



WORKBOOK

(English)



Dr. Alberto Canábez



Dr. Domingo Martín

INTRODUCTION

What is FAS?

FAS is a new system that was and created to bring function and excellence to the world of aligners. We are the first aligner system to do this. FAS was designed to carry our treatment plans based on the arc of closure. This permits finishing with excellent occlusion, fewer aligners and minimum refinements.

Why FAS

Based on a thorough diagnostic process, FAS considers 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 utmost importance in obtaining an aesthetic and functional result. FAS diagnoses and plans on the patient's repeatable arc of closure and that is what makes all the difference.

Advantages of FAS

The great advantage of FAS is that we give our patients a correct chewing pattern and place the teeth in harmony with their joints. This allows us to obtain our aesthetic and functional goals and, at the same time, stability and longevity with long term results. FAS uses innovative materials adapted to each stage of treatment that optimizes Tracking and reduces treatment time. From diagnosis and planning to manufacturing with the FORESTADENT seal of quality.

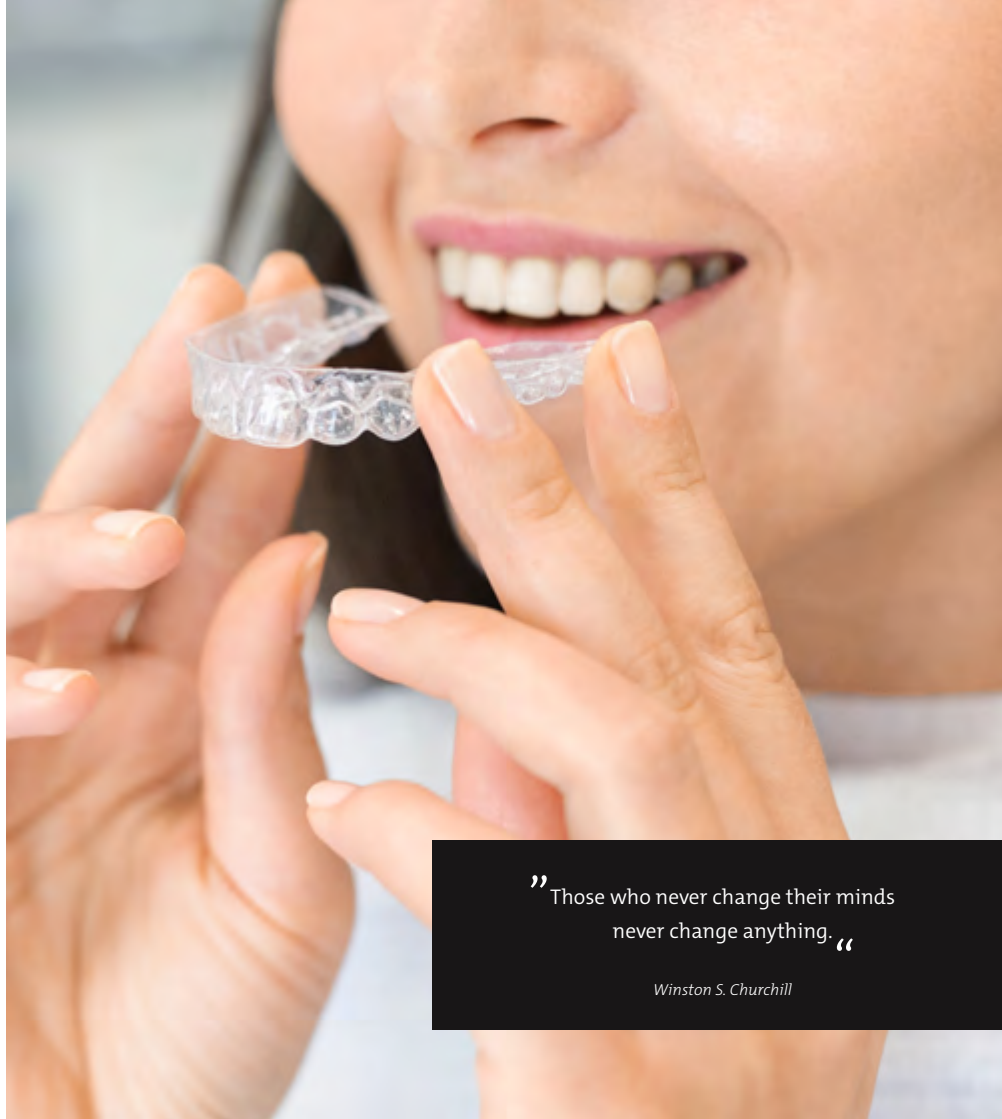


The Advantages at glance:

- 1 The real axis of rotation
(no simulation by algorithms)
- 2 Segmentation of real roots
and gingiva
- 3 CBCT overlay and orthogonal
plane visualization
- 4 FAS Wizard guides you in 3
planes of space
- 5 Effective treatments with
fewer refinements
- 6 Planning made 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

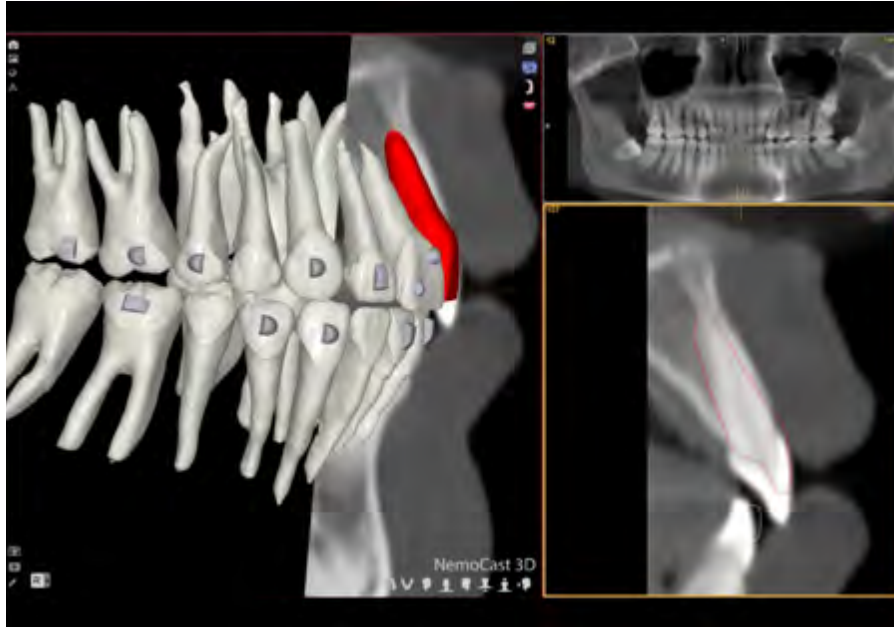
The key to an excellent result is based on an accurate diagnosis. A critical aspect of a precise diagnosis is considering the roots of all the teeth and their environment in the three planes of space. Again, FAS differentiates itself by locating the roots in the alveolar bone in each treatment plan.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

Knowing the limitations of tooth movements for optimal and efficient orthodontic correction is a decisive factor in the stability of the final result. FAS takes all the details into account!

Periodontal Aspects

Periodontal health is a major goal in the FACE treatment philosophy. FAS offers “real” root segmentation providing the necessary information to obtain periodontal health at the end of treatment. The key factor is the relationship of the roots in alveolar bone at the end of treatment.

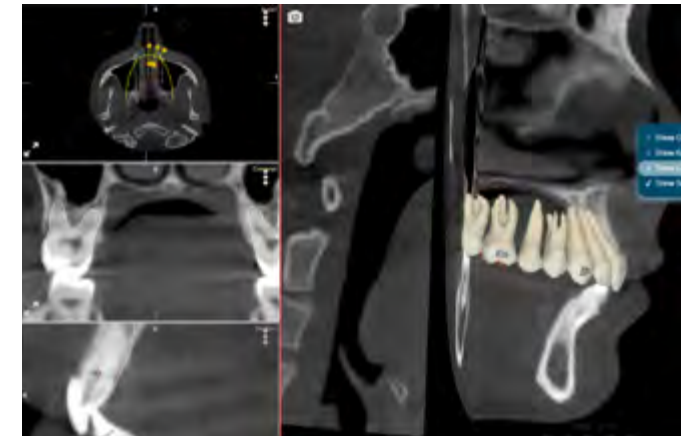
Another essential element for an accurate diagnosis is to consider the gingiva, and FAS also offers “real” segmentation of the gums. This is a key element for the efficiency of the aligners and a decisive factor for the stability of the final result. FAS takes into account every single detail!

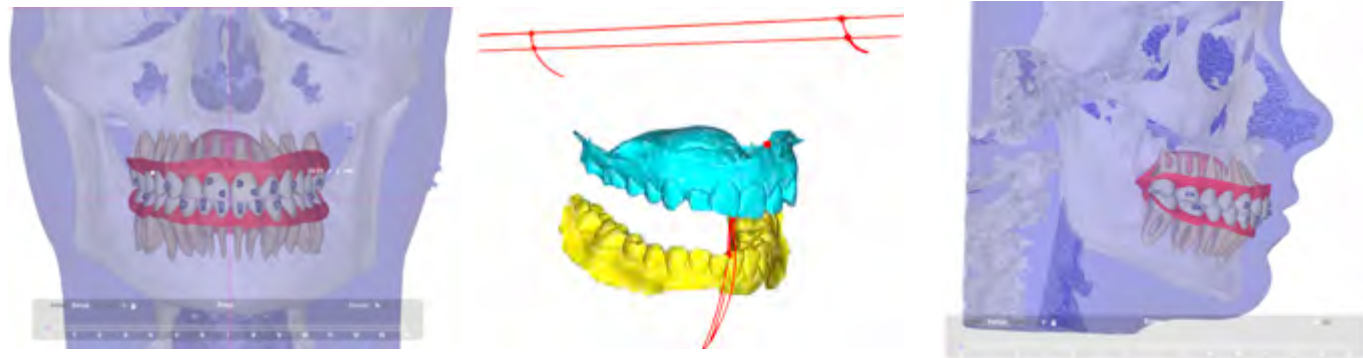


FAS is designed to achieve stable orthodontic corrections over time. After treatment, the root relationships with the surrounding alveolar bone tissue helps maintain stability. FAS OcclusalDesign® allows the assessment of planned changes of the dental positions radiologically in the context of the alveolar process and assesses dental changes at the crown and root level.

The FAS viewer software is conceived so the clinician can access all the relevant information for the treatment plan in the diagnostic process and when planning the therapeutic solution.

The precision of virtualization offered by FAS leaves no aspect unturned; among other details, it includes specific cuts of the temporomandibular joints from the 3D CBCT radiological volume that you can evaluate thanks to the included measurement tools.





DIAGNOSTIC ELEMENTS

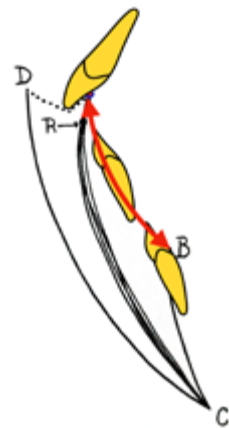
FAS is prepared to accept 2D, 3D and 4D records for planification

- 1) Estimated Arc of Closure – digitally scanned upper and lower models related using an anterior wax bite. The aim of the wax bite is to capture the position of the mandible stabilized chairside in the arc of closure. This level of precision allows us to resolve cases where there will be minimum changes in the vertical dimension (less than 2mm).
- 2) Anatomic Arc of Closure – in addition to the models related with a wax bite as in the basic level, a full size CBCT with maxilla, man-

dible and condyles included offers a higher level of precision since FAS can recreate the center of rotation of the condyles. This level of precision allows us to treat cases with any change in the vertical dimension.

- 3) Dynamic Arc of Closure – is achieved with 4D records and this gives us precise information to where the real axis of rotation is situated

3 Ways to take the Arc of closure



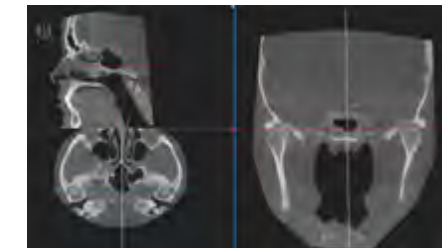
Estimated Arc of closure

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



Anatomic Arc of closure

- Models scanned in the arc of closure plus a full size CBCT



Dynamic Arc of closure

- Models related in the arc of closure with dynamic records

FAS Wizard

FAS Wizard is the planning tool used to give treatment instructions to the planners to execute the treatment set-up with maximum precision.

FAS will help you include all relevant data and avoid omitting essential aspects during the diagnostic process. FAS provides a FAS medical record form where you will complete all vital information that should not be disregarded.

1 Free of-charge estimation of the feasibility of a case

2 Vertical Dimension

3 Transverse Dimension (Midlines)

4 Sagittal Dimension

5 Bolton discrepancy

6 Limitations

7 Planned anchorage

8 STOP and GO®

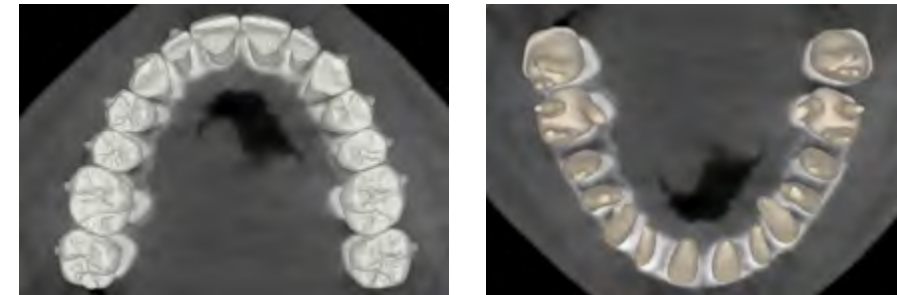
1 – Free of charge estimation of feasibility of a case

If you doubt the feasibility of the case with FAS, just upload the patient's records, including pictures, X-rays, and digital models, onto the FAS website, and our team of specialists will get back to you suggesting what type of treatment would be needed. This service is free of charge!



2 – Vertical Dimension

FAS plans autorotation on the real arc of closure of the patient to modify the occlusal plane. This unique feature is a hallmark of the FACE philosophy. Step 1 must specify if you want to decrease, maintain or increase the vertical dimension. Changes in the occlusal planes (Curve of Spee and Curve of Wilson) of each dental arch will also be defined in this step. If indicated, the correction of the exposure of incisors, canines, changes on premolars, molars, and the canting of the occlusal plane can be included in the plan.



3 – Transverse Dimension (Midlines)

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

4 – Sagittal Dimension

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

5 – Bolton discrepancy

If after steps 1, 2, and 3, there is still a DOD (dental osseous discrepancy), in this step, you must indicate how you want to resolve it. With IPR (interproximal reduction)? With dental reconstructions? With extractions, you must specify which teeth need to be reconstructed or extracted.

6 – Limitations

FAS takes into account cases that have treatment limitations. In many cases, there are limitations due to skeletal or dental problems, such as a retruded mandible, asymmetries, agenesis or anatomical variations of the teeth. Or teeth that cannot or must not be moved, such as implants, bridges, etc. In this step, you must specify the existing limitations that will compromise treatment.

7 – Planned anchorage

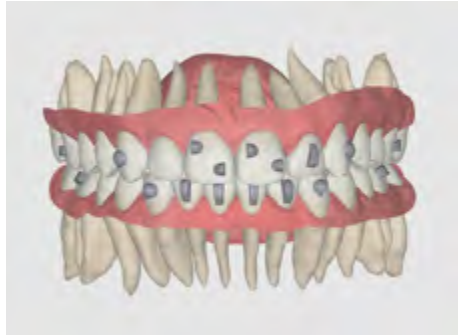
FAS preparation for anchorage. In this step, we specify what type of anchorage requirements will be necessary. Mini-screws, anchorage plates, etc., and where they should be placed since we need to have this information when executing the case setup.

8 – STOP and GO®

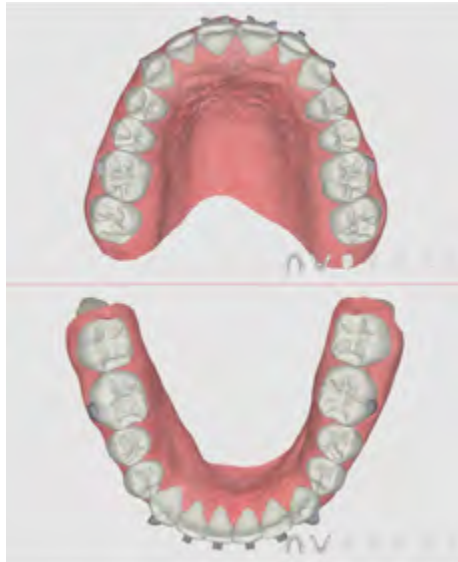
FAS STOP and GO®. Ideally, in aligner treatment, it is vital to verify treatment progress. For this, we can define beforehand the critical stages for revision. STOP and GO® is designed to check if the planned correction is achieved with the desired precision, overcome poor treatment Tracking and thus speed up total treatment time. STOP and GO® also permits planning in stages with different materials for best Tracking and effectiveness.

FAS OcclusalDesign®



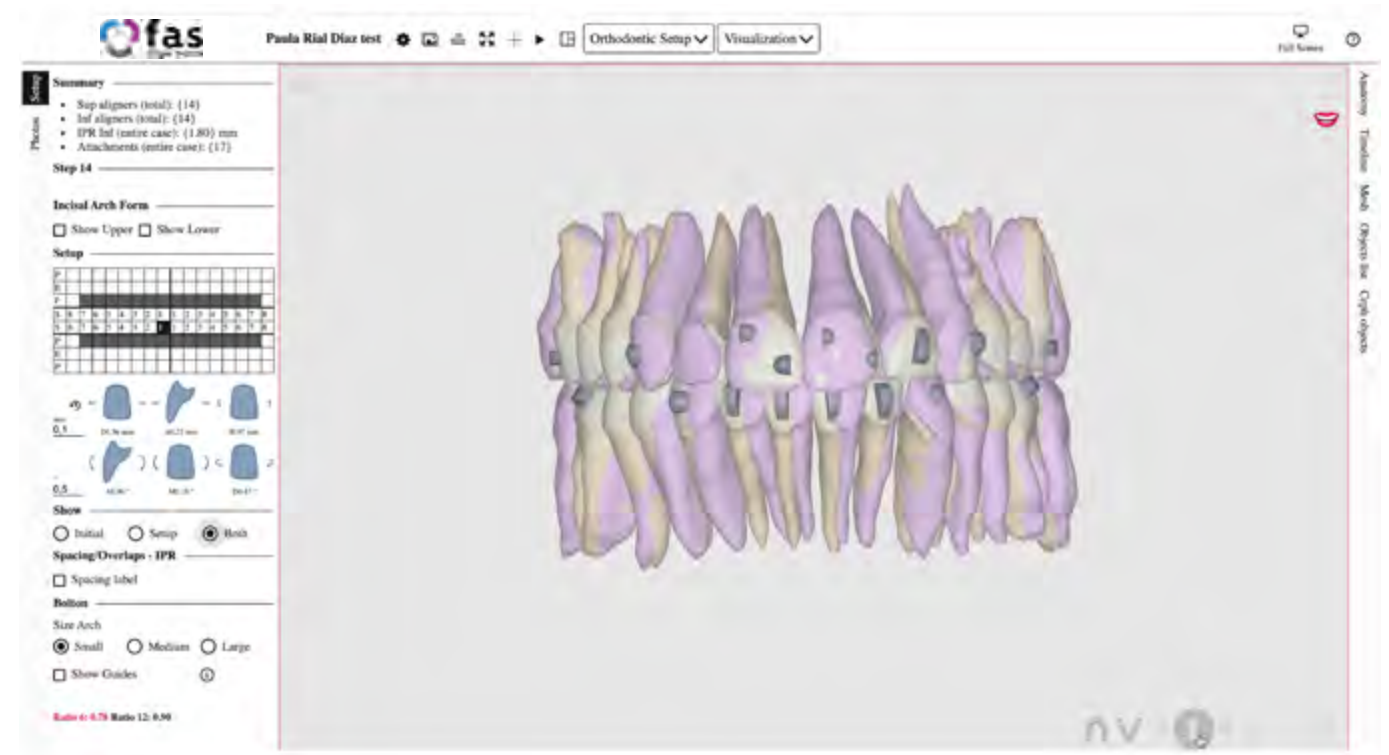


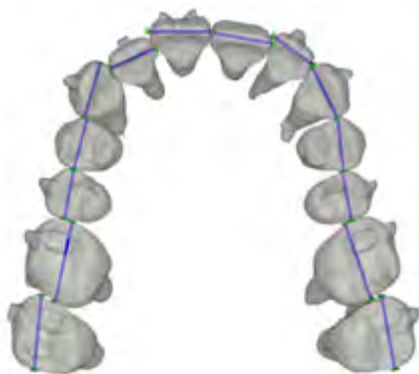
The **FAS OcclusalDesign®** is the tool that will allow you to communicate with the FAS planning center. In this fashion, you will be able to actively participate in planning the set-up.



FAS allows you to work by visualizing your patients' real tooth roots, crowns, and real gingiva. One of the most significant advantages of FAS over other aligner systems - Real roots, not mathematical models.

The segmentation of the real roots allows planning and taking into account the “real” position of the teeth in the alveolar bone. If the correction of the teeth exceeds the biological limits, you will know in advance. You can plan an alternative solution that will preserve the periodontal health goal.





FAS includes an **Advanced Bolton Discrepancy Analysis**. It is common to observe tooth size discrepancies that occur in one or more teeth in both the upper and lower arches. To finish the case with optimal dental aesthetics and stable occlusal relationships it is crucial information that must be taken into account in the planning process. The FAS dedicated software provides a tool that allows us to visualize discrepancies of entire arches and of 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	100.3	100.4
Are. 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	6.8	10.5	22.8	46.9	93.6	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	90.8	90.7
Are. 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	85.2	85.0

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

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

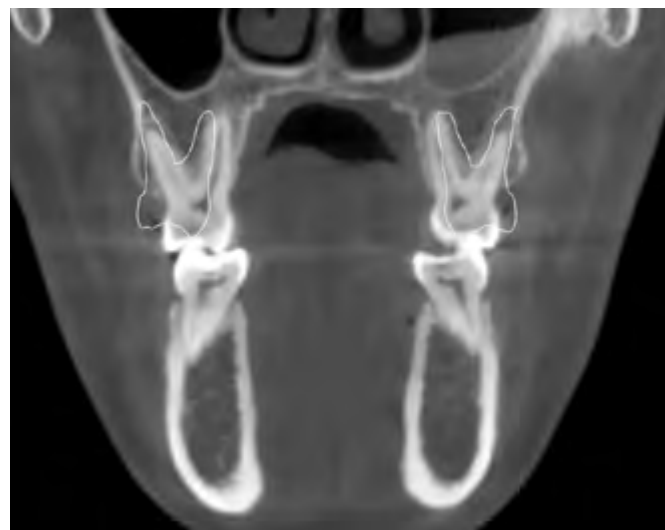


FAS OcclusalDesign® allows you to view a before and after overlay to evaluate the planned correction. Measurements can also be taken with 2D and 3D measuring rulers.

FAS OcclusalDesign® allows a simulation of the step-by-step sequence of tooth movements. Each stage in the timeline corresponds with viewed changes on the models.

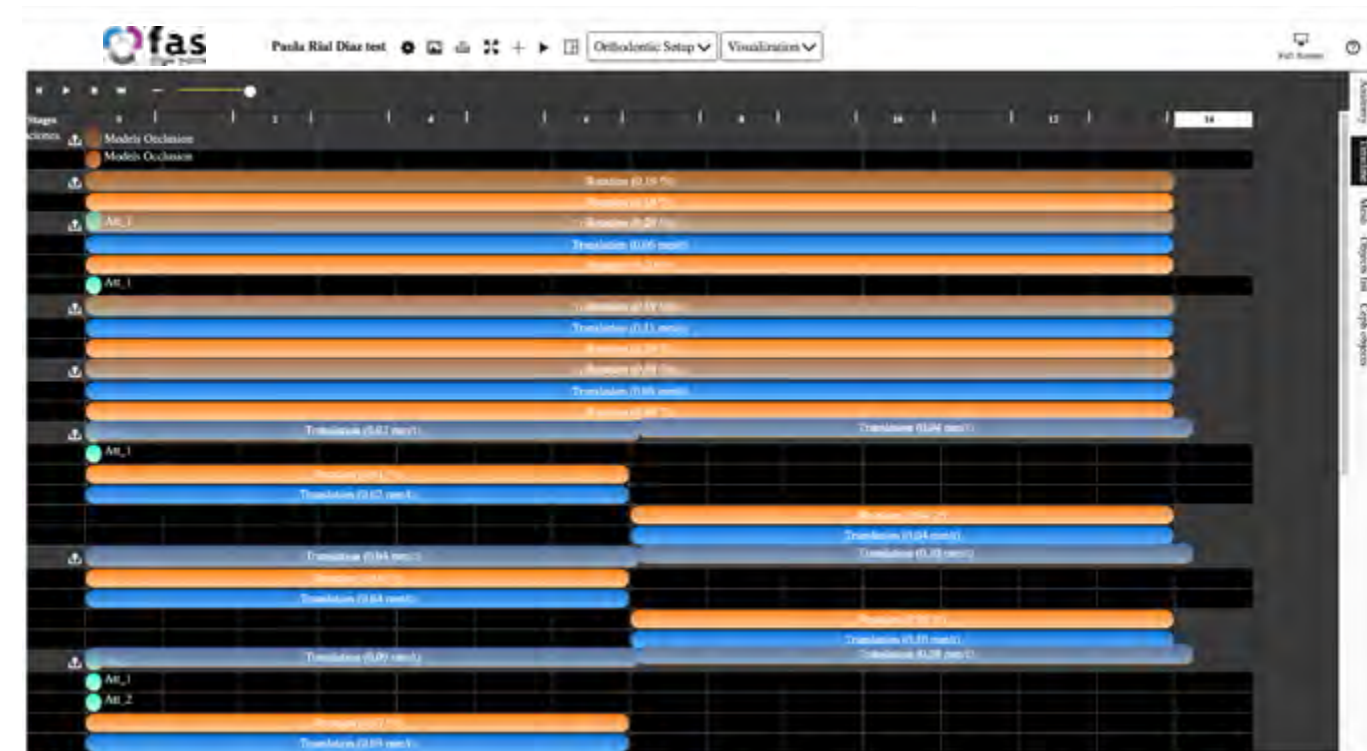


FAS OcclusalDesign® takes occlusion into account at every stage of aligner treatment. The virtual articulator included in the online software allows the mandibular arch to be rotated according to the axis provided in the records.



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 at each stage.



OcclusalDesign® offers you a visualization tool for the stages corresponding to each segment, in which the planned translation and rotation are specified on a timeline. In the case of placing

attachments or interproximal reduction, it is also displayed on this time scale when and on which teeth it is planned.

TREATMENT MECHANICS

Timing and sequence of movements

FAS biomechanics has common aspects with straight-wire orthodontics but has other characteristics that differentiate the planning from the classic technique.

One aspect that differentiates FAS is the possibility to take advantage of different plastics and their force levels forces for transverse correction.

FAS employs a unique 3rd generation aligner material for best Tracking.

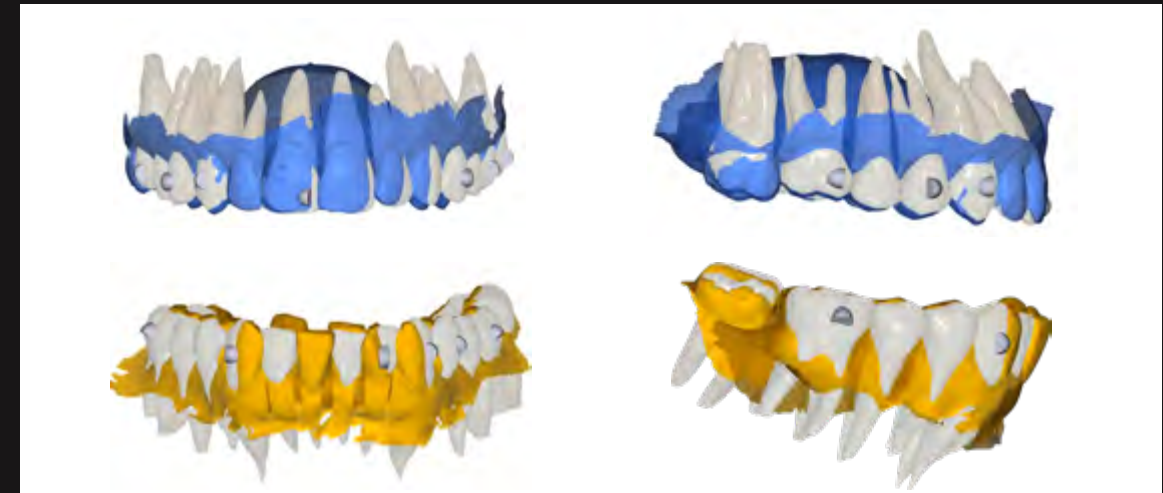
FAS Soft Track is an optimized material with ideal elasticity for the best Tracking. The additional attachments help to control tooth correction in the sagittal plane, crown tipping, rotations, extrusion, and torque.

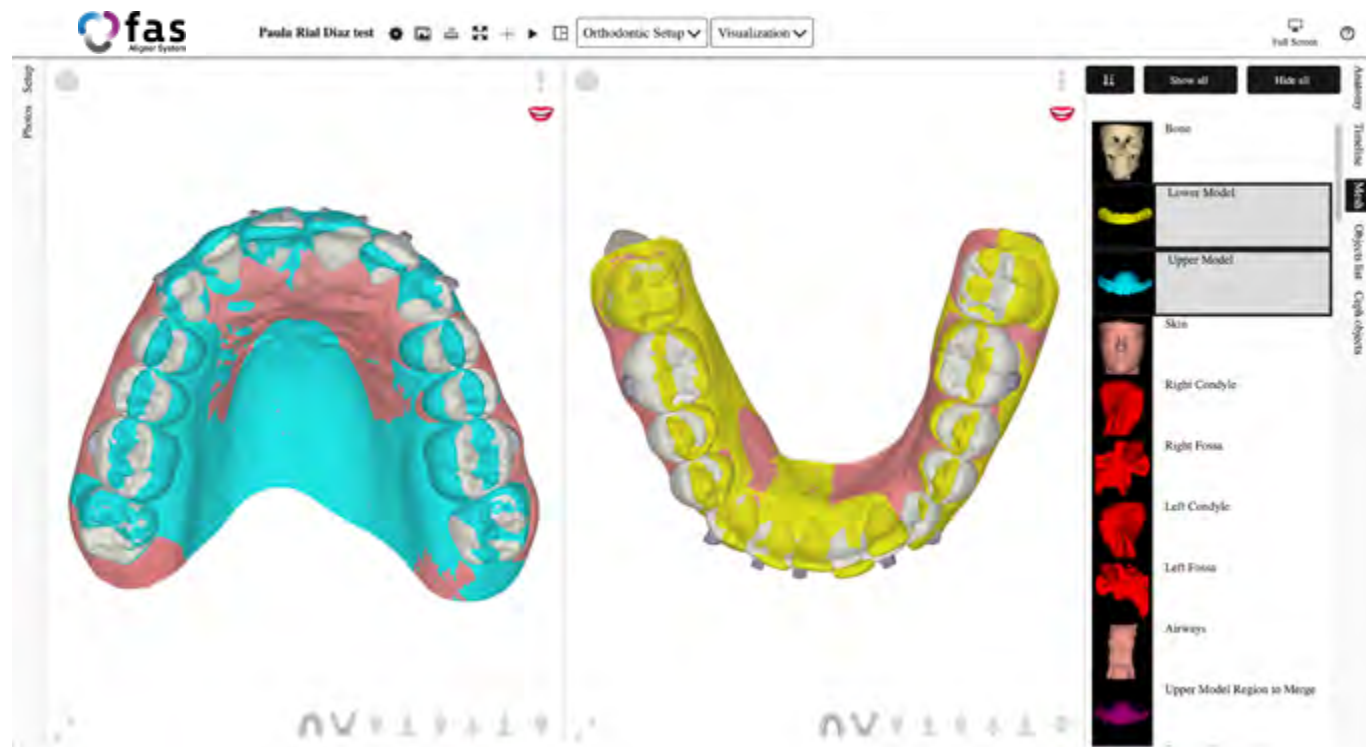
FAS Hard Track is a specific plastic for corticotomy-assisted arch expansion. Attachments are specific for torque control of the posterior teeth while expanding the arch form.



FAS STOP and GO®

The effectiveness of aligner treatment depends significantly on the proper follow-up (Tracking) of the activations applied to each aligner. To maximize efficiency, STOP and GO® anticipates stages and verifies the evolution of the treatment. It provides as well overlaying tools to facilitate the procedure. If the treatment is efficient in the verification stage, you have to click on finish, and the second stage of aligners will arrive automatically. If modifications have to be implemented, you will be in time to evaluate different therapeutic options to achieve the planned result in the shortest possible time.





BIOMECHANICS AND ALIGNERS

FAS technology is developed to overcome the limitations of other aligner systems. One of the limitations is the effectiveness of the force applied to the teeth which resides in the permanent deformation of the margins of the aligners. 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 of the aligner with the attached gingiva. The aligners are adapted to the cervical margin and reproduce the gingival contour ideally, thanks to our unique software. This characteristic provides resistance to the aligner in this critical area, which translates into a more efficient correction, in treatment time and precision 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 possible treatment time. FAS offers different materials at different stage of treatment which optimizes forces to obtain predictable results.

Aligners can effectively control the width and shape of the dental arch. However, the correction necessary to achieve stable functional and aesthetic 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 Phenomenon (regional acceleratory phenomenon) with FAS Hard Track.

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

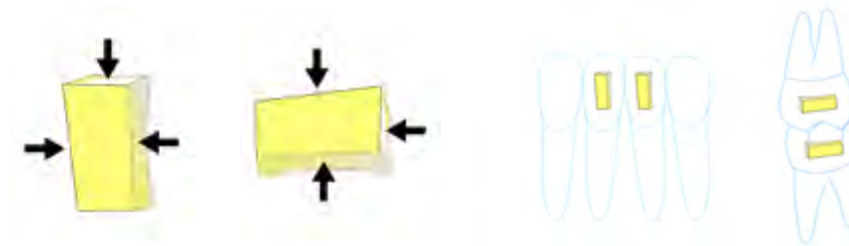
FAS Soft Track is optimized for dental corrections. OcclusalDesign® includes real roots to assure a stable orthodontic correction within the alveolar process with maximum precision.



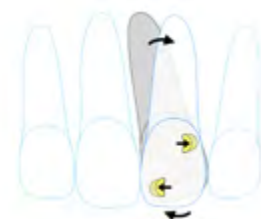
The Attachments

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

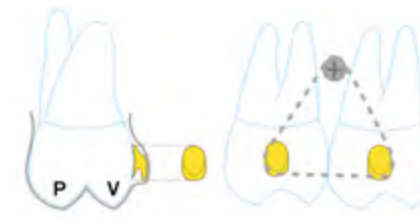
FAS provides a wide digital library of attachments optimized for vertical, sagittal, tipping and torquing corrections.



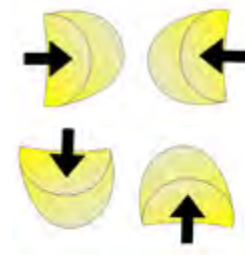
FAS Rectangular Attachment's vertical position provides effective crown inclination control on single rooted teeth and, if placed, horizontal serves for retention on molars for anchorage and torque control.



FAS Hemi-Spheric X2 Attachment provides effective control of crown inclination on upper incisors.



FAS Intrusion attachment is practical for skeletal anchorage.



FAS Hemi-Spheric attachments for maximum grip on the buccal and lingual surfaces.

FAS attachments

2-layer template



- 1 Load the attachment wells with light-cure composite paste
- 2 Etch the tooth, rinse, dry and prepare the surface with adhesive
- 3 Put the template in place and light-cure

EXAMPLE CASE

As an example, we present the evolution of a case of minimal complexity to expose the characteristics of FAS. The total duration of treatment was 7 months.

Treatment begins



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

2 months evolution



It is vital for the correct evolution of the treatment that the patient follows the instructions and complies with the recommended hours of use.

2 months evolution



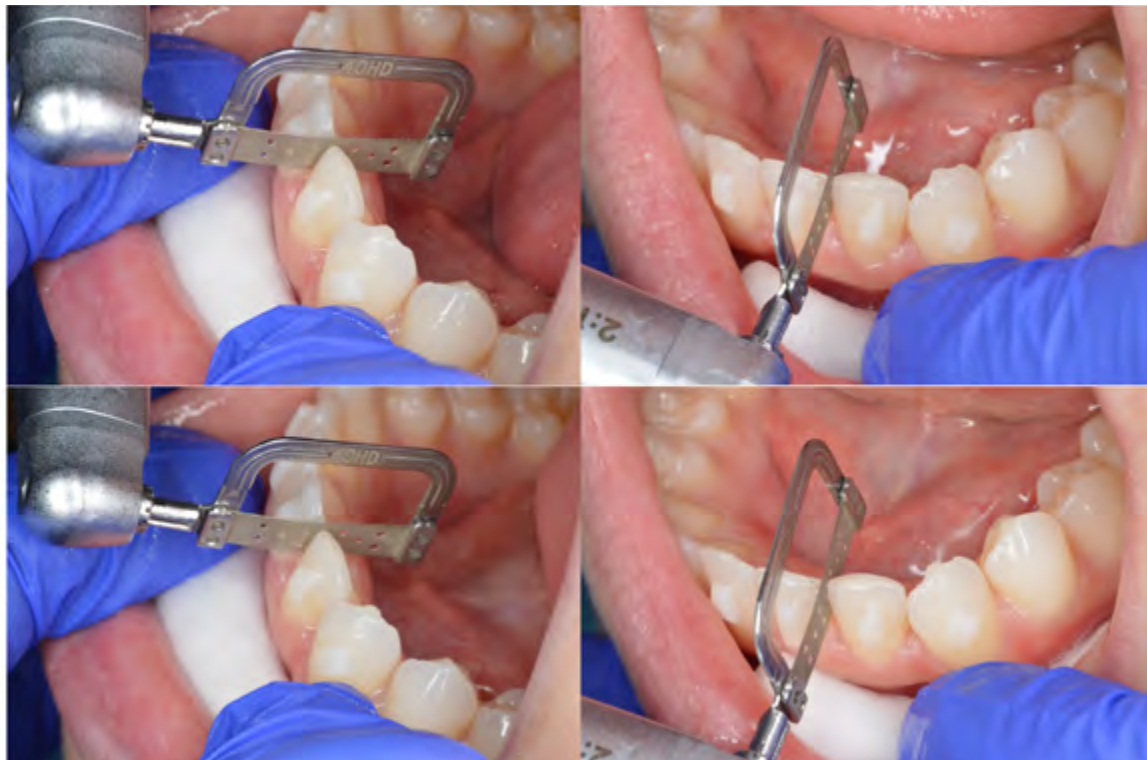
Aligners, unlike conventional appliances, have more predictable anchorage and we do not need to overcorrect.

4 months evolution



Optimized attachments allow the appliance to have an improved gripping surface.

IPR -OcclusalDesign®



In case of dental discrepancy in size or shape, in many cases, we will use interproximal reduction calibrated according to OcclusalDesign®, and the planners will tell where when and how much IPR will be necessary.

Lower 3-3 activation



Upper +3 activation



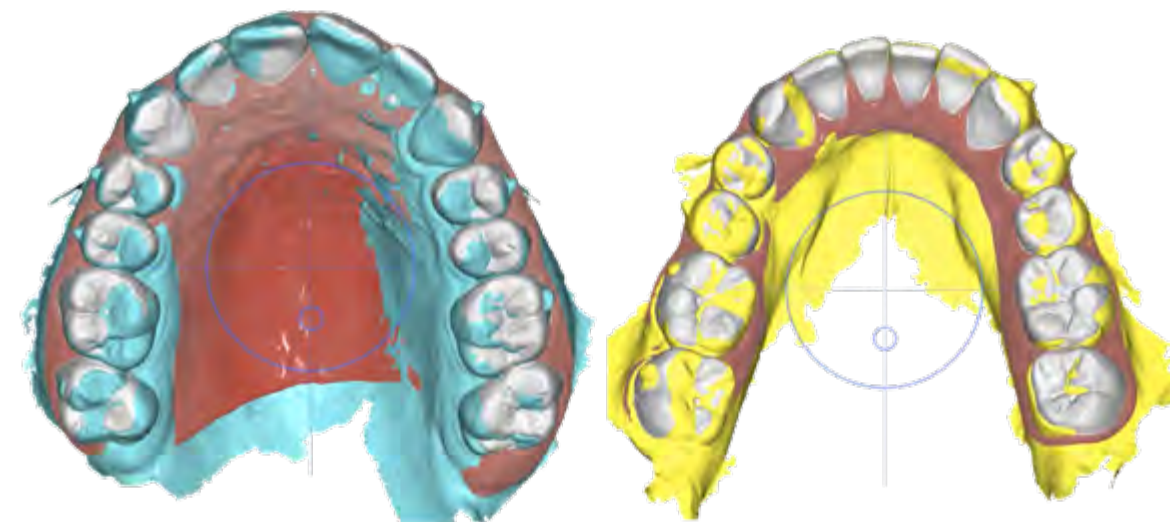
If necessary, it is possible to activate the pressure exerted by the aligner through pressure zones that, at the clinician's discretion, will put more force in the selected areas.

4 months evolution



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

STOP and GO®



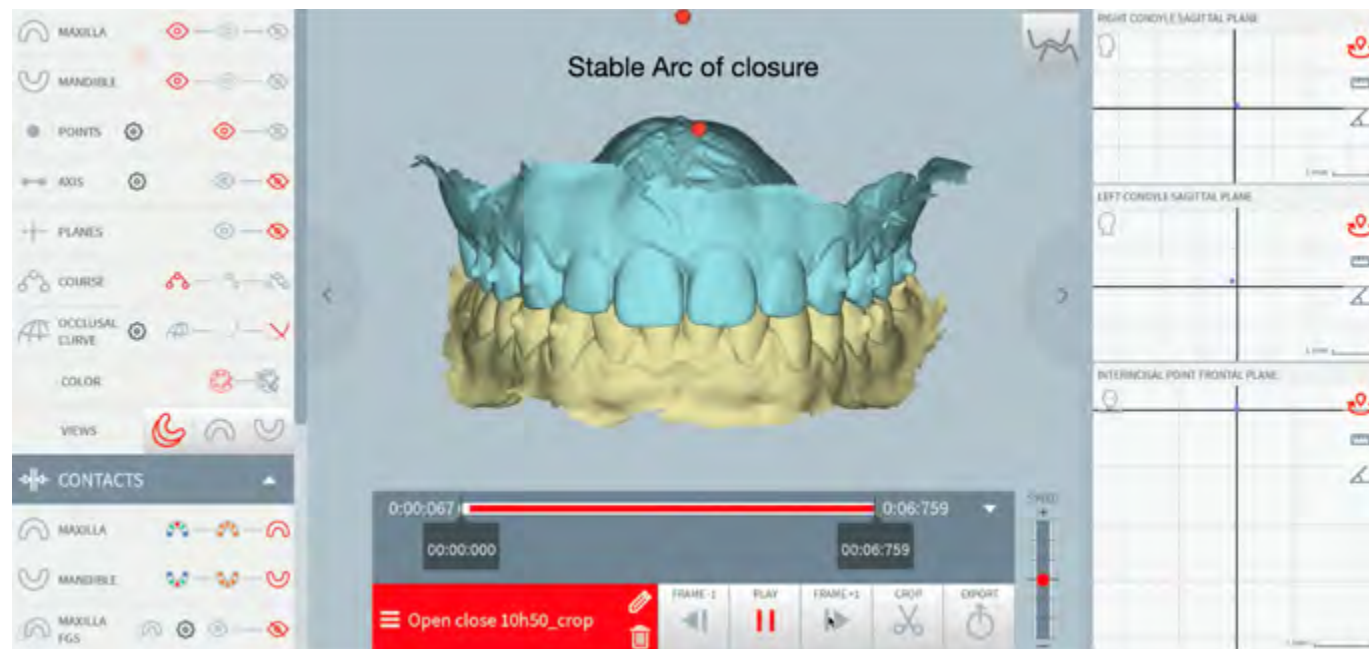
With FAS Compact and FAS Pro, at stages predetermined by the planning team, it is possible to re-evaluate the evolution of the treatment with STOP and GO®.

6 months evolution

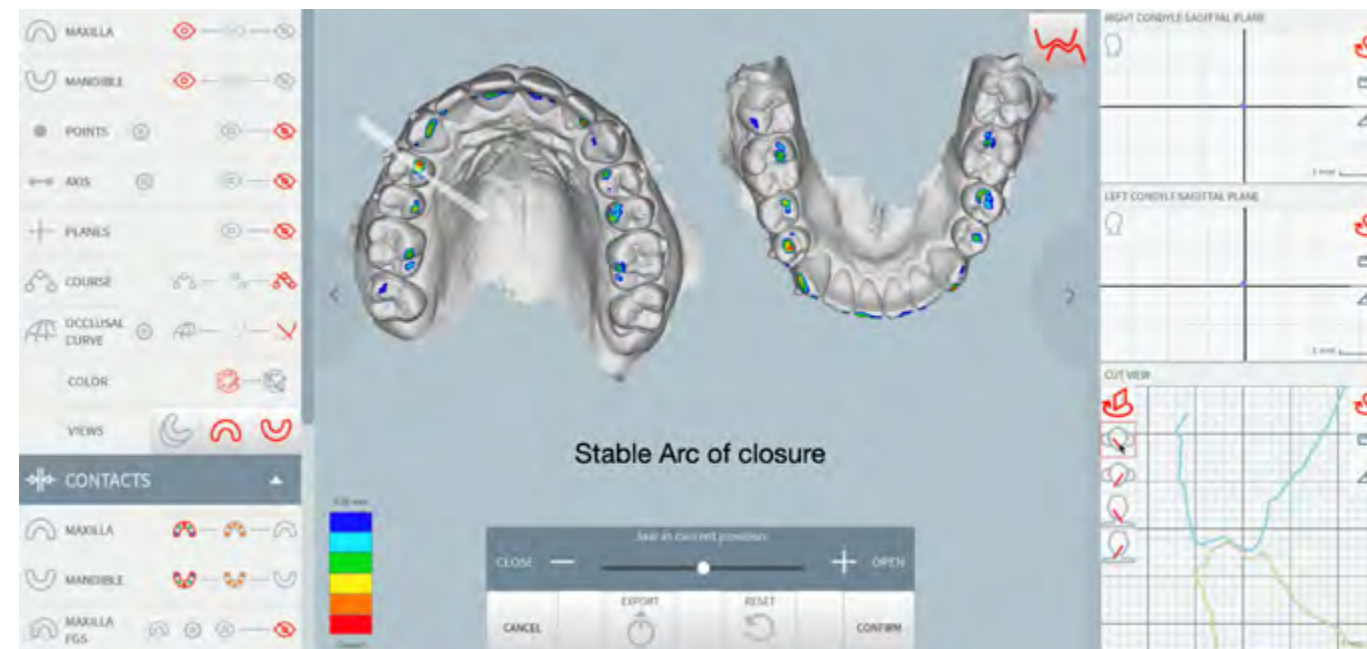


When the evolution of the case does not require replanning, the order to send the remaining aligners can be given directly. Still, if replanning is necessary, this process provides maximum efficiency and minimizes treatment stages.

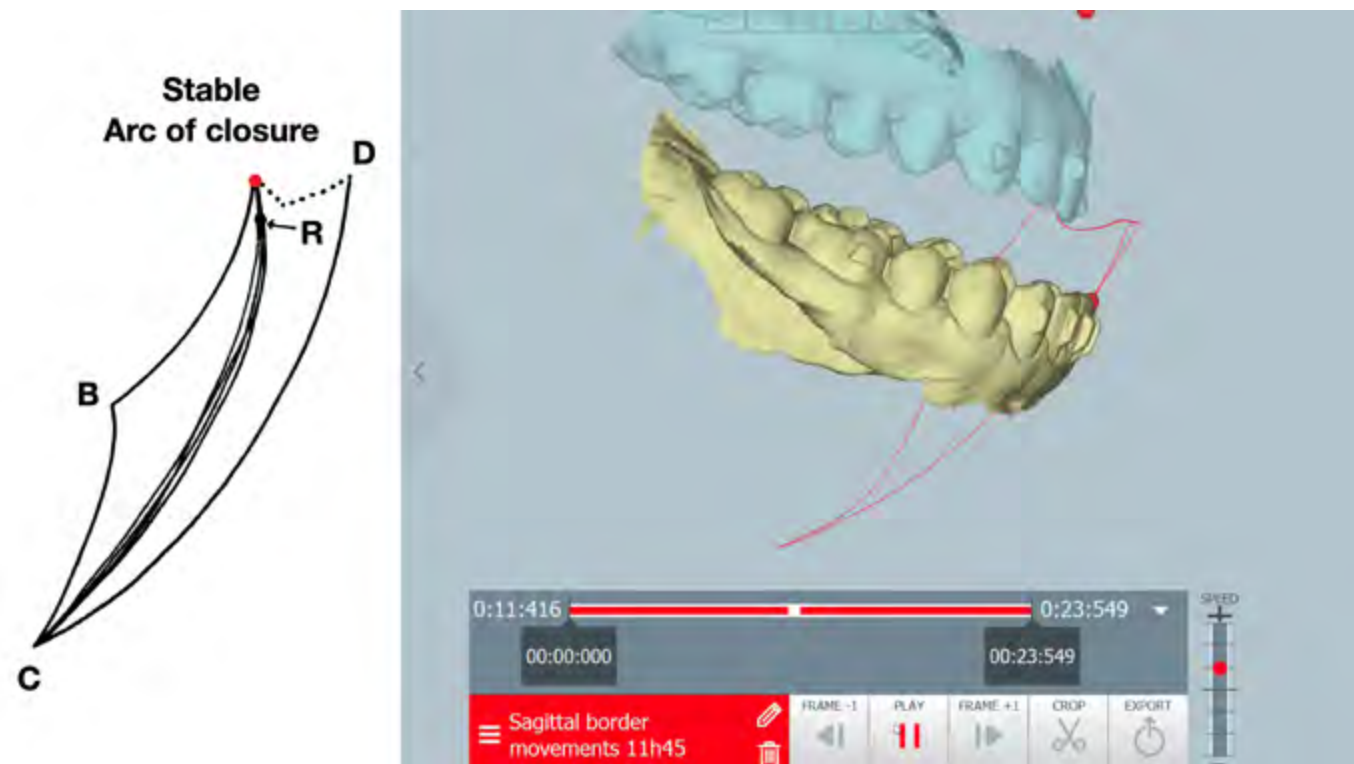




FAS is prepared to work with dynamic occlusion records to offer functionality and aesthetics with the minimum number of aligners. Before proceeding with the treatment to the final stages, we check whether the functionality of the planned dental contacts corresponds to that of the patient.



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

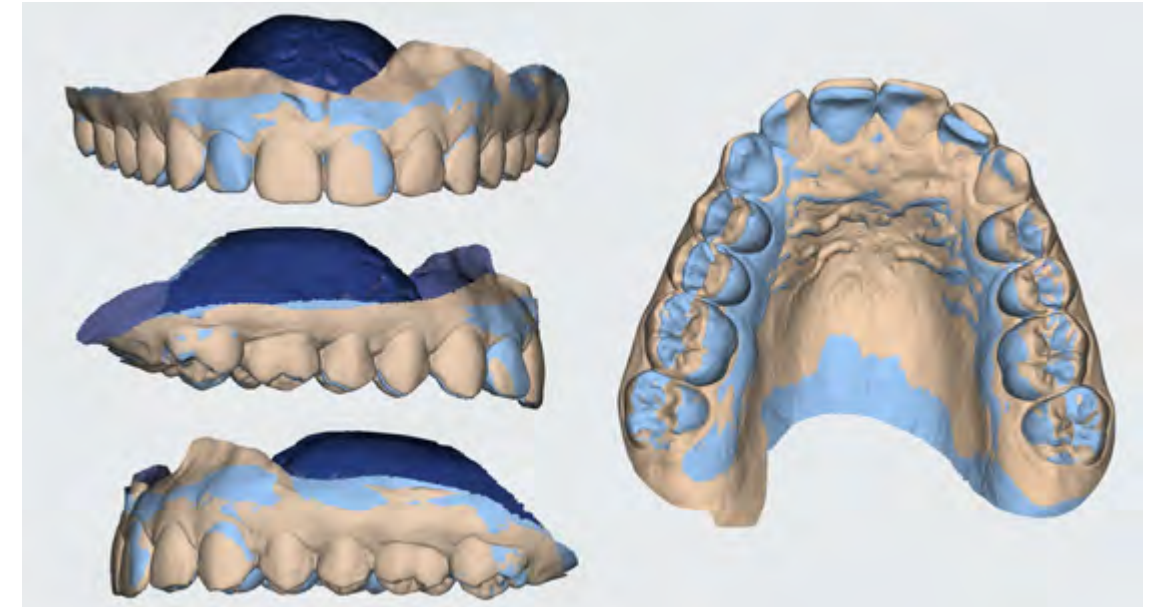


We check that the occlusal contacts planned with OcclusalDesign® are the same ones obtained with the treatment.

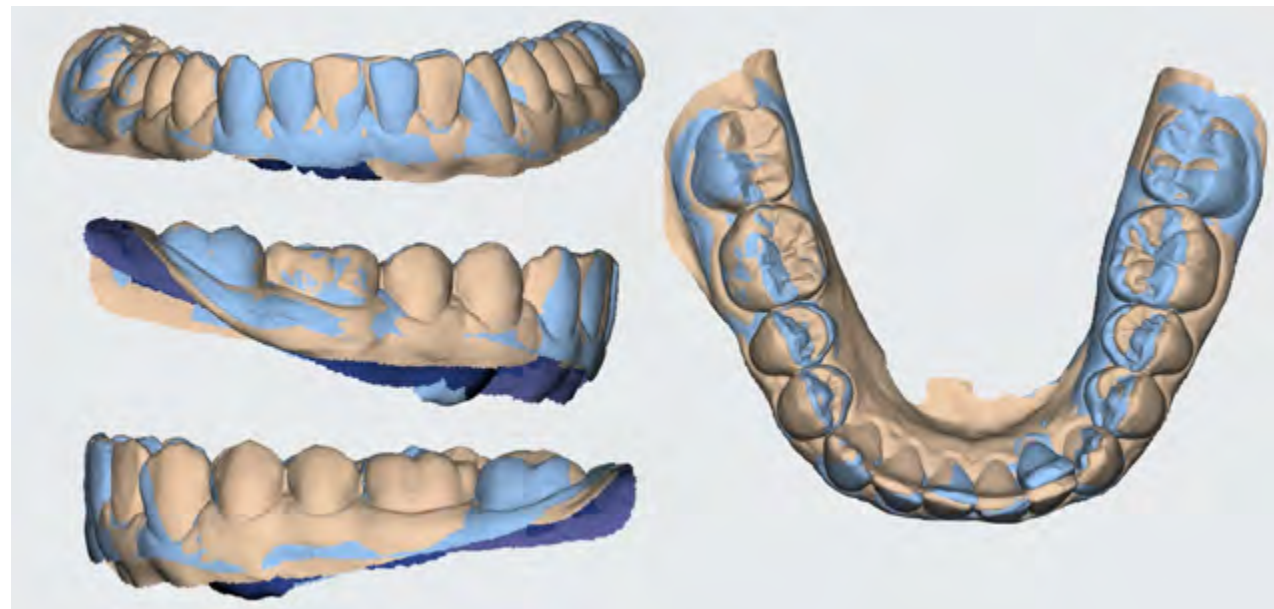
7 months evolution



The precision of the FAS system allows functional and aesthetic results in the minimum treatment time.

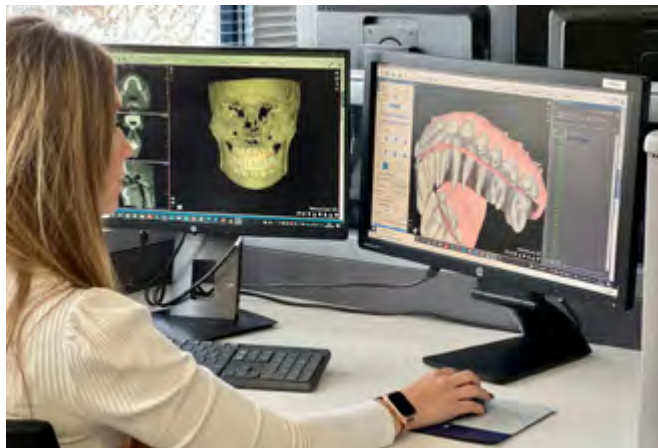


Pre-post treatment superimposition.



Pre-post treatment superimposition.





FORESTADENT Planning Center

To undertake the launch of a precision product like FAS, FORESTADENT has developed a Planning and Production Center with high technological and manufacturing capabilities.

But that alone is not enough. This system's real engine is the Occlusal Designer team, all our planners are orthodontists who have been trained for two years in the FAS concept under Doctors Martín and Canábez.

The Service

One of the hallmarks of FORESTADENT is service, and those who have already enjoyed it can confirm this.

With the launch of FAS, we want to go further. Our mission is to collaborate in the digitalization of clinics through service. To this end, we not only emphasize the accessibility of the portal and product deliveries in a more reasonable time.

Our purpose is to facilitate access to digitalization for those who do not have the knowledge or the means to meet the present and future challenges.

To this end, 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 can communicate modification requests the proposed Occlusal Design®.

The range of products of our digital offer will allow you to access with a single click different aspects of the products.

THE FAS PRODUCT RANGE

The FAS product range is oriented to treating medium, complex, and very complex cases. For the most straightforward cases, we offer our Flex and Target line of aligners.

Free of charge estimation of feasibility

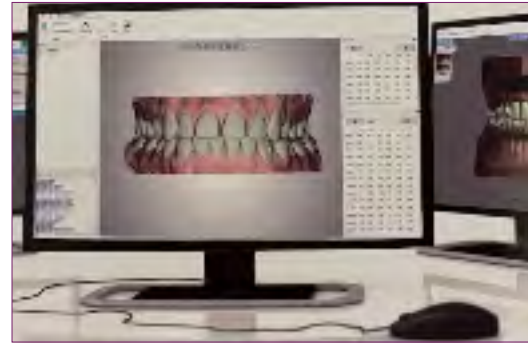
Upload your photos and x-rays and our team will evaluate your case and recommend the appropriate type of treatment plan. They will recommend whether the case is Flex, Target, Compact or Pro.

FAS Flex

Single 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 1mm.
- Expansion of less than 1 mm per quadrant.
- Rotations of no more than 10°. Does not support midline correction.
- Crossbite correction is not allowed. Does not admit anteroposterior 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 aligners each upper + lower

Indications

- Crowding less than 5mm.
- Diastemas less than 2mm.
- Leveling of incisal edges less than 1 mm.
- Expansions up to 2mm.
- Rotations of no more than 25°.
- Overbites up to 2 mm.
- Open bite up to 1mm.
- Midline correction up to 1mm.
- 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 (Occlusal Design®), up to two replannings and one STOP and GO® if necessary. It should be noted that due to biological factors, teeth may not move exactly as programmed, so there is a possibility that additional aligners may 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 of no more than 30°.
- Overbites up to 2 mm without auxiliaries; auxiliaries will be indicated for more than 2 mm.
- Open bite up to 2 mm. Admits posterior intrusion with mandibular anterior rotation.
- Midline correction up to 2mm.
- Crossbite correction as needed without exceeding 3mm of expansion per quadrant.
- Anteroposterior changes up to 3 mm.



FAS Compact with roots

For root segmentation, a CBCT is required. Treatment of medium to complex cases in three phases. Includes initial planning (OcclusalDesign®) with root segmentation, up to two replannings and one STOP and GO® if necessary. It should be noted that due to biological factors, teeth may not move exactly as programmed, so there is a possibility that additional aligners may 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 of no more than 30°.
- Overbites up to 2 mm without auxiliaries, more than 2 mm indicate the use of auxiliaries.
- Open bite up to 2 mm. Admits posterior intrusion with mandibular auto-rotation.
- Midline correction up to 2mm.
- Crossbite correction as needed without exceeding 3mm 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 replannings and up to two STOP and GO® if necessary. Change of aligners every 10 days in working phases and, in treatments with corticotomies, every 5 days during their effect.

Cases in which the planning team detects that the initial work phase can not achieve the precise objectives even by using auxillaries or anchorage devices, the planners will help you decide an optimal treatment option.

Indications

- Admits cases of any type.
- It admits cases with corticotomies and surgical cases where decompensations are required



FAS Pro with roots


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

Cases in which the planning team detects that the initial work phase can not achieve the precise objectives even by using auxillaries or anchorage devices, the planners will help you decide an optimal treatment option.

Indications

- Admits cases of any type.
- It admits cases with corticotomies and surgical cases requiring decompensations.

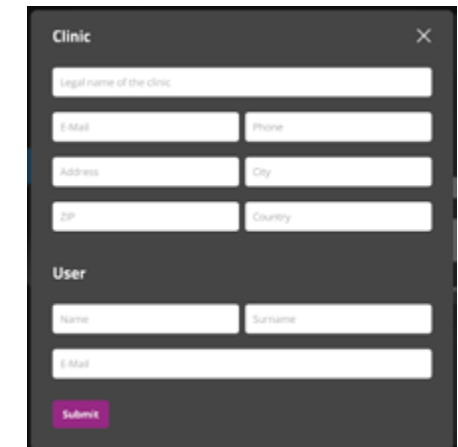




How can you sign up?

We have created a dedicated website
where you can register.
Please visit www.fasaligners.com and click
on the button "Start now".

Please enter your data into the registration form.
Your account is set up for you and you will receive
your login data by e-mail.

The image shows a registration form titled 'Clinic' with a close button (X) in the top right corner. The form is divided into two main sections: 'Clinic' and 'User'. The 'Clinic' section includes input fields for 'Legal name of the clinic', 'E-Mail', 'Phone', 'Address', 'City', 'ZIP', and 'Country'. The 'User' section includes input fields for 'Name', 'Surname', and 'E-Mail'. A pink 'Submit' button is located at the bottom left of the form.

Responsible for content:

Dr. Domingo Martín

Dr. Alberto Canábez

Distributed by:

FORESTADENT Bernhard Förster GmbH

Westliche Karl-Friedrich-Str. 151

75172 Pforzheim / Germany

service@forestadent.com

www.forestadent.com

www.fasaligners.com