosis is to observe the roots of all teeth and their environment in all three planes of space. Again, FAS differentiates itself by locating the roots in the alveolar bone in each treatment plan. This is a crucial element in achieving the goal of periodontal health at the end of treatment.

Knowing the limitations of tooth movements for optimal and effective orthodontic correction is a decisive factor for the stability of the final result. FAS takes every detail into account!

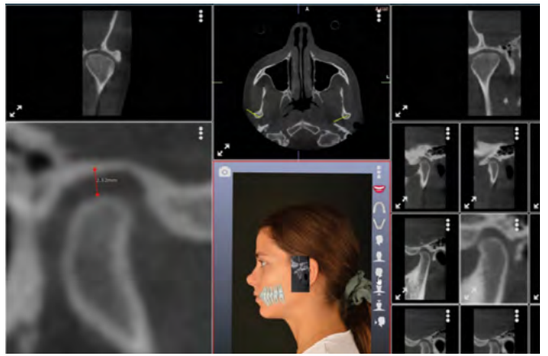
## Periodontal aspects

Periodontal health is one of the main objectives of the FACE treatment philosophy. FAS offers “real” root segmentation that provides the necessary information to achieve periodontal health at the end of treatment. The key factor is the relationship between the roots and the alveolar bone at the end of treatment.

Another element essential for an accurate diagnosis is to examine the gingiva. FAS also offers a “real” segmentation of the gingiva. This is a key element for the effectiveness of the aligners and a decisive factor for the stability of the final result. FAS pays attention to smallest details!



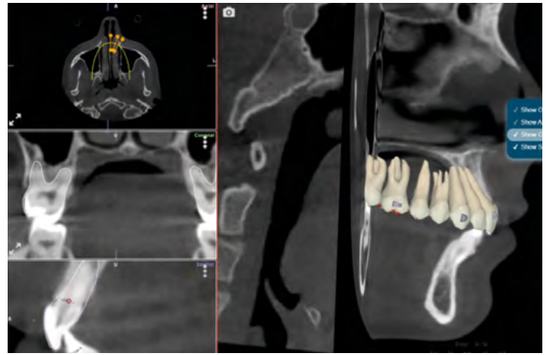


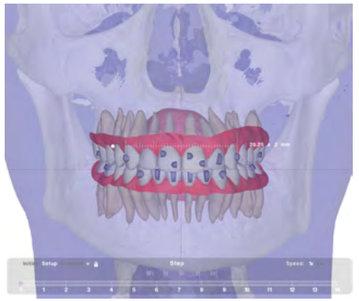



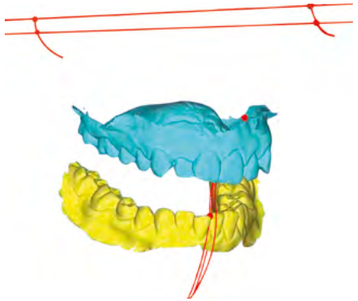
FAS is designed to achieve consistently stable orthodontic corrections. After treatment, the root relationship with the surrounding alveolar bone tissue helps to maintain stability. FAS Occlusal Design® makes it possible to radiologically evaluate planned changes of tooth positions in the context of the alveolar process and assesses dental changes at the crown and root level.

The FAS viewer software is designed to allow the clinician to access all information relevant for the treatment plan during the diagnostic process and when planning the therapeutic solution.

The precision of virtualization offered by FAS leaves no aspect unaddressed. Among other details, it includes specific slices of the temporomandibular joints from the CBCT which you can evaluate thanks to the integrated tools.







# DIAGNOSTIC ELEMENTS

## FAS is supporting 2D, 3D and 4D records for planning purposes.

Estimated Arc of Closure:

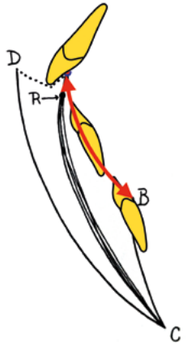
1. Scan the upper and lower models.
2. Manipulate the mandible to capture the Arc of Closure and stabilize this relationship by means of an anterior wax bite.
3. Scan the wax bite. The estimated Arc of Closure allows you to resolve cases where no changes in the total vertical dimension of the case are planned.

Anatomic Arc of Closure – In addition to the articulated models in the Arc of Closure, by adding a full-field CBCT which includes the teeth and the temporomandibular joints, the patient's actual Arc of Closure can be recreated. The anatomical Arc of Closure makes it possible to resolve cases with any necessary change in the overall vertical dimension.

Dynamic Arc of Closure – this is achieved with 4D records and gives us accurate information where the actual axis of rotation is located.



## 3 ways to capture the Arc of Closure

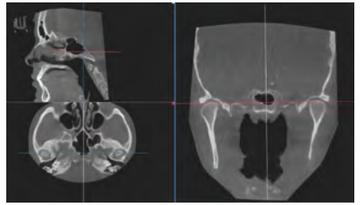



### Estimated Arc of Closure

- Move the jaw up and down in pure rotation
- Stabilize the bite with an anterior wax bite
- Scan the bite in that position

### Anatomical Arc of Closure

- Send the scanned models in the Arc of Closure and also the full size CBCT of the patient, including teeth and temporo-mandibular joints.



### Dynamic Arc of Closure

- Articulated models in the Arc of Closure with dynamic records.

# FAS Wizard

FAS Wizard is the planning tool to provide treatment instructions to our planning team to deliver treatment plans with maximum precision.

FAS will help you to cover all relevant data and to avoid missing essential aspects during the diagnostic process. FAS provides a FAS medical records form to complete vital information that should not be omitted.

1 Free estimation of the feasibility of a case

2 Vertical dimension

3 Transversal Dimension (Mid Line)

4 Sagittal dimension

5 Bolton Discrepancy Analysis

6 Limitations

7 Anchorage planning

8 STOP and GO®

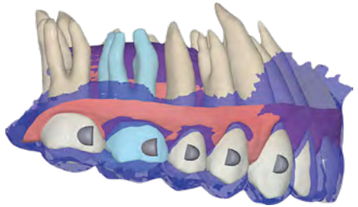
## 1 – Free estimation of the feasibility of a case

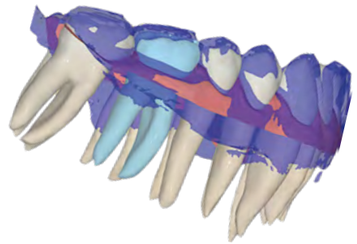
If you doubt the feasibility of a case with FAS, simply upload the patient's records, including photographs and x-rays, to the FAS portal and our team of specialists will contact you to suggest what type of treatment would be necessary.
This service is free of charge!



## 2 – Vertical dimension

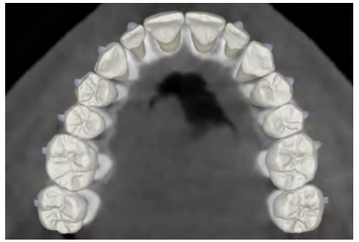
FAS plans the autorotation on the patient's actual Arc of Closure to modify the occlusal plane. This unique feature is a hallmark of the FACE philosophy. In step 1 you specify whether you want to decrease, maintain or increase the vertical dimension. Changes in the occlusal planes (Curve of Spee and Wilson's Curve) of each dental arch are also defined in this step. If indicated, correction of the exposure of incisors and canines, changes in premolars, molars and the angulation of the occlusal plane can also be taken care of.

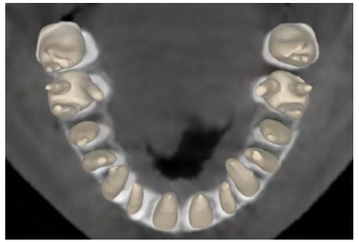




## 3 – Transversal dimension (Mid line)

FAS plans the modifications in the transversal plane taking into account the midline and the and the ratio of the dental arch width and the torque of the posterior teeth.





## 4 – Sagittal dimension

If, at the end of steps 1 and 2, a sagittal problem persists, you should indicate in this step how you want to correct the sagittal relationship (class II or class III). Do you prefer to solve it by molar rotation? Mesialization or by distalization? And if so, which teeth? At this stage, you should also define the overbite and the and overjet you want to achieve with the final setup.

## 5 – Bolton Discrepancy Analysis

If after steps 1, 2 and 3, there is still a DOD (dental osseous discrepancy) you should now indicate how you want to resolve it. With IPR (interproximal reduction)? With dental reconstructions? Or with extractions? Then you have to specify which teeth are to be extracted or reconstructed.

## 6 – Limitations

FAS can deal with cases with existing treatment limitations. In many of such cases, there are limitations due to skeletal or dental problems, such as asymmetries, agenesis or anatomical tooth variations. Or teeth that cannot or should not be moved such as implants, bridges, etc. In this step, the existing limitations that might compromise the treatment have to be specified.

## 7 – Anchorage planning

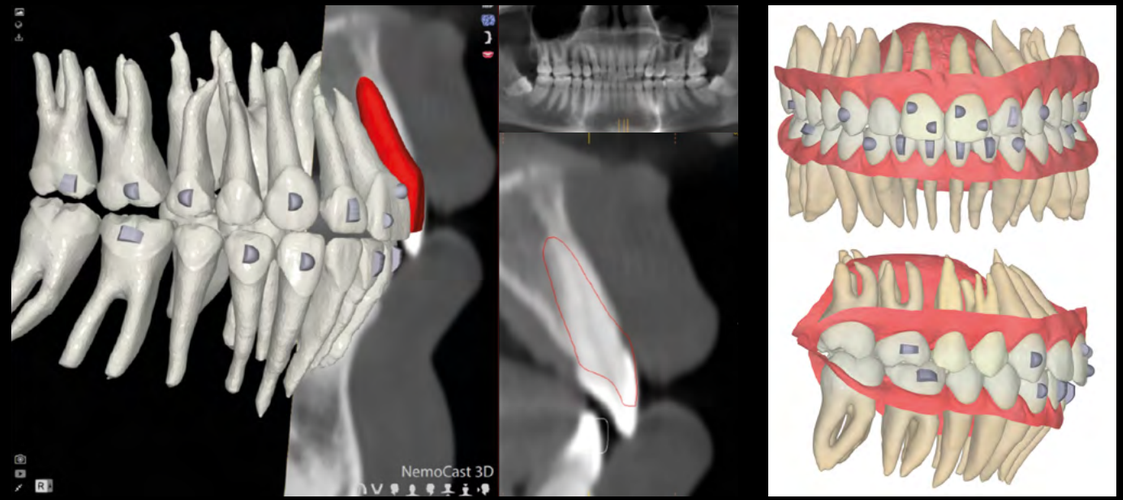
In this step you specify what kind of anchorage requirements you have. We need information on wether you want to use Mini-screws, anchor plates, etc. and where they should be placed by the time our team starts preparing the case.

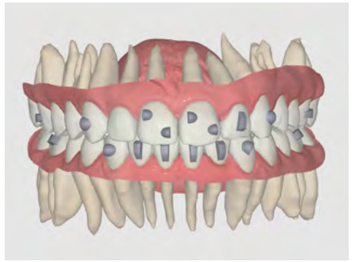
## 8 – STOP and GO®

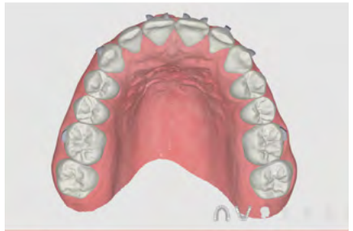
Ideally, in the treatment with aligners, it is vital to monitor the progress of the treatment. To do this, we can define in advance the critical stages for revision. STOP and GO® is designed to check whether the planned correction is achieved with the desired accuracy, to overcome poor treatment follow-up and thus to abbreviate the overall treatment time. STOP and GO® also enables step-by-step planning with different materials for better follow-up and and efficiency.



# FAS OcclusalDesign®



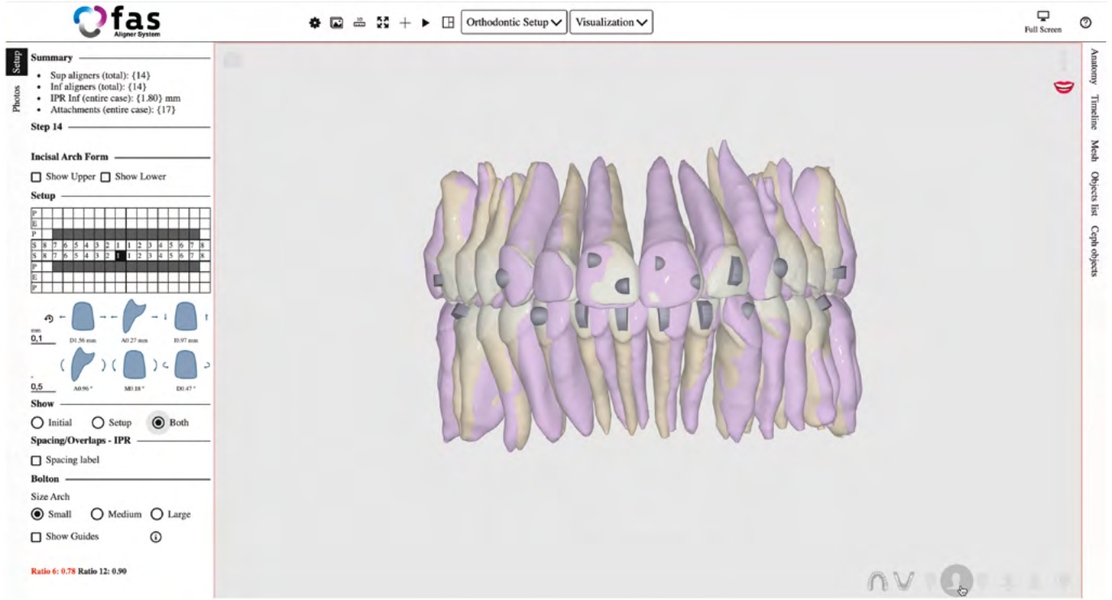


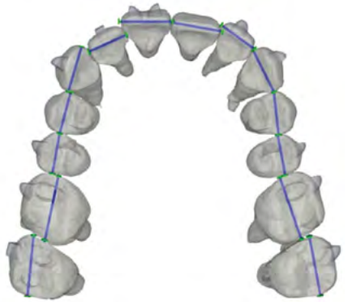


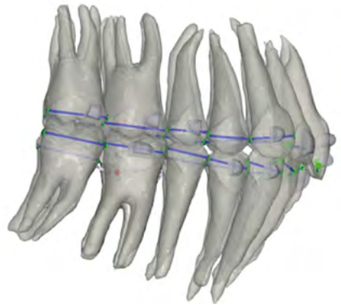
**FAS OcclusalDesign®** is the tool that allows you to communicate with the planning center. In this way, you can actively participate in the planning of the setup.

FAS allows you to work with the visualization of your patients' real roots, crowns and real gingiva. One of the most significant advantages of FAS over other aligner systems is that it offers real roots and gingiva, not mathematical models.

The segmentation of real roots makes it possible to plan and consider the "real" position of the teeth in the alveolar bone. If the corrections of the teeth exceed the biological limits you will know it in advance. You will be able to plan an alternative solution that preserves the objective of periodontal health.







FAS features an **Advanced Bolton Discrepancy Analysis.** It is common to observe tooth size discrepancies occurring in one or more teeth in both the upper and lower arches. To finalize the case with optimal dental esthetics and stable occlusal relationships, this crucial information must be considered in the planning process. The dedicated FAS software provides a tool that allows us to visualize the discrepancies of complete arches and individual teeth.

## Tooth size discrepancy

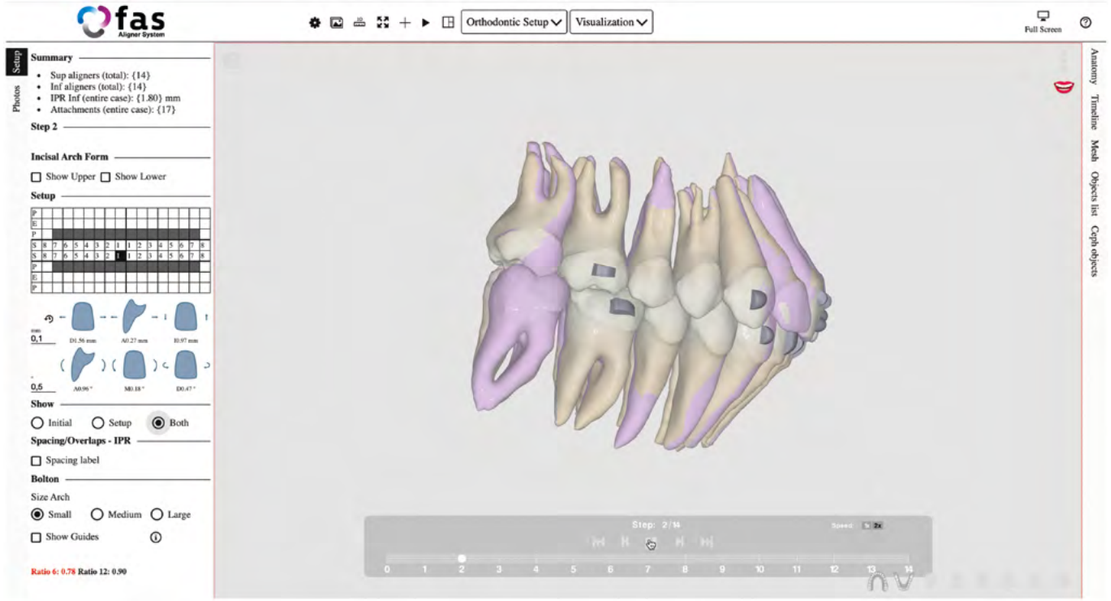
**Arch width: Small**

| Tooth | 6R | 5R | 4R | 3R | 2R | 1R | Total 3 R | Total 6 R | 1L | 2L | 3L | 4L | 5L | 6L | Total 3 L | Total 6 L | Total 6 | Total 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width Sup | 10.7 | 7.5 | 7.5 | 8.0 | 7.3 | 9.2 | 24.4 | 50.1 | 9.3 | 7.5 | 8.1 | 7.7 | 7.2 | 10.5 | 24.9 | 50.3 | 49.3 | 100.4 |
| Anc. Stand. Sup | 10.5 | 6.6 | 7.0 | 7.5 | 6.6 | 8.7 | 22.8 | 46.9 | 8.7 | 6.6 | 7.5 | 7.0 | 6.6 | 10.5 | 22.8 | 46.9 | 45.6 | 93.8 |
| Width Inf | 11.4 | 7.3 | 7.5 | 6.7 | 6.1 | 6.3 | 19.1 | 45.3 | 6.0 | 6.4 | 6.8 | 7.2 | 7.6 | 11.5 | 19.3 | 45.5 | 38.3 | 90.7 |
| Anc. Stand. Inf | 11.0 | 7.1 | 6.8 | 6.6 | 5.8 | 5.2 | 17.6 | 42.5 | 5.2 | 5.8 | 6.6 | 6.8 | 7.1 | 11.0 | 17.6 | 42.5 | 35.2 | 85.0 |

**Bolton (100 * quotient sum 6 inf / 6 Sup): 77.7**

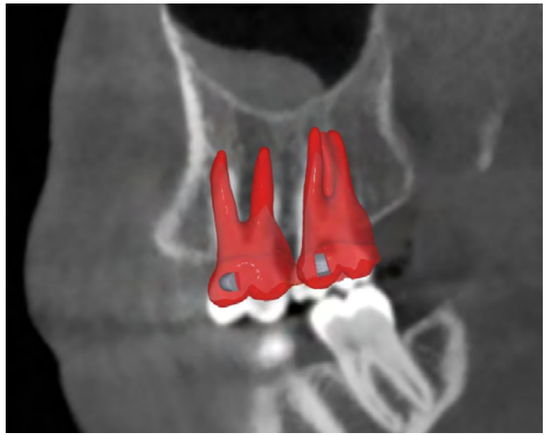
**Bolton (100 * quotient sum 12 inf / 12 Sup): 90.4**

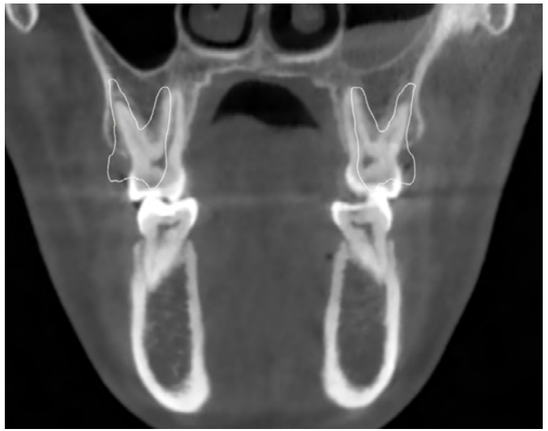





FAS OcclusalDesign® allows you to view a before and after superimposition to evaluate the planned correction. Measurements can also be taken with 2D and 3D measuring rulers.

FAS OcclusalDesign® allows for a step-by-step simulation of the sequence of tooth movements. Each stage of the timeline corresponds to the changes seen in the models.



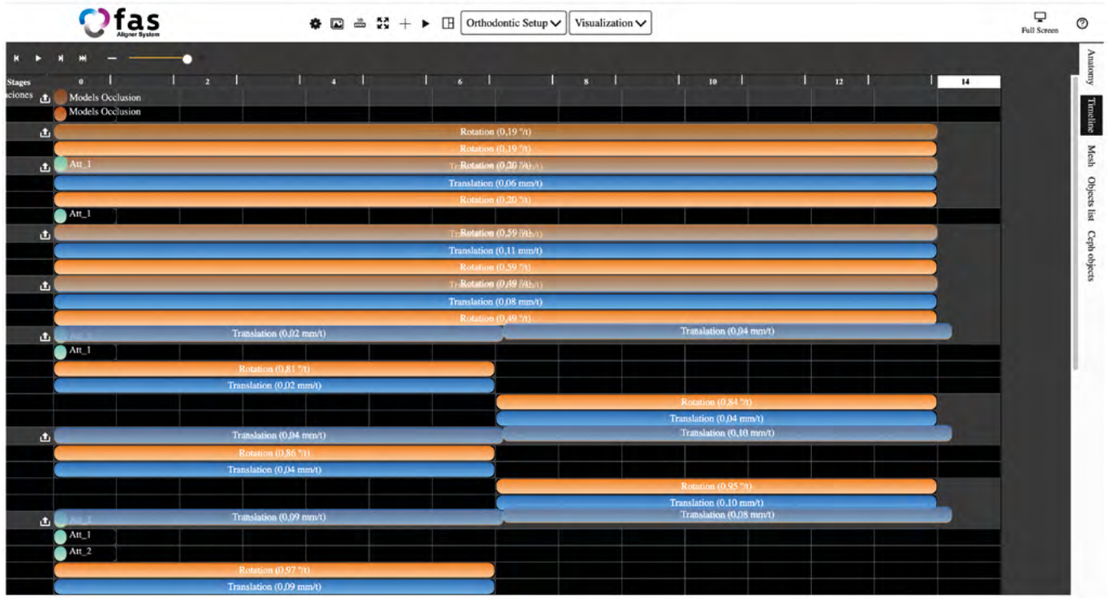


FAS OcclusalDesign® focuses on occlusion at every stage of the aligner treatment. The virtual articulator included in the online software allows the mandibular arch to be rotated according to the axis provided in the records.

The software has also included a color map that highlights the surface of the teeth according to the interocclusal distance.

This allows verification of the occlusion in each phase.






OcclusalDesign® offers you a tool for visualizing the staging of each segment in which it specifies the planned translations and rotations on a timeline.

In the case of attachment placement or interproximal reduction, this timeline also displays the planned position and time.

# TREATMENT MECHANICS

## Timing and sequencing of movements

FAS biomechanics have common aspects with straight-arch orthodontics but then again other characteristics that differentiate the planning from the classic technique.

One aspect that sets FAS apart is the possibility of taking advantage of different materials and their force levels for transversal corrections.

FAS uses a unique 3rd generation aligner material to obtain the best tracking.

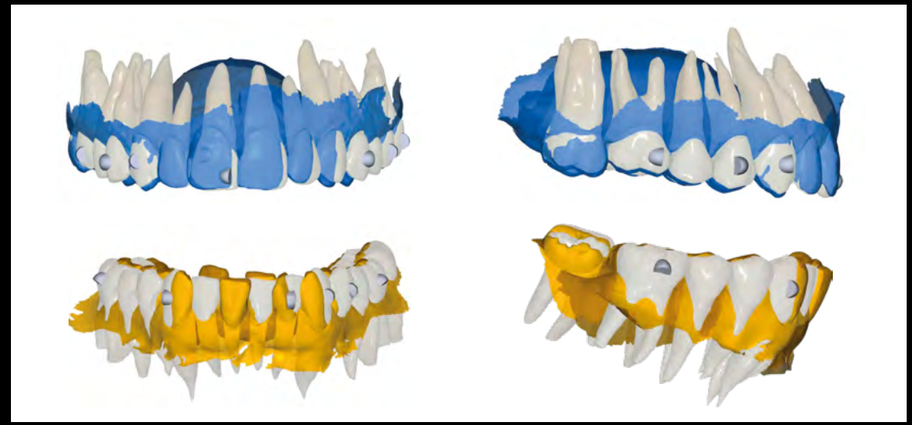
**FAS Soft Track** is an optimized material with ideal elasticity for the best tracking. Additional attachments help to control dental corrections in the sagittal plane, crown inclination, rotations, extrusion and torque.

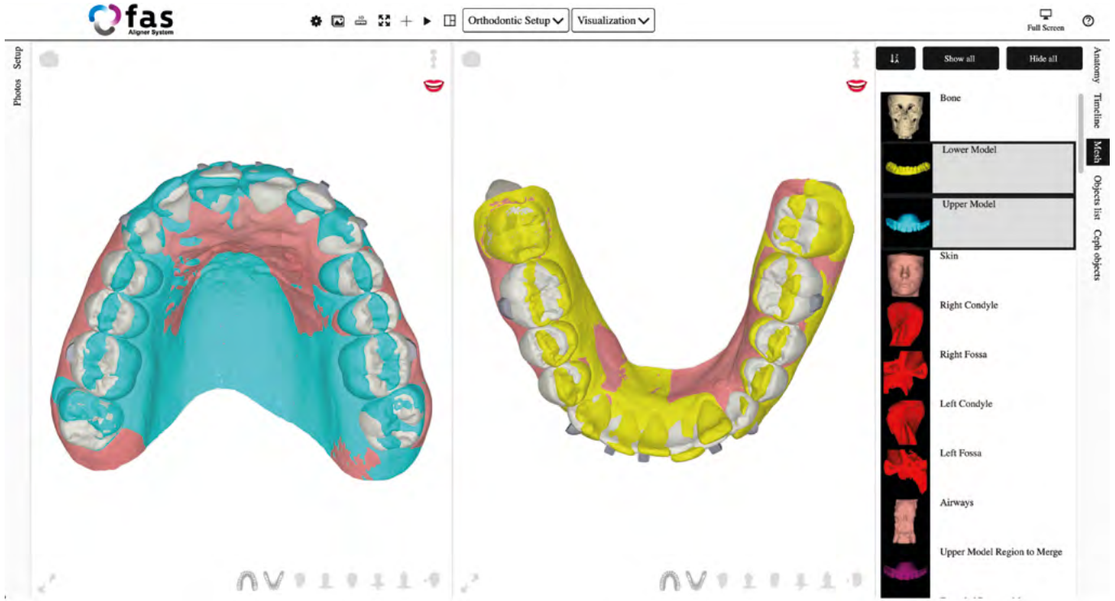
**FAS Hard Track** is a specific material for corticotomy-assisted arch expansion. The attachments are specific for torque control of posterior teeth while expanding the arch form.




# FAS STOP and GO®

The effectiveness of treatment with aligners depends to a great extent on the correct tracking of the activations applied to each aligner. To maximize effectiveness, STOP and GO® accelerates the stages and verifies the progress of the treatment. It also provides overlay tools to facilitate the procedure. If the treatment is effective in the verification stage, you click GO, and the next set of aligners will arrive automatically. If modifications need to be made, you will be in time to evaluate different therapeutic options to achieve the expected result in the shortest possible time.






# BIOMECHANICS AND ALIGNERS

**FAS technology** has been developed to overcome the limitations of other aligner systems. One of these limitations is the efficiency of force applied to the teeth that lies in the deformation of the aligner margins. In order to solve this problem, the FAS system, in addition to the changes in the position of the teeth, takes into account the changes that will occur at the gingival level and the relationship between the aligner and the attached gingiva. The aligners adapt to the cervical margin and reproduce the gingival contour ideally, thanks to our unique software. This feature provides strength to the aligner in this critical area, resulting in more effective corrections, treatment time and accuracy of the final result.

**FAS third generation materials**

FAS third generation materials are designed to work with two different elasticities.

The main objective of FAS is to offer excellence, maximum predictability and the shortest treatment time. FAS offers different materials at different stages of treatment phases, optimizing forces for predictable results.

Aligners can effectively control the width and shape of the dental arch. However, the correction needed to achieve stable functional and esthetic goals in many cases is limited by the characteristics of a narrow alveolar process. When these limitations are resolved with corticotomies, FAS is designed to take full advantage of the RAP to take full advantage of the RAP phenomenon (Regional Acceleration Phenomenon) with FAS Hard Track.

FAS Hard Track has mechanical properties optimized for arch expansion with corticotomies. This 3rd generation aligner material achieves optimal tracking with a minimum of attachments and fewer steps.

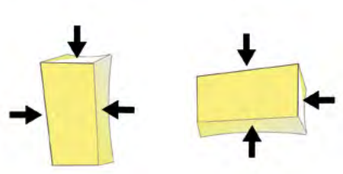
FAS Soft Track is optimized for dental corrections. OcclusalDesign® includes real roots to ensure stable orthodontic corrections within the alveolar process with maximum precision.

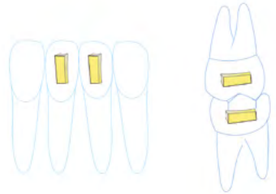


**The attachments**

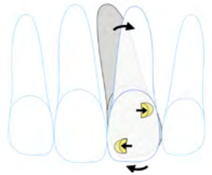
FAS attachments produce ideal orthodontic corrections that depend on how and where the attachments are placed on the tooth surface.

FAS offers an extensive digital library of optimized attachments for vertical, sagittal, tipping and torsional corrections.

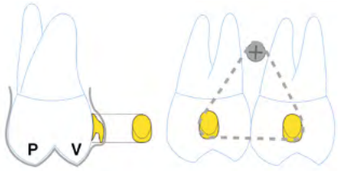




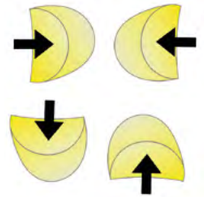
The vertical position of the FAS rectangular attachment provides effective control of crown inclination in single-rooted teeth and, if positioned horizontally, it is used for retention of molars for anchorage and torque control.



The Hemi-Spheric X2 FAS attachment provides effective control of crown angulation in the upper incisors.



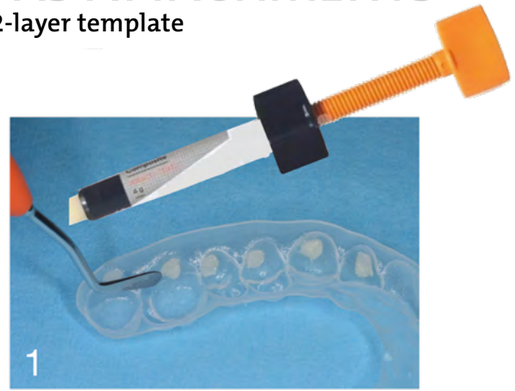

The FAS intrusion attachment is ideal for skeletal anchorage.



Hemispherical FAS attachments for maximum grip on buccal and lingual surfaces.

# FAS ATTACHMENTS

## 2-layer template






**1** Load the cavities of the attachment template with light-curing composite.

**2** Etch the tooth, rinse it, dry it, and prepare the surface with primer.

**3** Place the template and light cure.



# CASE EXAMPLE

As an example, we present the progress of a case of low complexity to show the characteristics of FAS.
The total duration of treatment was 7 months.

## Start of treatment

Before the first correction phase, we place the attachments using the template.



## 2 months evolution

It is vital for the correct progress of the treatment that the patient follows the instructions and complies with the recommended wearing time.

## 2 months evolution

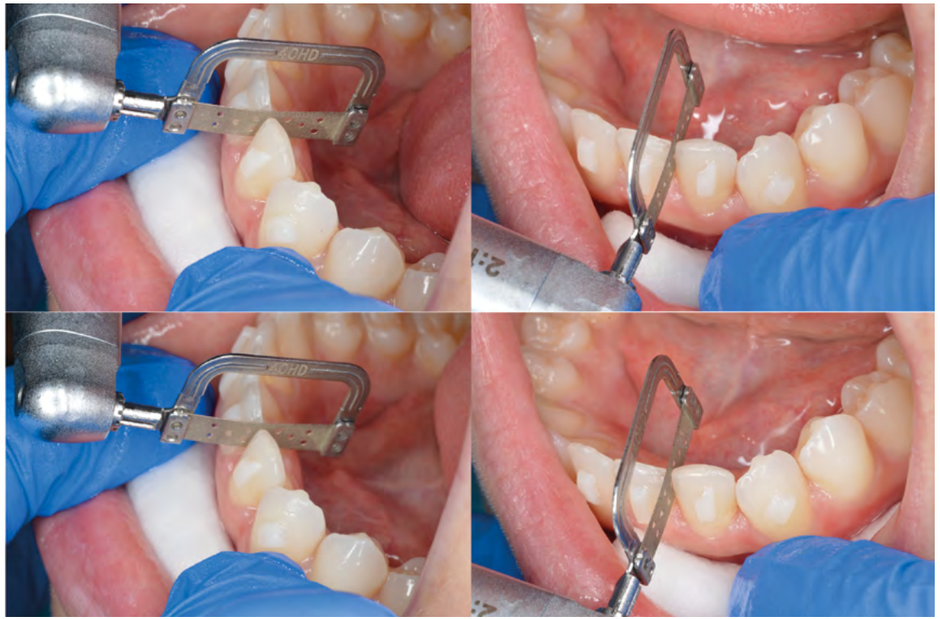
Aligners, unlike conventional braces, have a more predictable anchorage and we do not need to overcorrect.



## 4 months evolution

The optimized attachments allow the appliance to have an improved gripping surface.

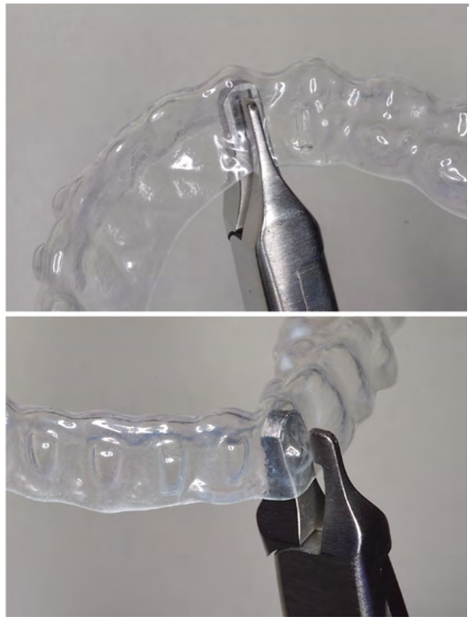
# I P R -OcclusalDesign®



In case of tooth discrepancy in size or shape, in many cases, we will use interproximal reduction calibrated to OcclusalDesign®. The planners will indicate when and how much IPR will be needed.



## Activation of the lower aligner 3-3



## Activation of the upper aligner +3

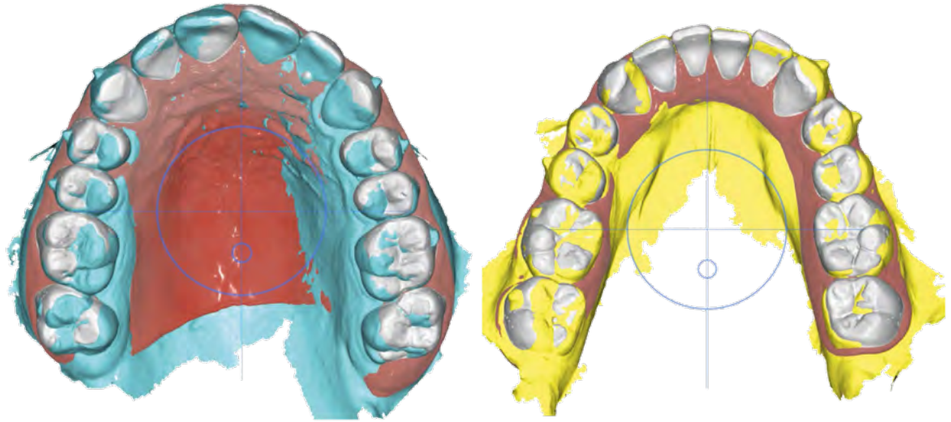
If necessary, it is possible to activate the force exerted by the aligner by pressure zones which, at the clinician's discretion, will put more force on the selected areas.

## 4 months evolution

FAS materials are optimized for precise orthodontic corrections and the trimming of aligners can be maximized according to the mechanical needs of each case.



## STOP and GO®

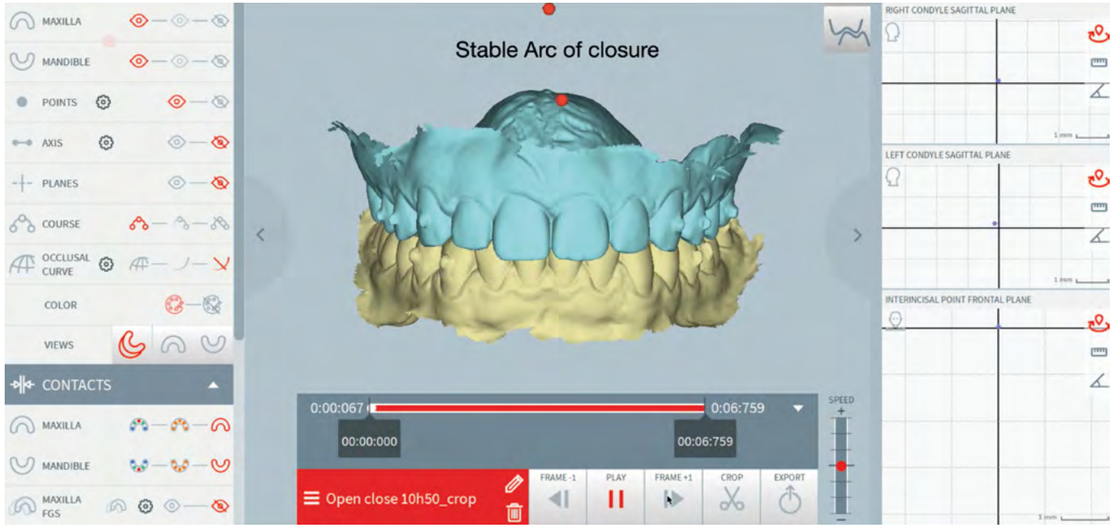


With FAS Compact and FAS Pro, in stages predetermined by the planning team, treatment progress can be evaluated with STOP and GO®.

# 6 months evolution

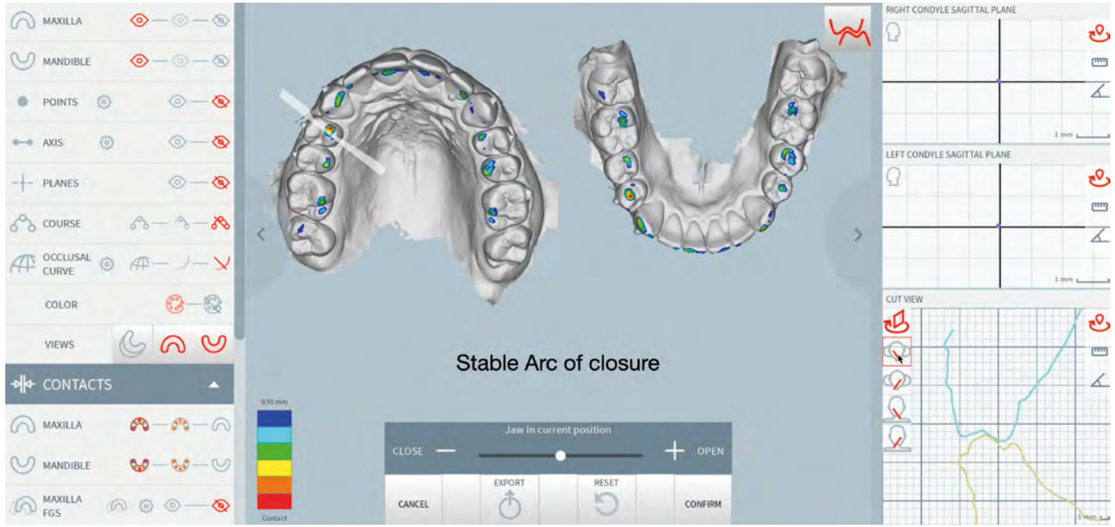
When the evolution of the case does not require replanning, the order to send the remaining aligners can be given directly. However, if replanning is necessary, this process provides maximum efficiency and minimizes treatment steps.





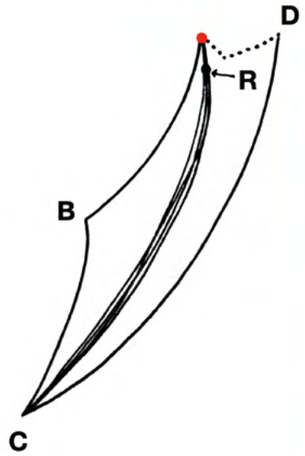

FAS is capable of working with dynamic occlusion records to provide functionality and esthetics with the minimum number of aligners. Before going on with the treatment up to the final stages, we check whether the functionality of the planned dental contacts corresponds to that of the patient.

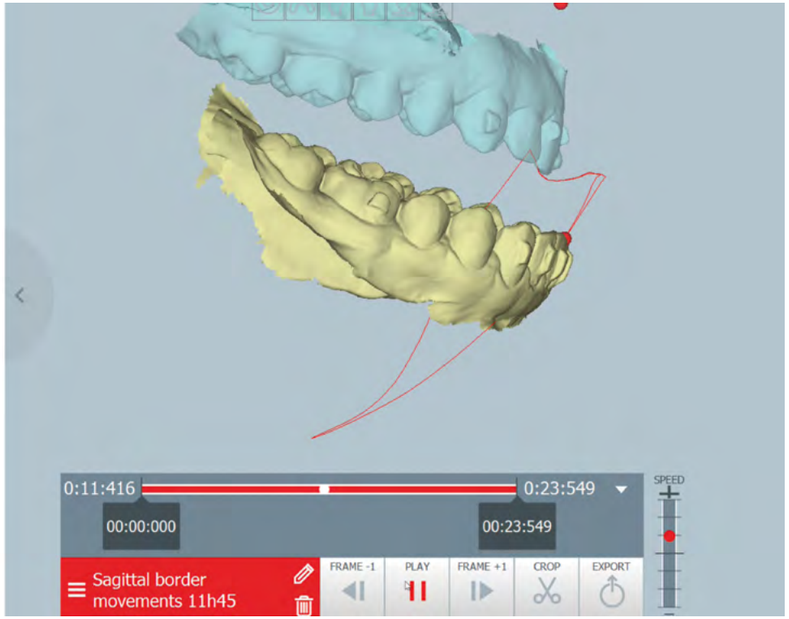





Dynamic records allow you to work with aligners in the patient's actual hinge axis.

## Stable Arc of Closure

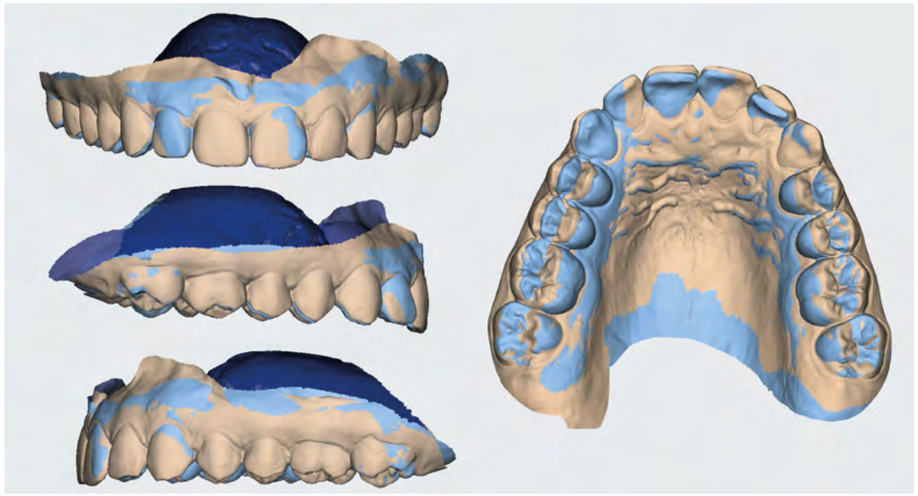


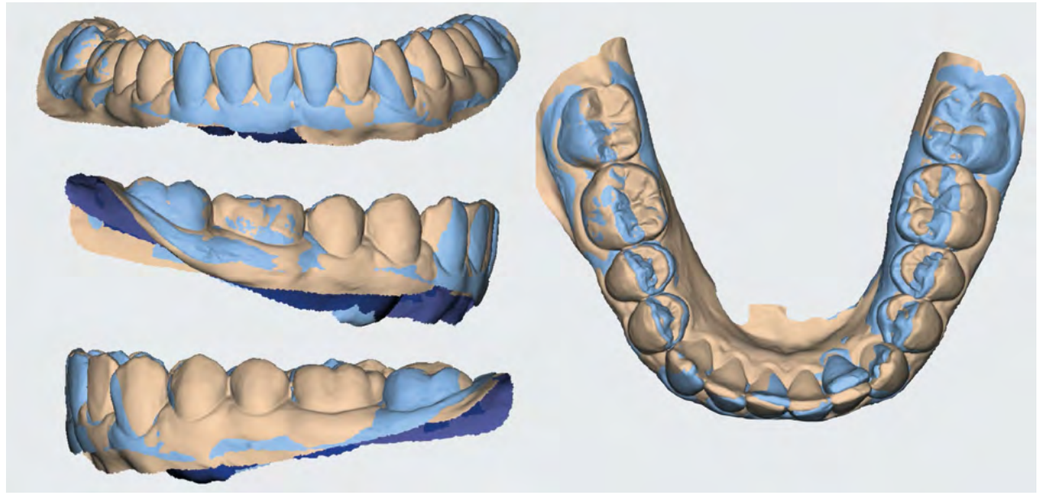

We check that the occlusal contacts planned with OcclusalDesign® are the same as those obtained with the treatment.

# 7 months evolution

The precision of the FAS system allows functional and esthetic results to be obtained in the shortest treatment time.

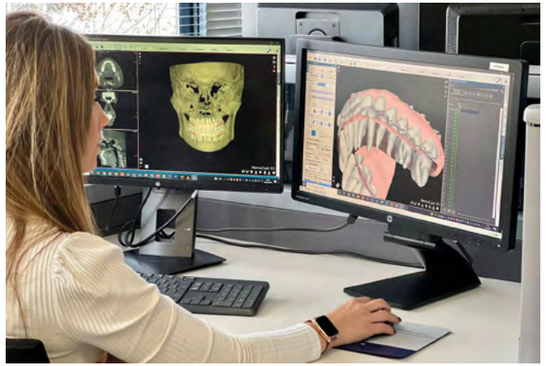


Pre-post-treatment superimposition.



Pre-post-treatment superimposition.





## FORESTADENT PLANNING CENTER

To launch a precision product such as FAS, FORESTADENT has developed a Planning and Production Center with high-level technological and manufacturing capabilities.
But that alone is not enough. The real engine of this system is the team of Occlusal Designers who were trained in the FAS concept for two years with Dr. Martin and Dr. Canábez.

## The Service

One of FORESTADENT's hallmarks is service, and those who have already enjoyed it can confirm it.
With the launch of FAS, we want to go further. Our mission is to collaborate in the digitalization of clinics through service.
We are not only focusing on the accessibility of the portal and the delivery of products in a more reasonable time.
Our aim is to facilitate access to digitization for those who do not have the knowledge or the technological means to meet the challenges of present and future challenges.

For this purpose, we offer a consulting service for case and product selection (case feasibility service).
If you are starting from scratch, we offer training courses, from the basics to get you started in the digital world to expert courses where you learn to effectively communicate requests for modifications of the suggested OcclusalDesign®.
The range of products in our digital portfolio will give you access to different aspects of the proposed OcclusalDesign® at the click of a button.



# THE FAS PRODUCT RANGE

The FAS product range is designed to treat medium, complex and very complex cases.
For simpler cases, we offer our Flex and Target packages.

## Free estimation of feasibility

Upload your photos and radiographs and our team will evaluate your case and recommend the right type of treatment plan. They will recommend if the case is Flex, Target, Compact or Pro.

## FAS Flex

Simple aligners for small movements, relapses, etc.
Includes planning.

**Indications**

- Crowding less than 3 mm.
- Diastemas less than 1 mm.
- Leveling of incisal edges less than 0.5 mm to 1 mm.
- Expansion less than 1 mm per quadrant.
- Rotations no more than 10°. Does not support midline correction.
- Crossbite correction is not supported.
- Does not support antero-posterior changes.




## FAS Target

Treatment of simple/medium cases in two phases. Includes planning, 3D viewer, treatment plan and finishing replanning. Change of aligners every 14 days.

Phase I: up to 20 aligners each upper+lower
Finishing: up to 5 upper+lower aligners each

**Indications**

- Crowding less than 5mm.
- Diastemas less than 2mm.
- Leveling of incisal edges less than 1mm.
- Expansions up to 2mm.
- Rotations no more than 25°.
- Overbites up to 2 mm.
- Open bite up to 1 mm.
- Midline correction up to 1 mm.
- Correction of 1 posterior tooth in crossbite and up to 2 anterior teeth.

## FAS Compact

Treatment of medium to complex cases in three phases. Includes initial planning (OcclusalDesign®), up to two replannings and one optional STOP and GO® if necessary. Due to biological factors, teeth might not move exactly as programmed, so there is a possibility that further aligners might be required in addition to the selected product. Change of aligners every 10 days.

Phase I: up to 25 aligners each upper + lower
Phase II: up to 15 aligners each upper + lower
Finishing: up to 5 aligners each upper + lower


**Indications**

- Crowding less than 6 mm.
- Diastemas less than 4 mm.
- Leveling of incisal edges 2 mm.
- Expansions up to 3 mm per quadrant.
- Rotations not exceeding 30°.
- Overbites up to 2 mm without auxiliaries; auxiliaries are to be indicated for more than 2 mm.
- Open bite up to 2 mm. Posterior intrusion with mandibular anterior rotation.
- Midline correction up to 2 mm.
- Crossbite correction as needed without exceeding 3 mm of expansion per quadrant.
- Anteroposterior changes up to 3 mm.



## FAS Compact with roots

Treatment of medium to complex cases in three phases. Includes initial planning (OcclusalDesign®) with root segmentation (CBCT required), up to two replanning and one optional STOP and GO® if necessary. Due to biological factors, teeth might not move exactly as programmed, so there is a possibility that further aligners might be required in addition to the selected product. Change of aligners every 10 days.

Phase I: up to 25 aligners each upper + lower
Phase II: up to 15 aligners each upper + lower
Finishing: up to 5 aligners each upper+lower


**Indications**

- Crowding less than 6 mm.
- Diastemas less than 4 mm.
- Leveling of incisal edges 2 mm.
- Expansions up to 3 mm per quadrant.
- Rotations not exceeding 30°.
- Overbites up to 2 mm without auxiliaries; auxiliaries are to be indicated for more than 2 mm.
- Open bite up to 2 mm. Posterior intrusion with mandibular anterior rotation.
- Midline correction up to 2 mm.
- Crossbite correction as needed without exceeding 3 mm of expansion per quadrant.
- Anteroposterior changes up to 3 mm.

## FAS Pro

Treatment of complex cases in four phases. Includes initial planning (OcclusalDesign®) and up to three replanning and up to two optional STOP and GO® if necessary. Change of aligners every 10 days in working phases and, in treatments with corticotomies, every 5 days during its effect.

Cases in which the planning team detects that he objectives cannot be achieved in the initial work phase even when using auxiliaries or anchorage devices our planners will assist you in deciding on the best treatment option.

**Indications**

- Supports cases of any type.
- Support cases with corticotomies and surgical cases in which decompensations are required.




## FAS Pro with roots

Treatment of complex cases in four phases. Includes initial planning (OcclusalDesign®) with root segmentation (CBCT required) and up to three replanning and up to two optional STOP and GO® if necessary. Change of aligners every 10 days in working phases and, in treatments with corticotomies, every 5 days during its effect.

Cases in which the planning team detects that he objectives cannot be achieved in the initial work phase even when using auxiliaries or anchorage devices our planners will assist you in deciding on the best treatment option.

**Indications**

- Supports cases of any type.
- Support cases with corticotomies and surgical cases in which decompensations are required.

# HOW CAN YOU REGISTER?

We have created a specific website
where you can register.
Visit www.fasaligners.com and click
the „Start Now“ button.


Please enter your data in the registration form.
registration form. An account will be created for you and
you will receive your login details by e-mail.

Info229/04.2023

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