



# AFR-Mini-REG

## Anterior Functional Registration Device

- Prefabricated – One size fits all
- Individually packed in hygienic bags including individual labeling for each patient
- Ready to use – no special preparation is needed
- Made from non toxic PP (Polypropylen) Material
- Direct application to the patients mouth with common dental materials
- Comfortable Centric Bite Registration for the patient
- Instant visibility of the mandible movement (Recording of the Gothic Arch)



# Anterior Functional Registration Device



## AFR-Mini-Reg - FUNCTIONAL ANTERIOR DEVICE.

The AFR-Mini-Reg (Fig.1) is anterior device designed like a JIG-Splint. It can be used on patients with complete dentition or patients with missing teeth or gaps in the posterior area.

It is an economic and effective device for a diagnosis of malocclusion and determination of a physiological position of the mandible.

## Advantages

The AFR-MINI-Reg has been used in professional dentistry for almost 30 years. Based on the clinical experience the AFR-Mini-Reg provides following advantages.

- Prefabricated – One size, fits all
- Individually packed in hygienic bags including individual labeling for each patient
- Ready to use – no special preparation is needed
- Made from non toxic PP (Polypropylen) Material
- Direct application to the patients mouth with common dental materials
- Comfortable Centric Bite Registration for the patient.
- Instant visibility of the mandible movement (Recording of the Gothic Arch) Fig.2
- Easy reproducible interocclusal records

## Indications

The AFR-Mini-Reg is a tool for recording the exact location of the centric and excentric relationship of the mandible. It can be use before, during and after treatment (occlusal splint, orthodontic, orthognathic cases, selective grinding, restorative dentistry, prosthodontics). It is also recommended for patients with implants. The AFM-Mini-Reg helps determine a protruded position of the mandible for snore and apnea appliances. Also for orthodontic treatment using an Herbst-Appliance, mandible positions can be recorded with a AFR-Mini-Reg.

Like any other JIG-Splint (Lucia-JIG, NTI-TSS, Leaf-Gauge, Denar Deprogrammer, Kois Deprogrammer, ...) the AFR-Mini-Reg is an anterior deprogrammer, but it is the only de-vice which visualizes mandible movement using the Gothic Arch like comparable systems from (Gysi, Gerber, ...).

Based on clinical experience, the AFR-Mini-Reg is a good supplementary device when using electronic registration systems like Jaw Motion Analyzer, Arcus Digma, AXIOQUICK® Recorder, Freecorder® BlueFox, ...

## How to attach the AFR-Mini-Reg to the anterior teeth

PVS silicone (putty) supports all cases; however, previous adhesive application is suggested (Fig.3, Fig. 4) Using a primer gives better retention. Green sticks (Stick compound) (Fig.5) may also be used, with restrictions on cases with retention (fixed prosthesis, brackets), or even in the presence of temporary crowns and bridges made from Bis-Acryl-Composite.

All kinds of wax or other materials are not indicated for this technique.

## MINI-REG stability assurance procedure.

Whether with silicone or stick compound, MINI-REG must be kept fixed during reline, with no rotational motion. (Fig.6)

The impression material with the MINI-REG should cover teeth and the palatal anterior region of the gum.



Fig.1



Fig.2



Fig.3



Fig.4



Fig.5



Fig.6

# GOTHIC ARCH TRACER



## What is a Gothic Arch

The Gothic Arch tracer is a technique which has been used in dentistry for more than 100 years. Alfred Gysi used an extraoral device to record mandible movement for the reconstruction of full dentures. The Gothic Arch Tracer is used to determine the position of the mandible in centric relation. The traces represent the mandible movement on a horizontal plane. The apex of the arch is considered, that the mandible is in centric relation. The traces show the maximum movement of the mandible to the anterior and lateral position.

## What is the difference between the AFR-Mini-Reg and other common systems

Almost all Gothic Arch Tracing Systems (Gerber, DIR-System, ...) are bite plates which are mounted on the intraoral position of the mandible.

The bite plate of the AFR-Mini-Reg has a flat surface which is mounted to the anterior teeth. The usability of this device is more convenient for the dentist and also for the patient. The application of the AFR-Mini-Reg is easy and fast. A reliable and precise diagnosis can be done in less than 15 minutes. The AFR-Mini-Reg is also an alternative for patients with a small budget.

## Supplementary products needed for obtaining the gothic arch tracer

Gothic Arch traces can be recorded directly on the bite plate using an Occlusion Spray. (Fig.8) The surface should be coated equally and smoothly without spots. Using this technique, good results can be achieved by using Bausch Articulating Spray BK 285 white (Fig.7). Other colors like green are also possible. The white spray provides a good contrast on the blue surface. Besides the direct application a graph paper is added to each AFR-Mini-Reg. This graph paper is a self-adhesive label, which fits exactly to the shape of the bite plate. For preparing a record, the dentist takes a piece of 1-sided occlusion test film (Bausch Arti-Fol Metallic) (Fig.9) and puts the marking side on top of the graph paper. The non-coated side is exposed to the anterior registration pin of the mandible. The traces on the graph paper (Fig.10, 12, 14) are clearly visible and the graph paper should be sealed with transparent plastic label, which is also attached to the AFR-Mini-Reg. These graph papers can be used for documentation by adding them to the patient's file.

## Evaluating the Gothic Arch Traces

Using the graph papers as documentation can provide important information about the maximum movement of the mandible. It may be also useful to keep such records before and after treatment with, occlusal splint, orthodontic treatment, temporary crowns, ..., to compare the results and verify any improvement.

The millimeter scale (with the kit) has the advantage (with BK 30 black BK 31 red, Fig.15) to compare the range of the mandibular movements, before and after occlusal splint, orthodontic treatment, temporary crowns.



Fig.7



Fig.8



Fig.9



Fig.10



Fig.11



Fig.12



Fig.13



Fig.14



Fig.15

# INTEROCCLUSAL RECORDS



## What are the characteristics of an interocclusal record.

Wax, pattern resin and silicone may be used (Fig.16). It is important that the interocclusal record presents marks of cusp tips only and that it allows optimal adjustment with the diagnostic casts.

High quality materials give better results; however, mandibular manipulation training is required in order to achieve good results.

ATTENTION: Precise interocclusal records need your full attention to achieve the result of an interocclusal record, which fits the diagnostic casts precisely (Fig.17).

*„The price for inaccurate bite records is wasted time, compromised results, and a lack predictability“; Dr. Peter Dawson, Dawson Academy, 50 Pearls of Wisdom*



Fig.16



Fig.17

The AFR-Mini-Reg is the only device incorporating the advantage of an anterior jig splint and a gothic arch tracer. Supporting the neuromuscular relaxation, the AFR-Mini-Reg enables the mandible into a physiological position. (Fig.18)

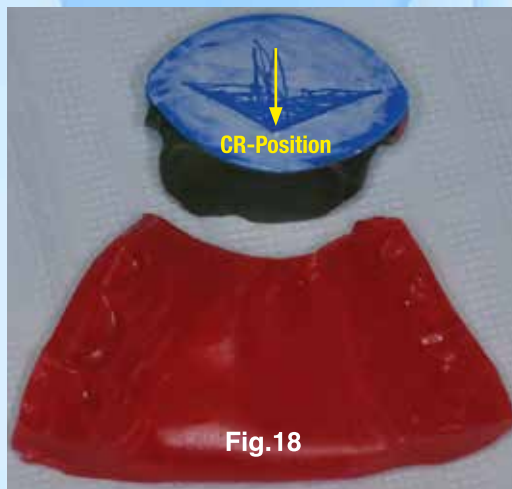


Fig.18

It is also possible to determinate an eccentric mandible position with an interocclusal record. (Fig.19, 20, 21)

The AFR-Mini-Reg is like a Jig-Splint, which improves a neuromuscular relaxation, manual manipulation of the mandible in most cases is not required. Anyhow it is important that the dentist has some clinical experience for those cases, which probably need some manual support.



Fig.19



Fig.20

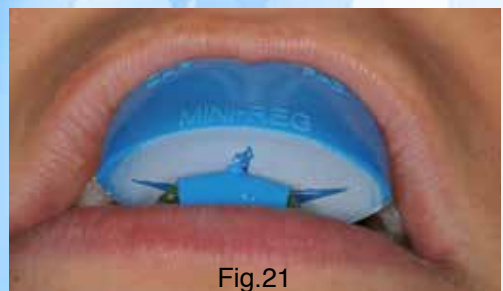


Fig.21

## Gothic Arch Traces with Angle Class III Occlusion

The AFR-Mini-Reg can also be used for diagnosis of Angle Class III. In this special case the bite plate is mounted on the lower anterior teeth and the registration pin on upper anterior teeth to increase the range of motion on the bite plate. In this case the apex of the Gothic Arch Traces is in an inverted position. (Fig.12)

For an individual of Angle's Class III with larger mandibular projection, the MINI-REG parts must be inverted so that the Gothic Arch remain restrict to the recording plate. This way, it is more stable for a Class III condition.

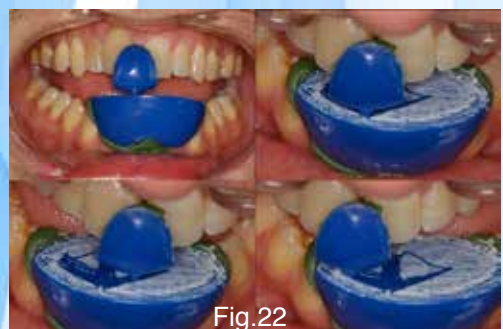


Fig.22

# INTEROCCLUSAL RECORDS



## Mounting the lower cast model into the articulator

For mounting the lower cast model only the interocclusal record is necessary. It is not conducive using also the AFR-Mini-Reg when mounting the models, because the seating of the AFR-Mini-Reg on the stone models differs from the seating in the mouth.

The interocclusal record is placed on the cast model of the maxillary. (Fig.25) The lower cast model is seated into the impression of the interocclusal record. At this step the incisal pin of the articulator is fixed, to adjust the vertical dimension (Fig.23). Dependent from the articulator model used, different adjustments in compliance to the requirements of technic specifications have to be considered.

Transferring the mandible position using the interocclusal record provides a precise reproducible position in the articulator. To achieve reproducible and exact positions, it is essential to consider following possible sources of errors:

- Facebow transfer (Fig.24)
- Dimensional changes of the impression and, consequently, of the cast model
- Dimensional changes of the interocclusal record.
- Error on the fixing of diagnostic casts.

To check the coincidence of occlusal contacts between the cast model and the intraoral situation, the Arti-Dry Technique is possible technique, which requires clinical experience of manual manipulation of the mandible. In this case the mandible should be placed manually into CR (Centric Relation). If the occlusal interferences are in coincidence, the cast model is mounted in the correct relation. Also regular Articulating Film or Paper can be used to check this coincidence. (Fig.27)

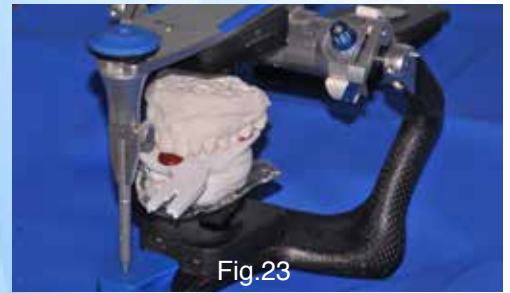


Fig.23



Fig.24

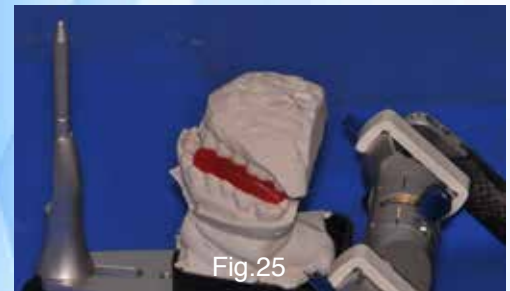


Fig.25



Fig.26

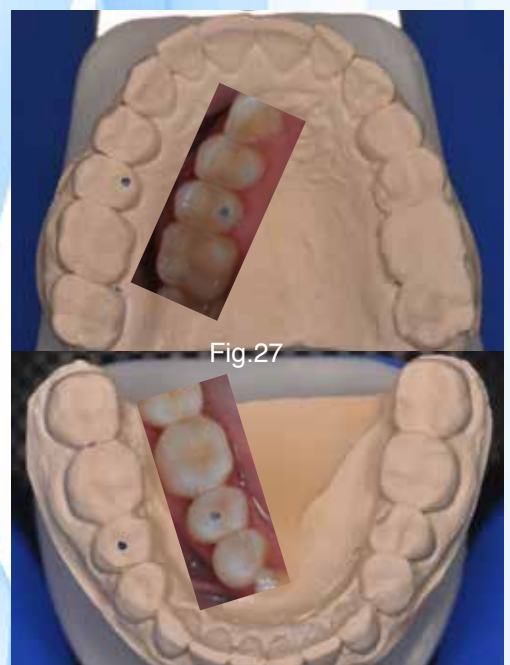


Fig.27

# Instrumental Functional Analysis



Checking of the physiologic position the mandible and the maximum intercuspation

removing of the interocclusal record  
&  
releasing the incisal pin of the articulator

first occlusal interference is visible



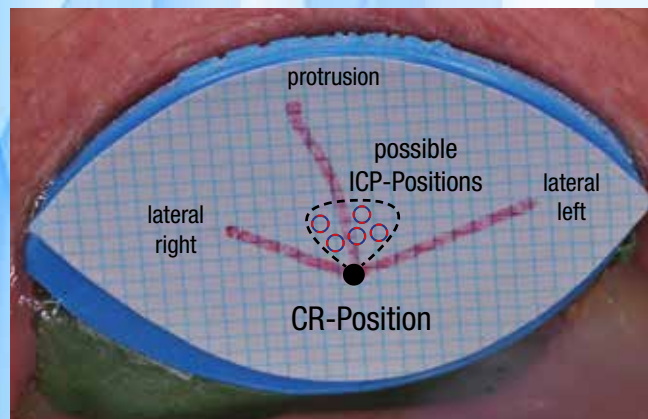
Is this initial contact correct ?



This position could be probably the CR Position (Centric Relation). To verify this position, the models are shifted to the maximum intercuspation (ICP-Position). In this position there is no coincidence between physiologic position and ICP.

ICP-Position

● CR-Position  
○ ICP-Position



If the ICP-Position could be detected in the plane of mandible movement, the CR- Position is correct.

If it is not possible to detect an ICP-Position between the casts models, the divergence may found in one of the previous steps.

## Occlusal Space

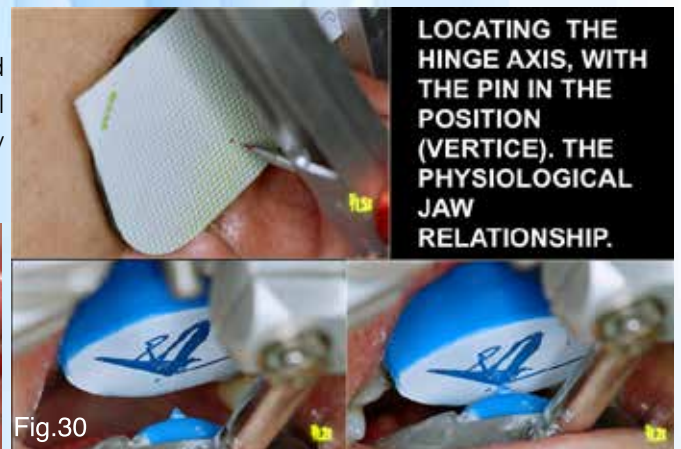
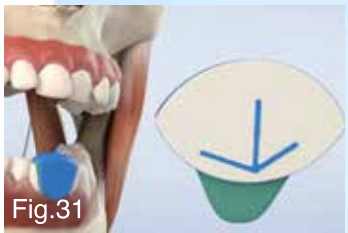
The AFR-Mini-Reg causes an occlusal space between maxilla and mandible. Like any other JIG-Splints (Lucia-JIG, NTI-TSS, Leaf-Gauge, Denar Deprogrammer, Kois Deprogrammer, ...), AFR-Mini-REG generates a rotation of the condyles. Based on clinical experience, an anterior occlusal space of max.12 mm has no significant effect, determining the hinge axis (Fig.30), as long as there is no translation of the condyles. This finding has also been mentioned in relevant literature (McCollum, Posselt, Ramjford & Ash, Howat, Okenson, Dawson, Santos Jr., Bumann).

The AFR-Mini-REG generally creates an interincisal opening between 7-9 mm (Fig.28, 29)



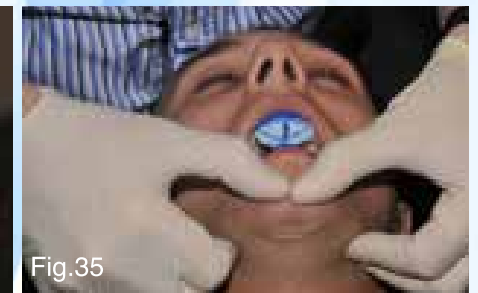
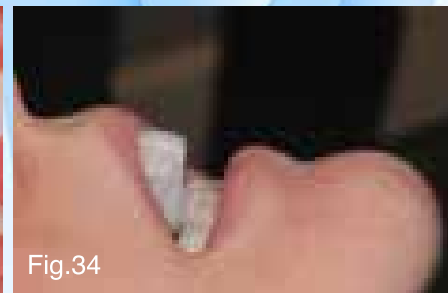
## Reference Plane

For performing a AFR-Mini-REG record, it is recommended to attach the bite plate in relation to the occlusal plane. Small deviations from the occlusal plane have not shown any different results. (Fig.31, 32)



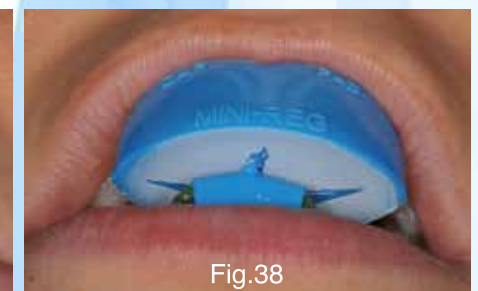
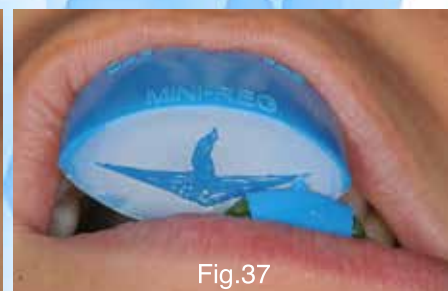
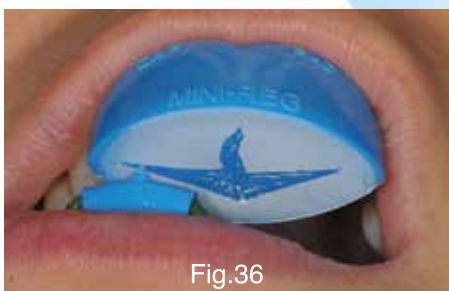
## Equivalent registration techniques

Beside the AFR-Mini-Reg technique (Fig.33) there are numerous techniques or concepts, which will lead to similar results, like Lucia's JIG (Fig.34), Dawson Bimanual Manipulation (Fig.35), ...



## Eccentric interocclusal records

The AFR-Mini-Reg is unique, because it is a combination of an anterior neuromuscular deprogrammer and a gothic arch tracer. One of the major benefits is the possibility taking eccentric interocclusal records. (Fig. 36, 37, 38)



# Occlusal Splints



In dentistry there are numerous techniques or concepts to make an occlusal splint. The AFR-Mini-Reg is a practicable device, transferring diagnostic information into an individual hard splint for the patient. (Fig 39, 40 Occlusion splint in physiologic position with canine teeth guided occlusion). Acting like any anterior deprogrammer, the AFR-Mini-REG supports the patient neuromuscular system. The anterior deprogrammer is very comfortable during the registration process, relaxing the masticatory muscles.



Fig.39



Fig.40

## Electronic Registration

The AFR-Mini-REG may be also used in combination with electronic jaw motion system like (Jaw Motion Analyzer/Zebris, Arcus Digma / Kawo, AXIOQUICK® Recorder/SAM, Freecorder® BlueFox, ... (Fig 41, 42, 43, 44)

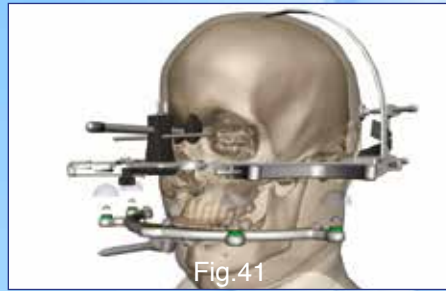


Fig.41

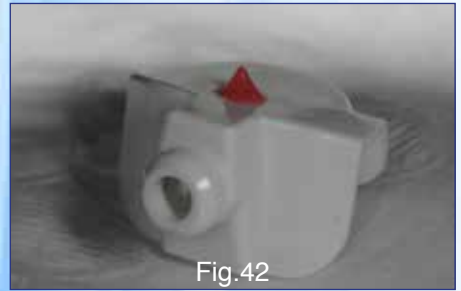


Fig.42

## Orthodontic Treatment

Also patients with brackets can be registered with the AFR-Mini-Reg. (Fig.44) For this technique the lower registration device has to be adjusted.

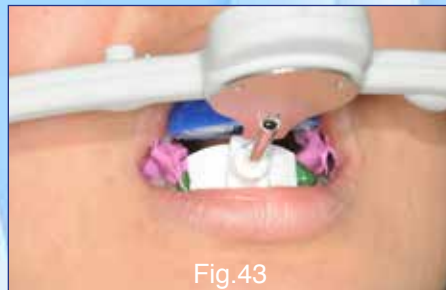


Fig.43



Fig.43

## Patients with motion problems

If the patient has a limitation to move right or left, the problem is instantly visible on the gothic arch traces. This limitation could be caused by an intense muscle tensions, displacement of the disk without reduction or degenerative joint diseases. (Fig.45)



Fig.44



## Supplementary Products

When the patient is complaining about muscle pain, it can be helpful to use an AquaLizer or the RehaBite before starting the registration. Both hydrostatic systems will reduce muscle pain significantly. The patient should use these system a week before the registration procedure.



Fig.45



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