
VITA

# VITA PHYSIODENS®

Installation instructions for BIO-Logical Prosthetics

Fully anatomical premium prosthetic tooth, modeled after nature.

# VITA PHYSIODENS®

Individual. Sophisticated. Exceptional.

- Inspired by the shape, size and function of natural teeth.
- Finely crafted details for an impressive, individual esthetic.
- Occlusal surface and cusp relief follow the natural morphology.
- Especially suited for BIO-Logical Prosthetic (BLP) according to Dr. E. End – the only setup system that is consistently oriented to the natural occlusion concept.

# The concept of BIO-logical prosthetics.

## Goal of BIO-logical prosthetics

Lost tooth substance is replaced in terms of shape, size, position, function and quality based on its natural counterpart.

## Natural shapes are preserved

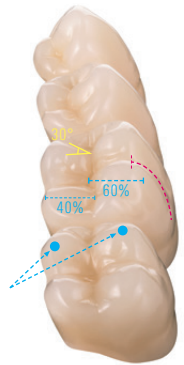
- The masticatory system is designed to preserve the shape of the teeth, allowing them to perform their function.
- Physiological movements such as chewing, swallowing or facial expressions do not lead to a loss of tooth substance.
- With healthy teeth, the morphology of natural teeth is preserved into old age.

## Pathological factors lead to loss of tooth morphology

It is only pathological disruptive factors in our masticatory system that lead to abrasion and loss of morphology.

## Natural morphology

With their fully anatomical occlusal surface design and an upper jaw cusp inclination of approximately 30°, **VITA PHYSIODENS** are modeled after healthy, natural teeth. This makes them ideal for BLP.




Curvature feature

Naturally modeled Incisor and crushing cusps

# The contact points of physiological occlusion.

## Natural contact points

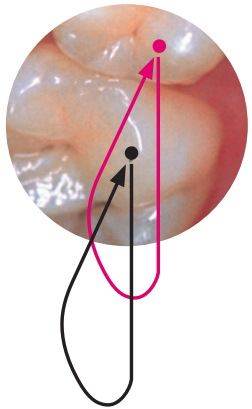
BIO-logical prosthetics aims to achieve uniform and simultaneous point contact between the lower and upper jaws for vertical chewing movements. This corresponds to the natural chewing pattern of physiological occlusion.

## No tooth guide

No tooth-guided excursion movements are performed. Movements of the lower jaw during tooth contact are not physiological, as physiological movements are not controlled by the teeth and jaw joints, but only by the central nervous system.

## Schematic diagram of a typical act of mastication

The basic chewing pattern is the same for people with a full set of teeth and those who wear dentures.



# The contact points of physiological occlusion.

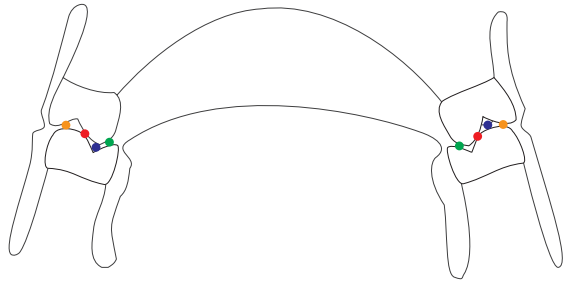
## Physiological points of contact follow six characteristic features

1. Almost uniform and simultaneous point contacts.
2. On average 10 (six to 14) contacts per quadrant.
3. Contact points mainly on the working ridges, mostly on their inner slopes.
4. Fewer marginal ridge contacts.
5. Fewer contacts on the inner slopes of the non-working cusps.
6. Average of five light touch contacts for the anterior teeth.

## In natural dentition we find

- No maximum or tripodized multi-point contacts.
- No point-area contacts in long centric or freedom in centric.
- No generalized ABC contacts.

**Contact points**



● = Working contacts
● = Vestibular non-working contacts
● = Oral non-working contacts
● = Marginal ridge contacts

# Overview of setup.

**1** Preparation with wax wall and anterior key

**2** Upper jaw anterior teeth

**3** Lower jaw anterior teeth

**4** Lower jaw posterior teeth, third and fourth quadrants

**5** Upper posterior teeth, second quadrant

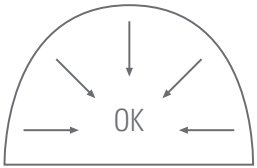
**6** Grinding of quadrants two and three

**7** Upper posterior teeth, first quadrant

**8** Grinding of quadrants one and four

## Preparation: Teeth should be placed where the natural teeth once were.

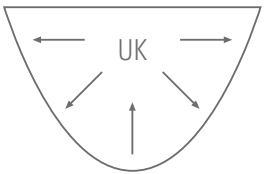
Upper jaw model with teeth




Upper jaw atrophies centripetally

Upper jaw model without teeth

Lower jaw model with teeth




The lower jaw atrophies centrifugally in the posterior region and centripetally in the anterior region

Lower jaw model without teeth

# Preparation: wax wall and anterior key.

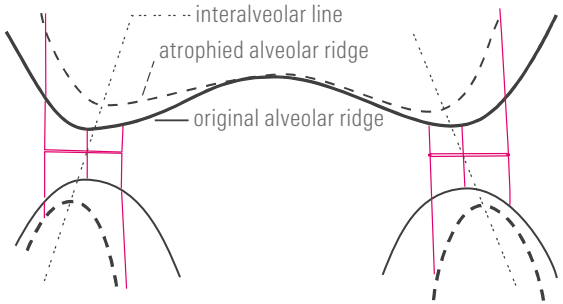
## Anterior tooth

- The dentist has modeled the upper anterior region with the wax wall in accordance with esthetic and phonetic criteria.
- Transfer with anterior tooth key: The impressions of the wax wall on the anterior key give the dental technician the precise position of the upper anteriors.
- Corresponding to the atrophy of the upper jaw, usually in front of the alveolar ridge with the labial surfaces above the vestibule.

## Posterior tooth

Consider atrophy in the posterior region:

- In the upper jaw, position the wax ridges more towards the buccal side.
- In the lower jaw, position the wax ridges more lingually. jaw, position



# Anterior teeth setup.

- The anterior teeth are positioned according to esthetic and phonetic considerations, not mechanical criteria.
- There is no requirement for tooth guidance in BIO-logical prosthetics.

Thanks to the natural labial curvature and distinctive labial surface, VITA PHYSIODENS supports the facial characteristics around the mouth and lips.

The pronounced blade shape with characteristic palatal bars enables the creation of incisal contacts easily and quickly.

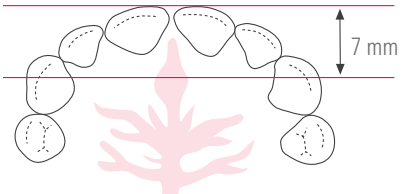
# Setup of the upper anteriors.

## Features for a natural anterior tooth setup

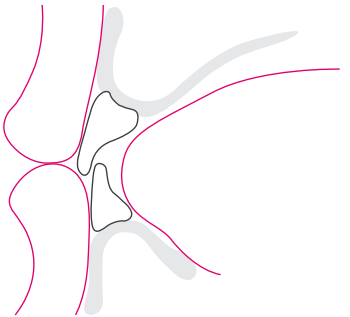
The central incisors are upright.
The cervical portion of the lateral incisors is inclined distally.
The canines are tendentially upright, with the tooth neck inclined vestibularly.

- The incisal edges of the central incisors in the upper jaw run parallel to the occlusal plane and touch it.
- The incisal edges of the lateral incisors also run parallel to the occlusal plane.
- They can be positioned individually at a distance of approximately 0.5 – 1.0 mm above the occlusal plane.
- The tips of the canines are situated approximately on the occlusal plane.

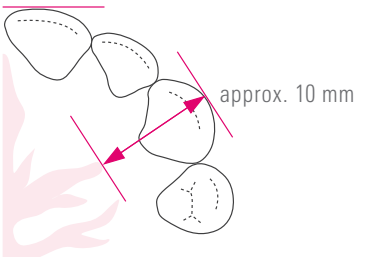
# Setup of the upper anteriors.




In a normal bite, the upper anterior teeth are about 7 mm from the center of the incisive papilla.



The labial surfaces of the upper anteriors provide support to the upper lip. The incisal edges of the central incisors ensure a harmonious lip contour.




The tips of the two canines are positioned at a distance of approx. 10 mm from the end of the first pair of palatal folds.

# Setup of the lower anteriors.

## Characteristics for the setup of the lower anterior teeth

The central incisors are straight and upright.
The lateral incisors show a slight mesial inclination.
The canines are straight or show a slight mesial inclination.

- The incisal edges of the first touch and the tips of the third reach the occlusal plane, as in the natural dentition, but for esthetic reasons they can also slightly undercut or overcut it.
- First on, second on, third outside the lower jaw ridge.
- In the wax-up, position the lower front teeth without contact so that there is room for the BLP goal of achieving slight contacts in the anterior tooth region.

# Setup for posterior teeth.

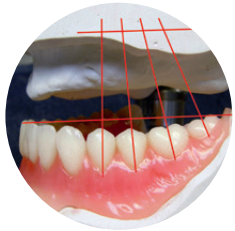
- Select posterior teeth according to their original size and place them where they once stood (muscular balance).
- As a rule, set up all premolar and molar teeth.
- If a tooth has to be removed due to unfavorable anatomical conditions, it is better to remove a premolar rather than a molar for physiological reasons.
- After the front teeth, first raise the lower jaw completely.
- Set up and grind the posterior teeth in the upper jaw quadrant by quadrant.
- Absolute symmetry is not guaranteed.

# Setup of the lower posteriors.

## Tooth axes

- Do not consider crowns in isolation, but always take into account imaginary roots and their axes.
- Do not position the posterior teeth with horizontal occlusal surfaces, but align them individually toward the cranial center.

The **curve of Wilson** results from lingual inclination of the tooth crowns. The inclination of the lower posterior crowns supports this alignment.

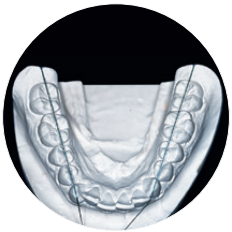


## Occlusal plane

- Runs parallel to the Camper plane, which was transferred to the model base in the model analysis.
- Only the distobuccal cusps of the second molars and the anterior teeth meet the occlusal plane.

The **Spee curve** is created by the side teeth descending, starting with the first premolars, and then rising again towards the second molars. The distance to the occlusal plane initially increases, then decreases again towards the second molar.

# Setup of the lower posteriors.



## Longitudinal fissures

For a natural alignment, the central fossae in the lower jaw lie on the line between the tips of the canine teeth and the trigonum retromorale.

## Pound line

The position of the teeth is restricted lingually by Pound's line. The non-working cusps do not extend beyond Pound's line.

## Second molars

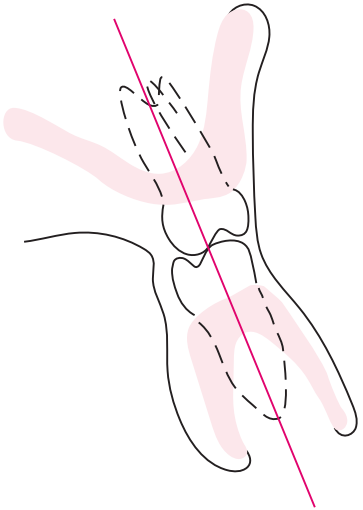
- Should always be set up.
- The basal distal portion is located close to the retromolar triangle and often has to be ground away down to the occlusal surface.
- Preserve the lingual and buccal crown walls as much as possible to provide support surfaces for the tongue and cheek.
- This also applies to the upper jaw.

# Setup for upper posterior teeth.

## Contacts in the wax setup

- Position the posterior teeth in relation to their antagonists so that the inner slopes of the respective working cusps come into contact.
- The crown axis is at an angle to the occlusal plane.
- Non-working cusps remain in the wax setup out of contact before grinding.
- Although a tooth-to-two-tooth relationship is the goal, this is not necessary for optimum masticatory function.
- No lateral movements are performed on this side to prevent or achieve occlusal guidance or balancing. The physiological centric relation is the only contact position in the articulator.

The **Spee curve** and **Wilson curve** are also automatically created in the upper jaw by aligning the working contacts in the upper jaw with the working contacts of the already correctly positioned lower teeth and by releasing the non-working contacts.



# Setup for upper posterior teeth.




## Order of the setup

- Place the fourth provisionally in harmony in the dental arch with contact to the lower jaw.
- The sixth is placed in front of the fifth: Position the first molar so that the incisal pin is 2 mm away from the incisal plate.
- First set up the seventh, then the fifth.
- Finally, move the fourth into its final position with light working contacts.
- In the case of difficult jaw conditions, it is also possible to set up teeth 4 to 7 in sequence.
- Setup and grinding are always performed quadrant by quadrant.

# Grinding of quadrants.

- Grind in quadrants (grind quadrants two and three before setting up the first quadrant).
- Teeth were erected with a support pin lock of approx. 2 mm: now grind the contact points until the registered zero position on the incisal pin is reached again.
- The goal is to achieve an even and simultaneous point contact.
- Optimal physiological and non-maximal contact position.
- Grind the upper and lower jaws to preserve the chewing surface.
- Observe the rules of physiological occlusion (next page). Rules are guidelines, not rigid standards.

# Grinding of quadrants.

## Premolars

- One to two, rarely three contacts
- Great occlusal freedom in the first premolars

## First molars

- Three to five contacts
- Mainly on the inner slopes of the working cusps at different heights, and centrally on the highest ridges
- Marginal ridge contacts and non-working contacts

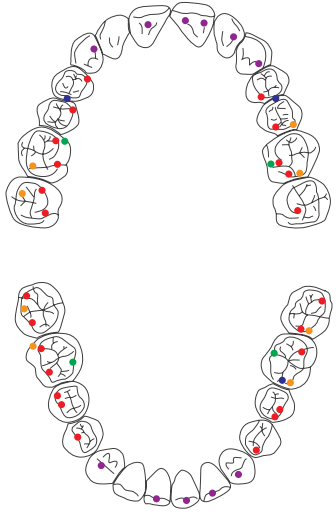
## Second molars

- One to three contacts
- Mainly work contacts
- But also marginal ridge contacts and non-working contacts, often in the head or crossbite position
- External non-working contacts more frequently than internal non-working contacts

## Anterior teeth

On average five contacts

● = Working contacts
● = Vestibular non-working contacts
● = Oral non-working contacts
● = Marginal ridge contacts
● = Anterior tooth contacts



Example of typical tooth contact points

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# We are happy to help.


**Hotline Sales Support**
Phone +49 7761 562-884
Fax +49 7761 562-299
8.00 bis 17.00 Uhr CET
Email info@vita-zahnfabrik.com

**Technical Hotline**
Phone +49 7761 562-222
Fax +49 7761 562-446
8 a.m. to 5 p.m. CET
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The publication of these setup instructions renders all previous editions invalid. The current version for each case is available at www.vita-zahnfabrik.com

VITA Zahnfabrik has been certified, and the following products bear the CE mark

CE 0124: **VITA PHYSIODENS®**



MD

## References

**Internal studies, VITA R&D**
VITA Zahnfabrik H. Rauter GmbH & Co. KG
Research and Development Division
Spitalgasse 3, 79713 Bad Säckingen, Deutschland
Dr. Berit Gödiker, project manager for VITA R&D,
VITA Zahnfabrik, Bad Säckingen

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## VITA PHYSIODENS®

**VITA Zahnfabrik H. Rauter GmbH & Co. KG**

Spitalgasse 3
79713 Bad Säckingen
Germany

Phone: +49 7761 562-0
Hotline: +49 7761 562-222

info@vita-zahnfabrik.com
www.vita-zahnfabrik.com

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