

SR Phonares® II

Expressive esthetic denture teeth



Instructions for Use



INTRODUCTION

The demands of patients with removable dentures continue to rise: more esthetics, more functionality.

Patients expect and require more than just having their basic oral functions (e.g. chewing efficiency) restored. Individualized esthetics plays an increasingly important role.

SR Phonares has been developed to fulfil these requirements.

Based on **Nano-Hybrid Composite** (NHC), SR Phonares denture teeth are particularly suitable for the demanding applications in removable dental prosthetics. The tooth moulds are shaped according to age-specific characteristics, allowing the fabrication of highly individualized dentures.

SR Phonares offers dental technicians, prosthodontists and dentists a new generation of denture teeth that are designed to optimally meet the requirements of today's patients.

This documentation offers guidelines for the application of the SR Phonares II tooth lines, assisting users to achieve an optimum level of function and esthetics.

TABLE OF CONTENTS

Anterior Tooth Moulds	4
Posterior Tooth Moulds	5
Layering Diagram	6
Composition	7
Indications	8
Processing Steps	9
Mould and Shade Selection	10
Model Orientation	12
Model Analysis	13
Anterior Tooth Setup	14
Posterior Tooth Setup	18
Completion	26
Implant Prosthetics	32
General Information	38

ANTERIOR TEETH

SR Phonares® II

Impressive esthetic qualities

- Unparalleled surface texture

User-friendly and convenient

- Easy setup of anterior teeth due to proximal "Set & Fit" design
- Enhanced "white esthetics" due to especially designed interdental closures



A range of tooth moulds designed to match the age and characteristics of the individual patient

- Two basic types
- Three different categories according to age-related characteristics



^{SR} **Phonares® II**
Lingual

SR Phonares II Lingual moulds offer the option of lingualized occlusion. This setup technique is particularly suitable for enhancing stability in removable denture prosthetics (e.g. implant prosthetics).



^{SR} **Phonares® II**
Typ

The SR Phonares II Typ moulds are the classic teeth suitable for universal application in partial, complete and hybrid dentures.



Lingualized occlusion



Classic occlusion



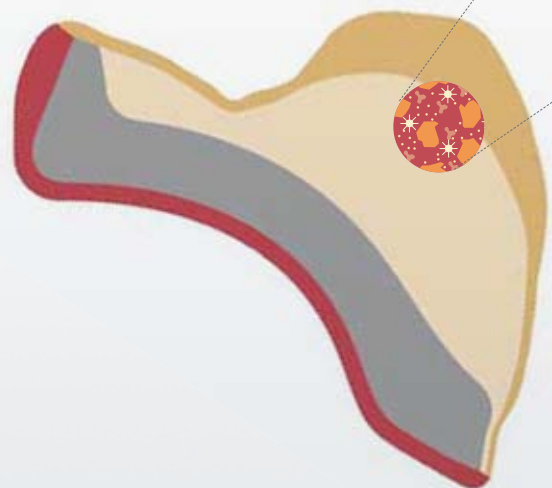
LAYERING DIAGRAM

The SR Phonares II tooth line has set new standards in the esthetics of removable dental prosthetics.

The Nano-Hybrid Composite (NHC) is a distinguishing feature of SR Phonares II.

This new composite has been especially developed for use in removable dental prosthetics. The NHC material offers the following advantages:

- high resistance to wear
- high resistance to plaque build-up
- natural opalescence
- highly homogeneous nano structure

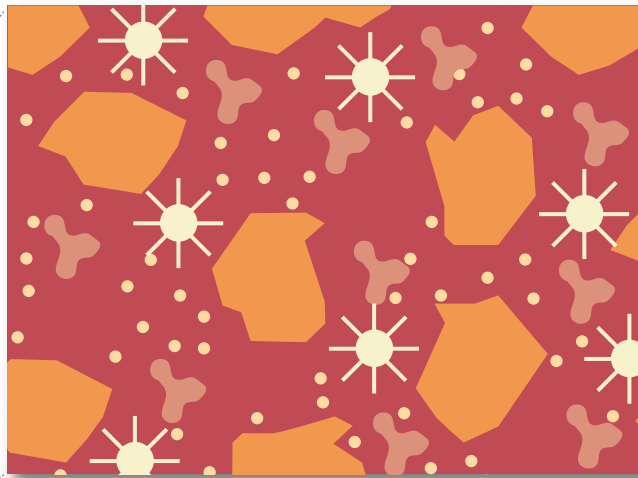


The lifelike shade effect and structure of the anterior and posterior teeth is achieved with 4 individually shaded layers. The dentin core and facial incisal consist of NHC material, which imparts both high wear resistance and natural looking esthetics to the teeth. The back incisal and neck are built up of PMMA layers to ensure an optimal and stress-free bond with conventional denture base materials.

- Facial incisal
- Dentin core
- Neck
- Back incisal

- Nano-Hybrid Composite
- Nano-Hybrid Composite
- PMMA
- PMMA

NHC COMPOSITION

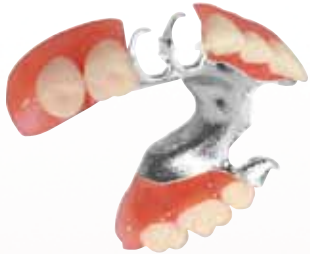


- UDMA matrix
- High-density silanized SiO₂
- Inorganically filled UDMA polymer
- Silanized SiO₂ nanoparticles
- PMMA clusters

NHC component	Function	Main advantage
UDMA (urethane dimethacrylate)	Matrix	The UDMA matrix features a high degree of cross-linking. The material structure offers high stability and high resistance to chemical attacks.
High-density silanized SiO ₂	Filler 1	Inorganic fillers stiffen the matrix and increase the material's hardness and resistance to abrasion. They also optimize the material's refractive index and therefore enhance the natural shade effect and opalescence.
Silanized SiO ₂ nanoparticles	Filler 2	Nanoscale surface-modified inorganic particles reinforce the composite structure. The nanoscale properties arising from these particles are responsible for the formation of homogeneous contact surfaces. The result is a material that is very kind to opposing tooth structure.
Inorganically filled UDMA polymer	Filler 3 (iso filler)	Matrix-based pre-polymer particles help reduce polymerization shrinkage.
PMMA clusters	Inclusions	The inclusion of PMMA clusters in the composite structure reduces the affinity for plaque and discoloration.

INDICATIONS

Given their properties the SR Phonares II teeth are suitable for esthetically and functionally demanding restorations. The range of indications includes partial dentures, combination dentures, complete dentures, hybrid overdentures and implant-supported overdentures.



Partial dentures



Complete dentures

Important notes

The following requirements should be met to ensure that the dentures function appropriately in the oral cavity in the long term:

- Fabrication in the dental laboratory according to the principles of best practice
- Application of dental materials according to the manufacturer's instructions. In particular, denture teeth should not be excessively weakened as a result of adjustments by grinding.
- Planning and fabrication of the dentures should be performed in close collaboration with the dentist.
- Dental technician and dentist should ensure a balanced occlusion and articulation.

The dentist should check the following points before beginning the treatment:

1. Does the patient belong to a risk group that generally may jeopardize the success of the treatment?
 - a. Are there signs of bruxism (patient's statements, tooth wear, masseter hypertrophy)?
 - b. Are there signs of significantly increased masticatory forces?

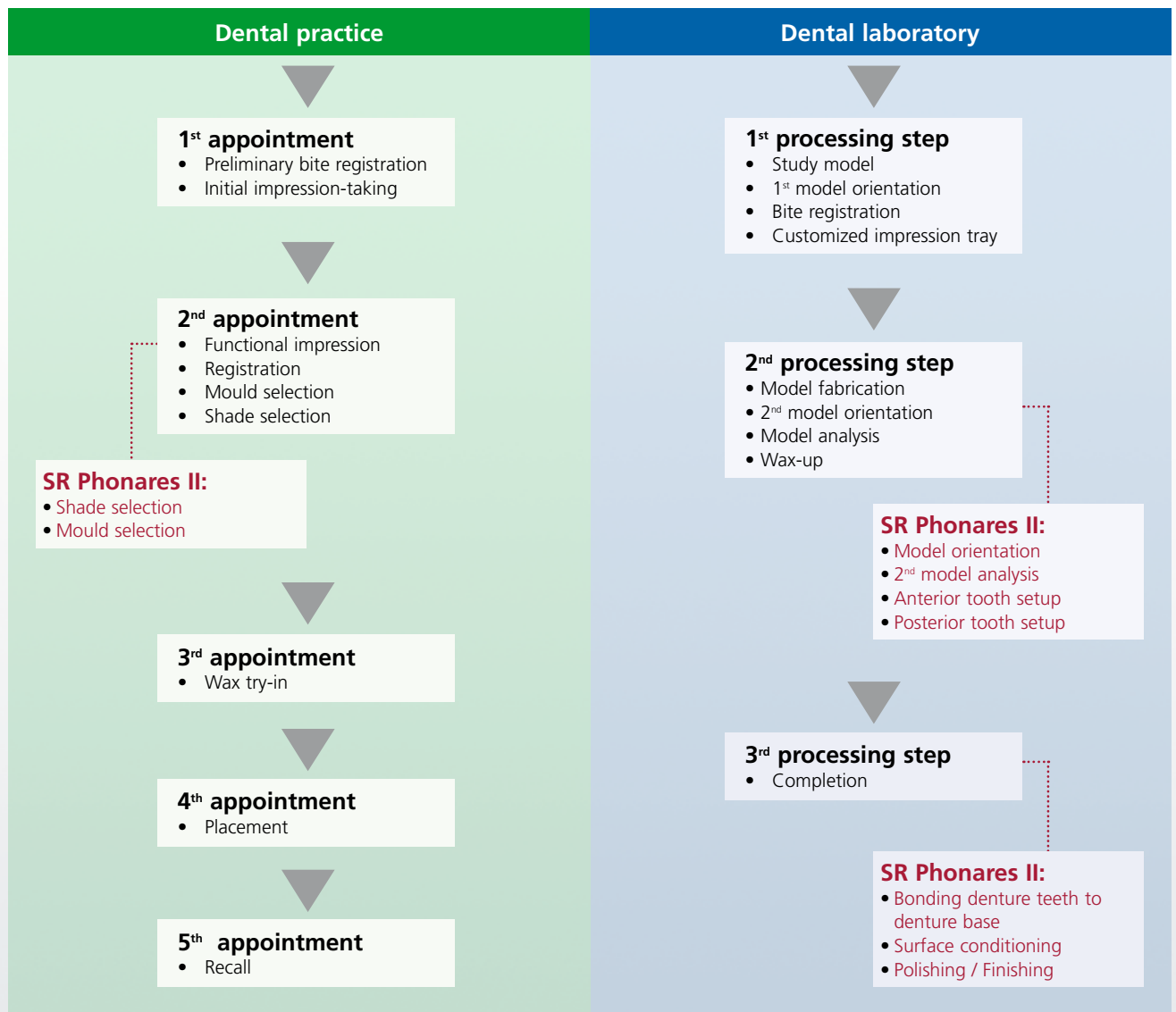
2. What type of removable or partially removable restoration should be implemented?

All PMMA/composite-based denture teeth are suitable for tissue-supported and partial dentures in patients that do not belong to any of the above risk groups.

Patients restored with implant-supported restorations have been shown to exert higher masticatory forces than patients with tissue-supported dentures. The increase in these forces is related to the fact that implant-supported restorations are anchored in the bone and therefore lack the sensory receptive feedback necessary to control these forces. The heightened forces may lead to an increase in chipping in composite teeth.

It may therefore be indicated to use PMMA-based denture teeth for these patients. PMMA teeth are less prone to chipping but show a significantly higher wear than composite teeth.

Prosthetics workflow



The Biofunctional Prosthetic System (BPS®) stands for success in the field of removable dental prosthetics. This success is based on a systematic approach to the working procedures in the dental practice and laboratory. In addition to a process-oriented workflow, the materials used in the fabrication of dentures are also decisive for success.

Specific guidance on the use of the SR Phonares II teeth should be followed during application. These instructions are explained on the following pages and are complementary to the basic BPS working procedures.

The basic BPS procedures are described in more detail in the BPS handbook.

MOULD AND SHADE SELECTION

Anterior mould selection

In addition to the shade, the shape (form) and size of anterior teeth should in particular be matched to the individual characteristics of the patient. If possible, the anterior teeth should be selected directly on the patient according to the patient's anatomical and facial characteristics.

The following methods are recommended to facilitate the tooth selection procedure:

CHAIRSIDE

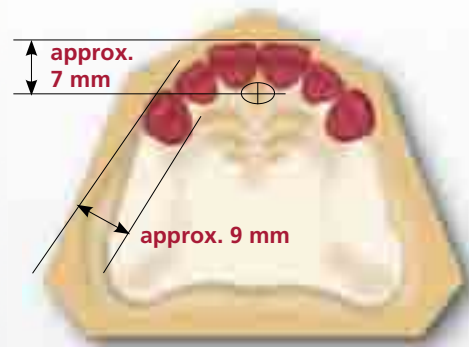
FormSelector



- Step 1** Determine the interalar width of the nose using the FacialMeter. Select an appropriately sized tooth mould from the INTER-ALA table.
- Step 2** Select the desired tooth form, soft or bold, in line with the patient's face.
- Step 3** Select the appropriate age group of the teeth according to the incisal wear and facial curvature characteristics of the anterior teeth.

LABSIDE

Model analysis



Determine the following reference points by means of analysing the model:

- 1]** Position of the canines:
Determine the first large pair of rugae; the centre of the labial surface of the maxillary canine is positioned at a distance of 9 mm.
- 2]** Contact point of the two central incisors:
The labial surface of the central incisors is located at a distance of approx. 7 mm from the centre of the incisive papilla.

Based on the length of the curve passing through these three reference points, you can select an anterior set of appropriate width by means of the tooth mould chart.

As guides for designing the prosthetic reconstruction it is advisable to use previous models or photographs of the patient. In addition to the position of the teeth, the tooth shape can be adapted to the original appearance of the patient.



MOULD AND SHADE SELECTION

Anterior teeth – Mould selection

The maxillary anterior moulds offer a special advantage: They are grouped according to age-specific characteristics. To facilitate mould selection, the moulds are arranged in a logical order and labelled with an easily identifiable code.

- The first character (letter) represents **shape**: S = Soft B = Bold
- The second character represents **age group**: 6 = youthful; 7 = universal; 8 = mature
- The third character represents **size**: 1 = small; 2 = medium; 3 = large

	SOFT			BOLD		
small	S61	S71	S81	B61	B71	B81
medium	S62	S72	S82	B62	B72	B82
large	S63	S73	S83	B63	B73	B83
	YOUTHFUL	UNIVERSAL	MATURE	YOUTHFUL	UNIVERSAL	MATURE

Please refer to the SR Phonares II tooth mould chart for an accurately dimensioned representation of the moulds.

Posterior mould selection

The size of the posterior teeth is selected in line with the anterior tooth moulds determined during the preceding stage. A variety of posterior tooth moulds are available to meet the specific requirements of individual indications and to provide patients with dentures that best satisfy their needs.

SR Phonares II Typ

The Typ moulds are the classic denture teeth for:

- Complete dentures
- Partial dentures
- Hybrid dentures

SR Phonares II Lingual

The Lingual moulds are designed for lingualized occlusion. They are suitable for universal application in dental prosthetics and offer particular advantages in implant-supported removable dentures where the lingualized occlusion scheme provides enhanced stability.

Shade selection

Shade selection should be performed on the patient under defined light conditions (5500K colour temperature) or in daylight. An accompanying shade guide is available to enable consistent shade selection in compliance with the A–D shade system. The tooth samples of the SR Phonares II shade guide feature the same layer structure and material as the original teeth. Shade deviations are therefore minimized. Shade selection may also be performed with an Ivoclar Vivadent A–D shade guide.



MODEL ORIENTATION

The transfer of the patient's specific jaw relations with the individually adjustable UTS 3D facebow is an essential step to achieve functionally effective dentures. The accessories of the Stratos articulator range also allow average-value mounting of the casts.

Average-value model orientation

Use a horizontal guide to achieve average-value orientation of the mandibular cast to the articulator.



Individual model orientation

Utilize the UTS 3D transferbow for skull-related individual model orientation.



The Gnathometer M assists in the correct final recording of the relationship of the upper and lower jaw.

We recommend using a 2D or 2.5D template.



A 3D template should be used for the setup in conjunction with a skull-related model orientation.



NOTE

Ivoclar Vivadent recommends Centric Tray for a preliminary centric bite registration. This method allows the occlusal rims to be ideally dimensioned in line with the patient-specific oral situation and to optimally place the bite pattern.

Model analysis: Maxilla

Marking:

Raphe median plane

Relevance:

Reference plane for the transversal symmetry of the anterior setup

Marking:

Centre of the incisive papilla

Relevance:

- Anatomical midline of the upper jaw
- Labial positioning of the central incisors at a distance of approx. 7 mm sagittally

Marking:

First large pair of rugae

Relevance:

Labial positioning of the canine teeth at a distance of approx. 9 mm from the tip of the rugae

Marking:

Post dam

Relevance:

Posterior palatal limit of the denture base

Marking:

Deepest point of the vestibule

Relevance:

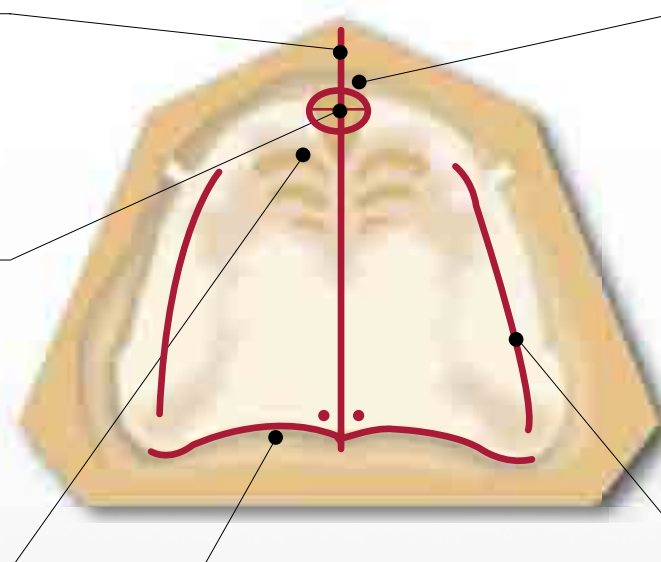
Starting point for measuring the vertical dimension and the incisal height of the central incisors

Marking:

Crest of the alveolar ridge

Relevance:

Provides orientation in the determination of the bite type



Model analysis: Mandible

Marking:

Upper third of the retromolar pad

Relevance:

- Positioning of the template on the dorsal aspect (corresponds to the height of the occlusal plane)
- Dorsal positioning of the lateral wings of the horizontal guide

Marking:

Deepest point of the vestibule

Relevance:

Starting point for measuring the total vertical dimension

Marking:

Pound's line

Relevance:

Lingual limit of mandibular tooth setup

Marking:

Crest of the alveolar ridge

Relevance:

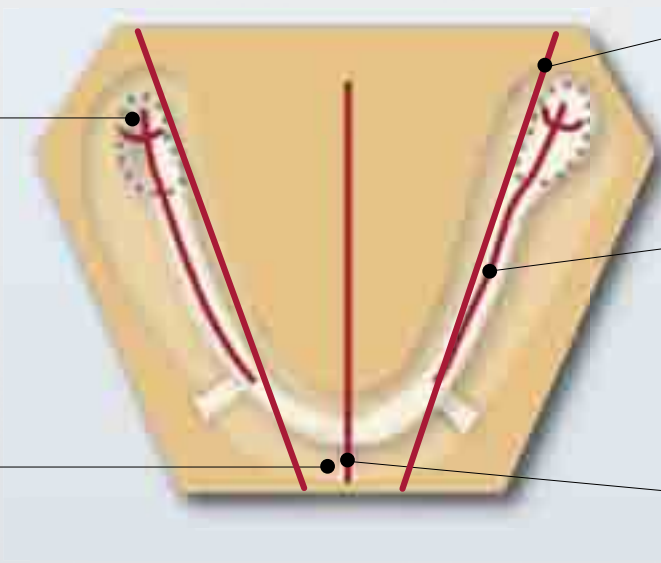
The central fossae of the posterior teeth run along this line

Marking:

Anatomical midline of the model

Relevance:

- Bilateral orientation of the anterior setup
- Positioning of the symphysis fork of the horizontal guide



ANTERIOR TOOTH SETUP

SR Phonares® II

Natural anterior esthetics



SR Phonares embodies a new generation of anterior teeth that deliver lifelike esthetics in prosthetic dentistry.

The texture of the labial surfaces reproduces the mild ripple effect (perikymata) seen on natural enamel surfaces. The perikymata lend a natural vitality to the tooth moulds.

The design of the anterior arch has a decisive effect on the facial appearance of the patient.

The SR Phonares anterior teeth are suitable for various anterior setup techniques, ranging from classic to highly individualized. This allows you to achieve an anterior setup that matches the natural esthetic characteristics of the individual patient.



SR Phonares® II

Set & Fit

The Set & Fit design is based on convex distal margins and concave mesial proximal surfaces, which interlock like a joint. The Set & Fit technique ensures the natural closure of interdental spaces. This facilitates denture hygiene and enhances the esthetic appearance.

Black triangles are reduced from occurring at the cervical portion due to the wide tooth necks, regardless of which setup technique is chosen; the gingival portions of the dentures can be designed to look more natural. In addition, metal structures and abutments are covered more reliably.



Setup variations

The SR Phonares anterior teeth can be set up in a range of variations. The images below should encourage you to respond to your patients' needs in a more individualized manner.



Harmonious



Slightly individualized



Highly individualized

ANTERIOR TOOTH SETUP

SR Phonares® II

Setup according to model analysis

The incisive papilla provides a reliable reference point for the anterior setup because of its transverse and sagittal wear resistance.

In a normal bite situation, the **central incisors** are aligned with the incisive papilla by positioning the labial surface approx. 7 mm towards the front from the centre of the incisive papilla.

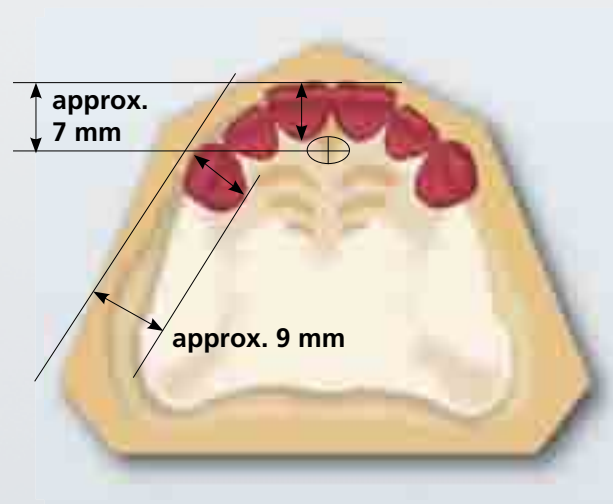
The raphe median plane determines the symmetry axis of the anterior setup in the upper jaw. The course of the incisal edges of the central incisors is determined by half the height of the overall vertical dimension plus a 2-mm overlap.

The position of the **canine teeth** plays a decisive role in achieving a harmonious facial expression. In the dental arch, the canines are positioned in the area of the first large pair of palatine rugae, with the labial surface of the maxillary canines being placed at a distance of approx. 9 mm. The vertical alignment of the canines significantly influences the curvature of the smile line.

After the canines have been positioned, the **lateral incisors** are placed in the space between the central incisors and the canines. By slightly rotating or interlocking the lateral incisors, highly individualized effects can be achieved.

Starting with the canines, the **lower incisors** are set up in a vertical and sagittal distance that is in line with the respective occlusal position and bite situation.

You can check if the smile line runs symmetrical to the arch of the lower lip by transferring the markings on the bite rim to a silicone key.



Please refer to the BPS handbook for a detailed description of the model analysis and anterior setup method.

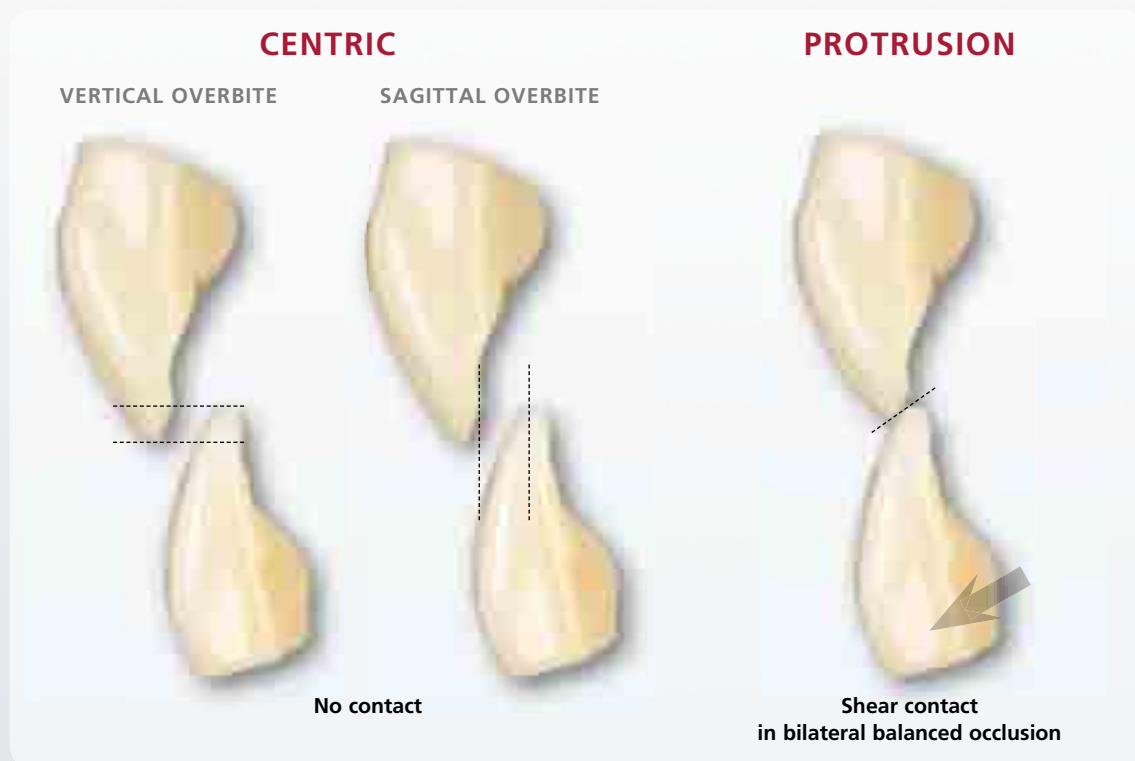
SR Phonares® II

Anterior tooth setup in function

Most conventional denture occlusal schemes suggest a bilateral balanced occlusion in the posterior region on the working and non-working side and in protrusion.

Guiding contacts during laterotrusion and protrusion are not desirable in the anterior region.

- In general, it is suggested that anterior teeth have approx. 1.5 mm of vertical overlap and approx. 1.5 mm of horizontal overlap.
- The overlap should be designed in such a way that the anterior teeth are prevented from contacting in functioning.
- Anterior guidance – as sometimes practised in crown and bridge techniques – is not recommended for conventional denture prosthetics.
- Anterior contacts during functioning may lead to parafunctions.



Anterior setup in implant-supported dentures

Premature contacts can destabilize the dentures during functioning. Even if retention elements, or implants, ensure increased denture stability, it is advisable to avoid anterior contacts. Patients with implant-supported restorations are generally capable of exerting higher chewing forces and lack the necessary proprioceptive feedback to correctly monitor these forces. Therefore, anterior contacts may have the potential for excessive wear or chipping.

POSTERIOR TOOTH SETUP

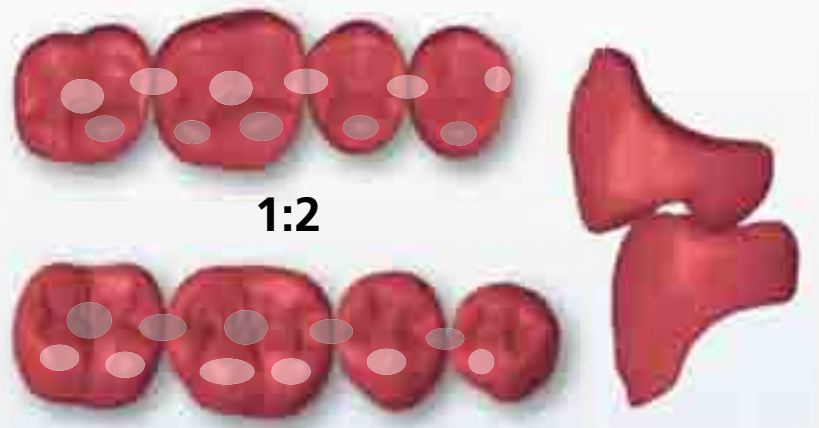
SR Phonares® II Typ

Classic occlusion



The SR Phonares II Typ teeth continue the 40-year-old success story of the Orthotyp moulds.

The Ivoclar Vivadent "Typ" tooth lines are based on the principle of group function of the latero- and mediotrusion side according to Dr Strack.



The Typ moulds are set up in a one-to-two-tooth relation as in a normal bite situation. Consequently, the primary contacts in the centric position are located in the central fossae of the mandible and on the marginal ridges.



The Typ moulds are supported by a secondary contact area on the buccal cusps in the mandible.

The SR Phonares II Typ moulds are suitable for universal application in dental prosthetics.

SR Phonares® II Typ

Setup with a template

Align the template with the height of the distal third of the retromolar pad in the posterior region and the height of the distal angle of the mandibular canines in the anterior region.

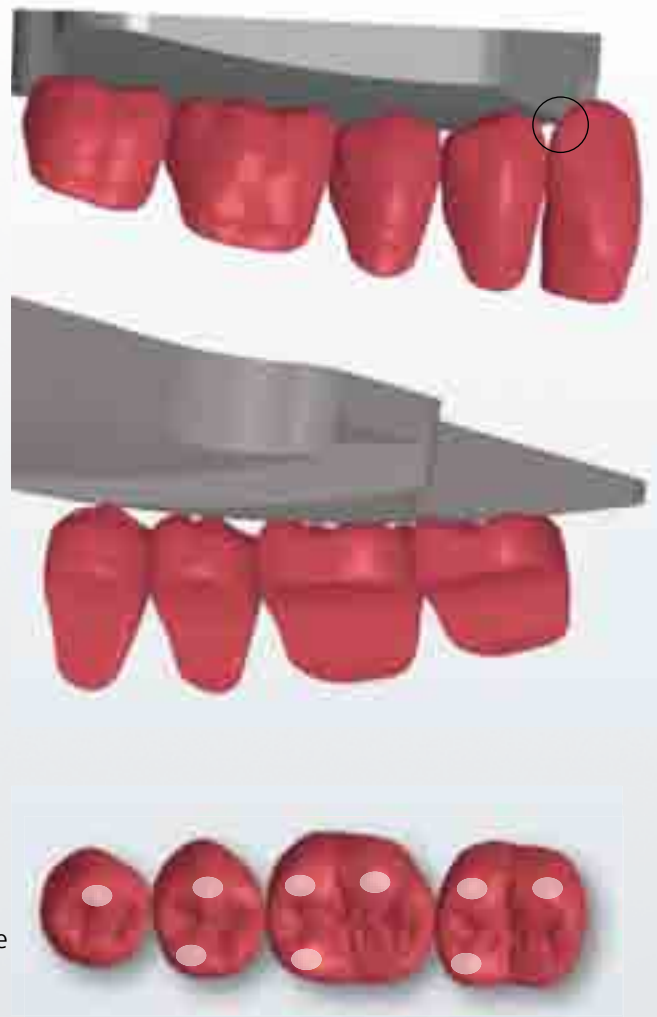
The template ensures that the anterior-posterior (curve of Spee) and medio-lateral compensating curve (curve of Wilson) are taken into account. The compensating curves of the natural dentition are essential for bilateral balanced group guidance.

When viewed from an occlusal perspective, the central fossae of the mandibular posterior teeth are positioned over the crest of the alveolar ridge. The lingual border of the posterior setup is defined by Pound's line. Pound's line extends from the mesial corner of the mandibular canine to the lingual border of the trigonum on the same side.

The markings on the template assist in achieving a symmetrical setup. Begin the setup of the mandibular teeth by positioning the first premolars, followed by the second premolars, first molars and then second molars.

Note that both the buccal cusp tips and mesio-lingual cusps make contact to the template.

The vertical axes of the first and second molars are automatically aligned in the process. Viewed from the buccal side, the axes of the first and second premolars should be aligned perpendicular to the template.



POSTERIOR TOOTH SETUP

SR Phonares® II Typ

Intercuspatation

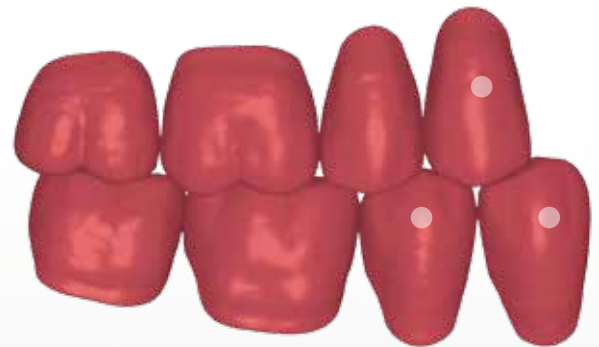
The maxillary teeth can now be aligned with the mandibular teeth in a one-tooth-to-two-tooth relationship to achieve optimum intercuspation.

- The palatal working cusp of the maxillary premolars engages the marginal ridges of the mandibular premolars.
- The alignment of the 1st premolar establishes the buccal corridor.

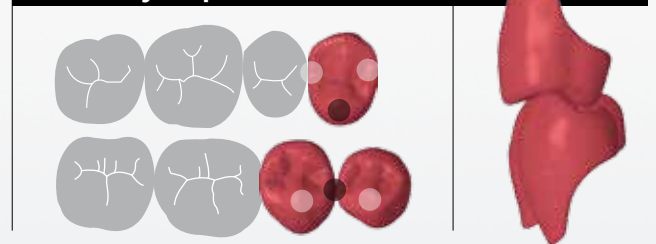
- The mesio-palatal working cusp engages the central fossa of the mandibular 1st molar.
- The distal-palatal working cusp engages the marginal ridge of its antagonist.
- Viewed from the buccal, the mesio-buccal cusp of the maxillary 1st molar points towards the mesio-buccal fissure of its antagonist. This is a typical characteristic of a classic bite with normal intercuspation.

- The palatal working cusp of the maxillary premolars engages the marginal ridges of the antagonists.

- The mesio-palatal working cusp engages the central fossa of the mandibular 2nd molar.



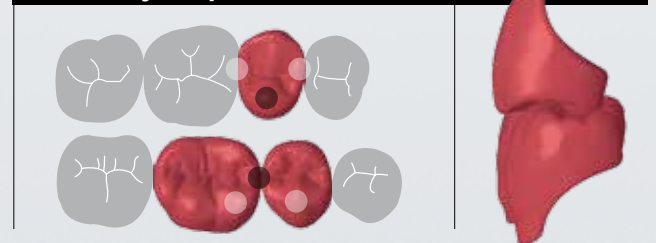
Maxillary 1st premolar:



Maxillary 1st molar:



Maxillary 2nd premolar:



Maxillary 2nd molar:



SR Phonares® II Typ

Grinding guidelines

1 Verifying centric contacts:

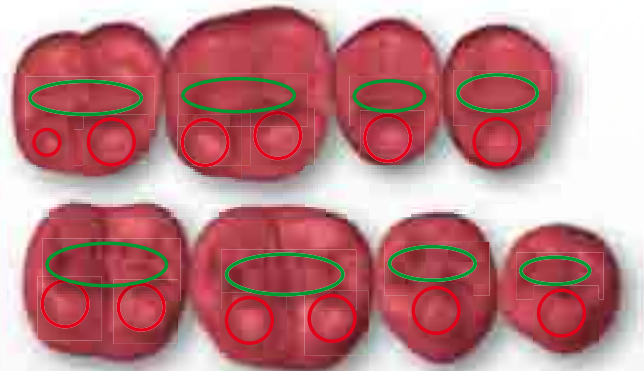
In complete denture prosthetics, it is generally not recommended to perform major occlusal adjustments prior to processing the denture base.

Correct increases in vertical dimension prior to removing the polymerized dentures from the model. Make sure the centric lock is engaged.

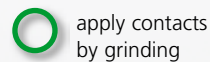
Occlusal adjustments should be performed using the following guidelines:

- Do not adjust the working cusps.
- Reduce premature contacts in the antagonist fossa.

After adjusting the occlusal height, re-establish all the centric contacts as determined by the setup.



Areas of adjustment to establish centric contacts:



apply contacts by grinding



do not grind

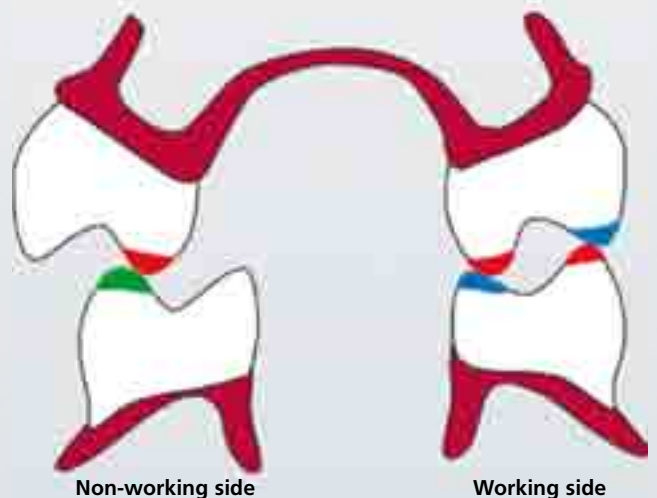
2 Adjusting functional movement:

Relatively large guiding contacts are desirable to ensure a balanced occlusion within the functional range.

The following adjustment guidelines are recommended:

- **Centric contacts:** do not adjust
- **Working side (laterotrusion):** adjust mesio-buccal cusps in the maxilla and lingual cusps in the mandible
- **Non-working side (mediotrusion):** adjust mesio-buccal cusps in the mandible
- **Protrusion:** adjust disto-buccal cusps in the maxilla and mesio-buccal cusps in the mandible
- **Retrusion:** adjust mesio-buccal cusps in the maxilla and disto-buccal cusps in the mandible

The incisal edges of anterior teeth should be ground from the palatal side in the maxilla and from the labial side in the mandible, in accordance with the wear pattern occurring in the natural dentition.



POSTERIOR TOOTH SETUP

SR Phonares® II *Lingual*

Lingualized occlusion

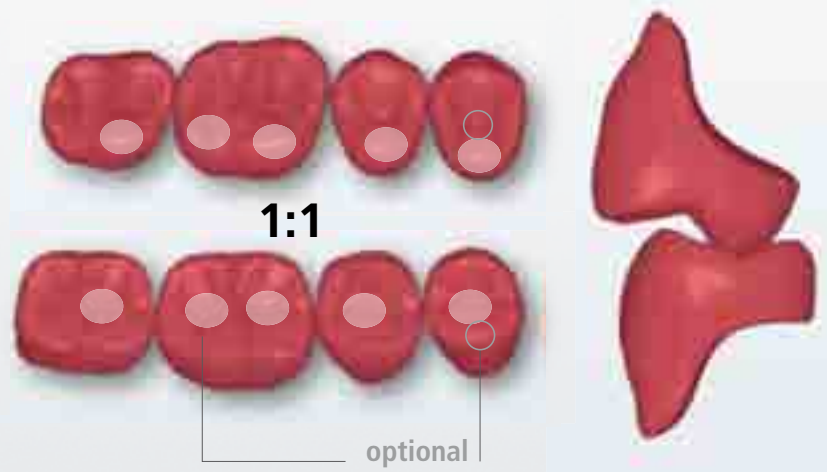


The basic characteristics of lingualized occlusion have been incorporated into the design of the SR Phonares II Lingual moulds.

The maxillary palatal cusps provide centric contacts which articulate to the respective mandibular fossae.

The buccal cusps are not set in contact.

An additional buccal contact may be established on the first premolars for esthetic reasons.



The marginal ridges of the Lingual moulds have been given reduced contours so that the maxillary palatal cusps remain free during protrusive or retrusive movements.

Depending on the occlusal position and the setup of the anterior arch, it is possible to establish a one-to-two intercuspation.



SR Phonares® II Lingual

Setup with a template

In the mandible, the teeth can be set up in either one of two versions: setup with or setup without curve of Wilson. Since all working contacts are lingualized and the buccal surfaces do not occlude, there is some scope for variation in the degree of the curve of Wilson.

Align the template with the height of the distal third of the retromolar pad in the posterior region and the height of the distal angle of the mandibular canines in the anterior region.

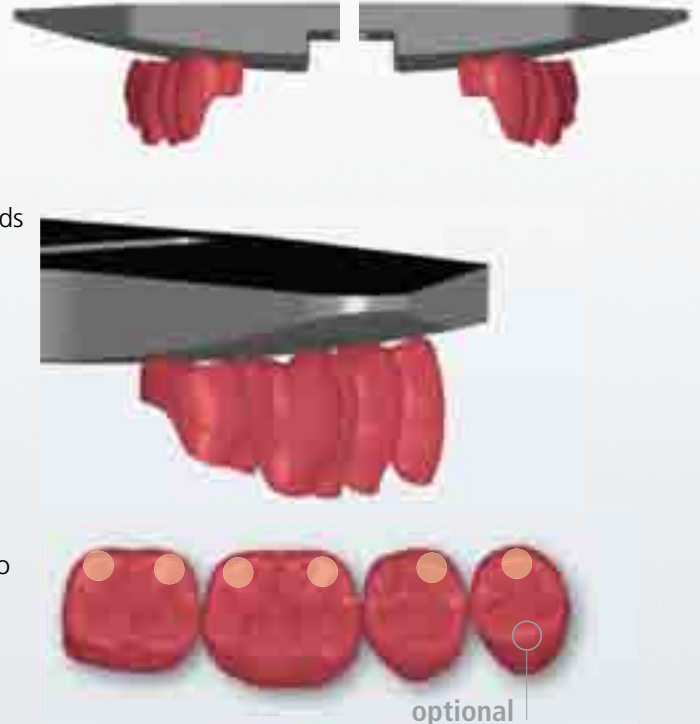
Setup method **WITHOUT** curve of Wilson

The buccal cusps do not touch the template in this setup method. Make sure that the buccal and lingual cusp tips are on the same plane.

The fissure centre of the mandibular posterior teeth is aligned with the alveolar ridge. The mandibular posteriors must not extend beyond Pound's line towards the lingual.

The contacts to the template are concentrated on the lingual cusp tips to achieve a setup that has only a sagittal compensating curve. Viewed from the buccal, the axis of the posterior teeth should be aligned perpendicular to the template.

To achieve a horizontal alignment of the cusp tips on the first premolar, the buccal cusp may be brought into contact with the template.



Setup method **WITH** curve of Wilson

If the curve of Wilson is taken into account in the setup of the Lingual moulds, contacts between the template and the buccal and lingual cusps are required.



POSTERIOR TOOTH SETUP

SR Phonares® II *Lingual*

Intercuspatation

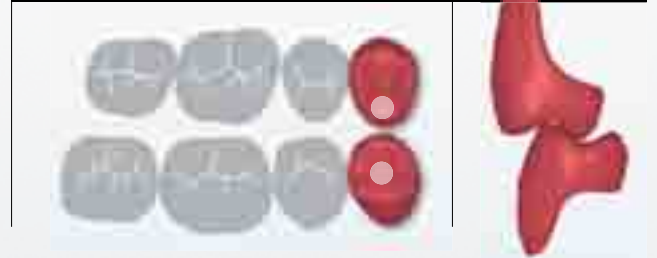
The maxillary teeth can now be aligned with the mandibular teeth in a one-tooth-to-one-tooth relationship to achieve optimum intercuspation.



As an option, it is possible to establish a contact relation between the mandibular buccal cusp and the central fossa of the maxillary premolar to achieve an esthetic transition from the canines to the premolars and to establish a buccal corridor.

- After the mandibular teeth have been set up in compliance with the findings of the model analysis, the mandibular 1st molar is usually positioned at the lowest point of the alveolar ridge. The lingual cusps of the maxillary molar form the static chewing centre.
- The palatal cusp of the maxillary premolar engages the fossa of the mandibular premolar.
- The distance between the buccal cusps increases along the dental arch due to the Monson curve.

Maxillary 1st premolar:



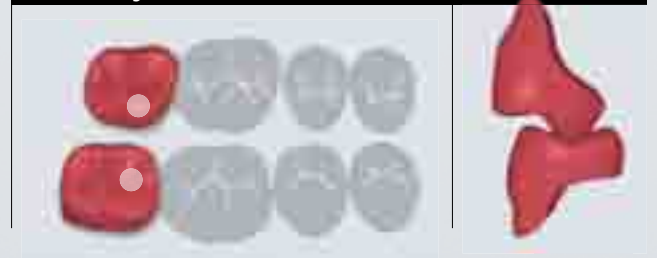
Maxillary 1st molar:



Maxillary 2nd premolar:



Maxillary 2nd molar:



SR Phonares® II

Lingual

Grinding guidelines

1 Verifying centric contacts:

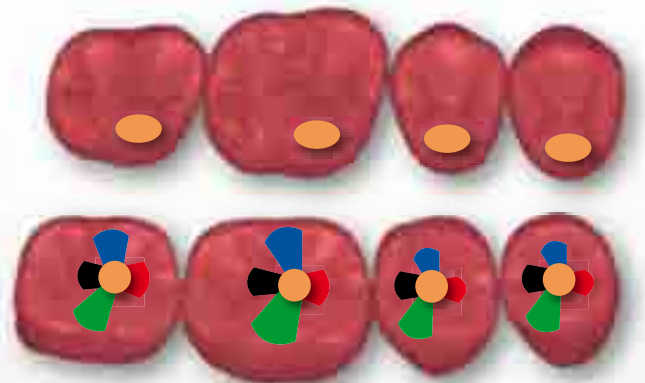
In complete denture prosthetics, it is generally not recommended to perform major occlusal adjustments prior to processing the denture base.

Correct increases in vertical dimension prior to removing the polymerized dentures from the model. Make sure the centric lock is engaged.

Occlusal adjustments should be performed using the following guidelines:

- Do not adjust the working cusps.
- Reduce premature contacts in the antagonist fossa.

After adjusting the occlusal height, re-establish all the centric contacts as determined by the setup.

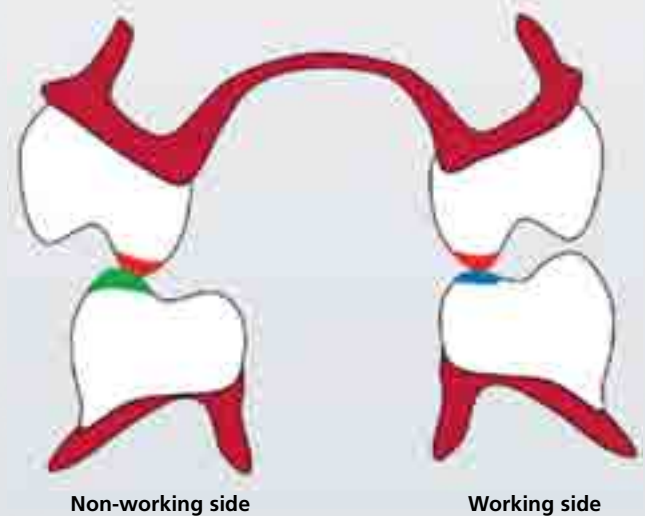


2 Adjusting functional movement:

Guiding contacts are desirable to ensure a lingualized occlusion within the functional range.

The following adjustment guidelines are recommended:

- **Centric contacts:** do not adjust
- **Working side (laterotrusion):** adjust buccal facing inclines of lingual cusps
- **Non-working side (mediotrusion):** adjust lingual facing inclines of buccal cusps

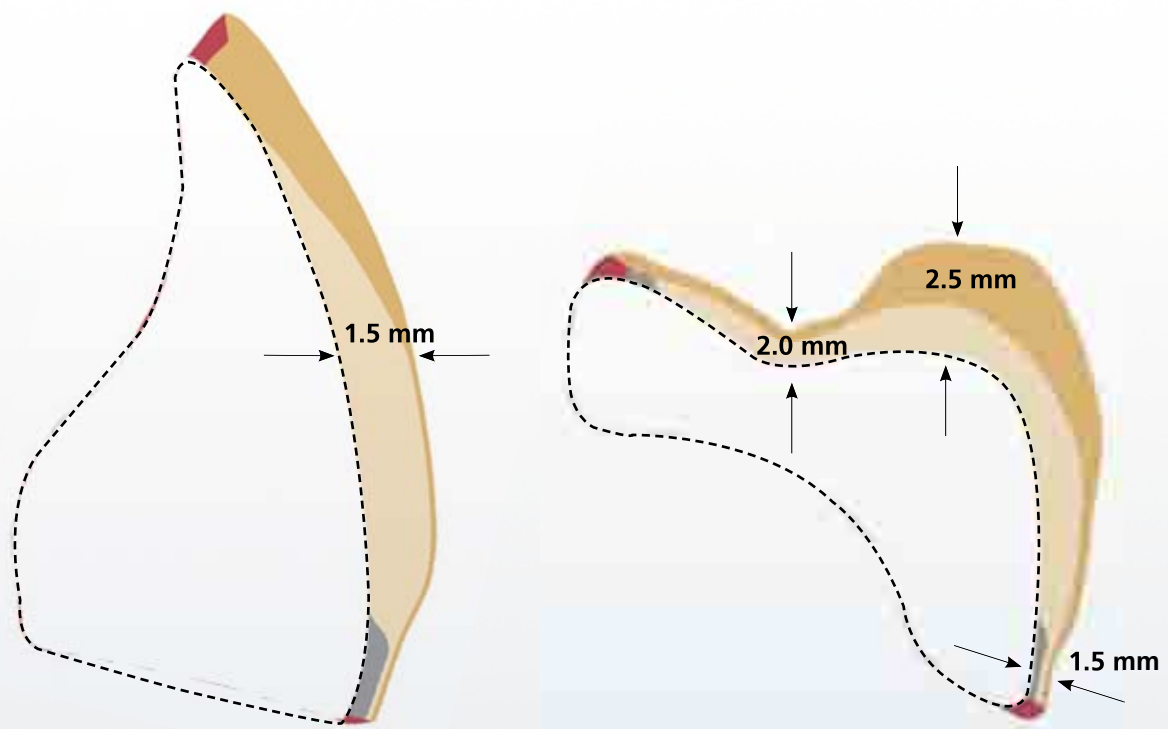


COMPLETION

Minimum layer thickness

It may be necessary to reduce denture tooth material to accommodate different model settings or to adjust SR Phonares for telescopic/combination work. The structural integrity and shade effect of the tooth must be preserved.

It is suggested that a minimum thickness be maintained.



Anterior teeth:





























- grinding of tooth material for retentions or for placing structural elements: minimum of 1.5 mm

Posterior teeth:

























- in the central fossa: minimum 2.0 mm
- in the cusp: minimum 2.5 mm
- in the cervical area: minimum 1.5 mm






■ Facial incisal	Nano-Hybrid Composite
■ Dentin core	Nano-Hybrid Composite
■ Neck	PMMA
■ Back incisal	PMMA

Bonding between tooth and denture base

SR Phonares II Denture base	NHC (Incisal and dentin core)		PMMA (Back incisal and neck)	
	Conditioning	Bond	Conditioning	Bond
IvoBase® Hybrid IvoBase® High Impact	  OR 	++	  OR 	+++
SR Ivocap® High Impact	  OR 	++	  OR 	+++
ProBase® Hot	  OR  	++	  OR  	+++
ProBase® Cold	  OR  	++	  OR  	++

Bonding between tooth and C&B veneering materials

SR Phonares II C&B materials	NHC (Incisal and dentin core)		PMMA (Back incisal and neck)	
	Conditioning	Bond	Conditioning	Bond
SR Nexco	  OR  	+++	  OR  	+++
Telio® Lab	  OR  	++	  OR  	++
SR Ivocron® Cold	  OR  	++	  OR  	++

 Cleaning
  Roughening
  Applying retentions by grinding
  Wetting
  Conditioning
 ++ good +++ very good

Metal bonding

1. Condition the metal surface with SR Link

Roughen the metal surface by sandblasting it with Al₂O₃ (100 µm, max. 2 bar/29 psi). Apply SR Link onto the cleaned surface using a brush and allow to react on the metal surface for 3 minutes.

2. Opaque the metal surface

Both tooth- and gingiva-coloured opaquer pastes from the SR Nexco range of materials are available to opaque the metal surface. Apply the opaquer with a brush and then light-cure according to the Instructions for Use. To avoid the formation of smears, remove the inhibition layer of the opaquer with monomer. As an alternative, the powder-based opaquer (Intensive Opaquer) of the SR Chromasit® range of materials may be used.

Please refer to the Instructions for Use of the respective material for more detailed information.

COMPLETION

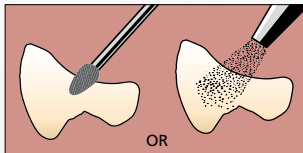
Surface conditioning

Appropriate treatment of the substrate surface is essential to ensure an effective and durable bond. Select the individual working steps according to the materials in need of bonding.

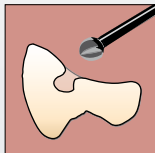
1. CLEANING



2. ROUGHENING



3. APPLYING RETENTIONS BY GRINDING

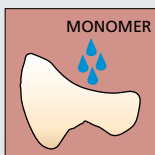


Note:

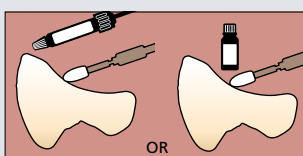
- This step is only necessary if the teeth are bonded to cold-curing materials.



4. WETTING



5. CONDITIONING



Note:

- This step is only necessary when bonding to composite materials.



Ensure that surfaces are free of dust, moisture and grease before conditioning them. For this purpose, each individual tooth should be cleaned with a steam cleaner and residual

wax should be removed. When applying compressed air, make sure that the system is free of oil.

Roughen the bonding surfaces either with a cross-cut tungsten carbide bur or by abrasive blasting with Al_2O_3 (grit size: 50–100 μm) at a pressure of 1–2 bar (15–29 psi). The tooth necks should also be carefully roughened. Use compressed air to remove residual abrasive dust.

Note:

- The difference between PMMA and NHC material can be easily recognized during grinding: PMMA is softer and produces shavings, while NHC is harder and produces grinding dust. *



If the SR Phonares teeth are bonded to an auto-curing denture base material, it is necessary to apply mechanical retentions by grinding. The retentions are best performed

with a round spherical bur to avoid sharp edges. Undercuts can be created by swivelling the bur head. Avoid excessive heat build-up when grinding.

After cleaning and roughening, wet the bonding surfaces with monomer to allow the resin to expand and consequently to strengthen the chemical bond. Use a brush to apply the monomer selectively. Next, allow the monomer-wetted areas to react for approx. 3 minutes. Avoid contamination after the reaction time has elapsed.

Note:

- After wetting with monomer, the teeth may no longer be steam-cleaned.

A bonding agent is required for bonding the teeth to veneering composites. Two bonding agents are suitable for this purpose:

1. Apply SR Connect onto the "bonding site" in a thin layer and allow to react for 3 minutes. Then pre-polymerize in a light polymerization unit according to the Instructions for Use of SR Nexco.
2. Apply SR Composiv directly from the syringe onto the "bonding site" and distribute to an even layer using a spatula or disposable brush. Apply the material in a layer

thickness of at least 0.2 mm and no thicker than 0.5 mm. The working time is approx. 3 minutes. Then, polymerize the material in an Ivoclar Vivadent light-curing unit:

- Quick (60 s)
- Lumamat 100 (11 min)
- Spectramat (4 min)

Please refer to the Instructions for Use of the respective material/device for more detailed information.

* Avoid breathing in grinding dust – use dust evacuation equipment and breathing protection.

COMPLETION

Completion

Accuracy of fit is decisive for achieving high-quality dentures. We recommend using the innovative IvoBase® injection system. This system ensures that the chemical shrinkage of the resin is compensated by the flow of additional material in a fully automated injection moulding process.

The high-quality auto-curing polymer material is characterized by excellent accuracy of fit and very low residual monomer content. IvoBase is ideally combined with the SR Phonares teeth to create high-quality dentures.



Important notes

- It is important to cover the teeth in a thin layer of A-silicone when they are invested in the flask to protect them from damage.
- Do not divest the dentures with a hammer; the impact of the hammer may damage the teeth.
- Thermoplastic injection moulding processes (e.g. Polyapress, Valplast) use temperatures of > 200 °C (392 °F). These temperatures may cause damage to the tooth material. Combining these materials is not recommended. SR Phonares teeth are durable up to 150 °C (302 °F) and dimensionally stable up to 110 °C (230 °F).

Implant shades for implant prosthetics

Ivoclar Vivadent has developed a special range of shades for implant-retained restorations: the Implant Shades. These shades feature an increased degree of opacity and therefore offer excellent masking capabilities and a convenient shade effect, even if applied in only thin layers.

Finishing / Polishing

The following guidelines should be observed when processing the SR Phonares teeth:

PROCESSING IN THE LABORATORY

- After modifying the denture tooth with PMMA or composite, remove polymerized excess material with a finishing diamond (grit size < 25 microns) and/or an elastic disc.
- After functional adjustments: Use cross-cut burs to remove material, do not use diamond discs or abrasive stones.
- *Pre-polishing*: Polish ground surfaces with silicone polishers that are suitable for composite or ceramic materials.
High-gloss polishing: Use composite polishing material (e.g. Ivoclar Vivadent Universal Polishing Paste) and a goat's hair brush for final polishing.
- Using glaze varnish or denture cleaning spray is not recommended.
- Do not expose the teeth to a flame or direct heat.
- Do not press too hard against tooth surfaces to avoid heat build-up when processing the teeth.
- We recommend using mouth protection and, if possible, suction equipment to avoid breathing in grinding dust.

Processing in the dental practice

- Processed tooth surfaces should demonstrate a polished surface finish before placement. Use silicone polishers (e.g. Astropol®, Astrobrush) for final polishing.

Denture care instructions for patients



- Thoroughly clean the dentures with a denture brush, soap/toothpaste/non-abrasive denture cleaning paste and warm water twice daily, every morning and every evening.
- Soaking the dentures in cleaning solution is not sufficient to remove bacteria.
- It is advisable to use an ultrasonic denture cleaner to clean your dentures.
- After each meal, rinse your dentures and your mouth, with the dentures removed, with water.
- Do not soak or clean the dentures in pure alcohol (or solvent). Alcohol or solvent may attack the denture base or tooth material and cause white staining.
- Do not use washing-up or dishwashing liquid to clean the dentures.
- Never clean your dentures in hot boiling water or in a dishwasher and never boil your dentures.
- Have your dentures professionally cleaned by your dentist if hard deposits have built up on them.

IMPLANT PROSTHETICS

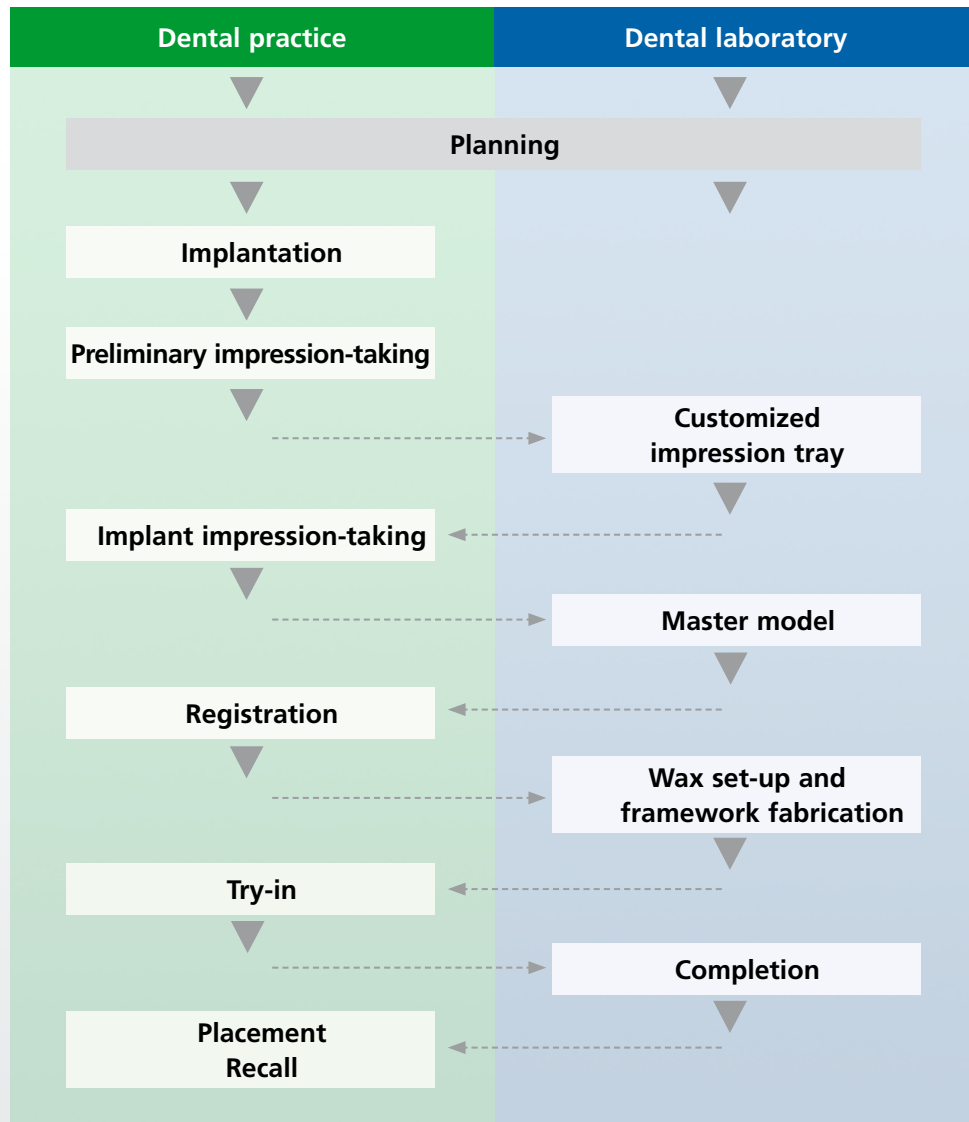


The SR Phonares teeth have been designed for implant prosthetics. This means that the specific requirements of removable implant-supported dentures have been incorporated into the design of the tooth moulds and materials.

The sequence of steps to create a removable implant-retained restoration follows the conventional rules of complete denture prosthetics. However, there is a difference: Implant-supported dentures have to withstand significantly higher forces that are exerted on complex constructions involving several components. The teeth and occlusal scheme are the components that transmit the chewing forces. As in complete denture prosthetics, it is suggested that an occlusal scheme that involves simultaneous working and non-working contacts (group contacts) and eliminates anterior contacts during excursive movements be applied.

The type of anchorage, i.e. the location of the superstructure, presents another key element in the distribution of forces because this plays a central role in the control of the chewing forces. Basically, implant-retained restorations can be classified by the type of anchorage into two categories: implant/tissue-supported dentures and purely implant-supported dentures. Purely implant-supported bridge constructions are exposed to essentially elevated chewing forces because the patient cannot properly monitor these forces. This fact should be considered and particular care should be applied in the design of the tooth replacement.

Removable implant prosthetics workflow



IMPLANT PROSTHETICS



Implant prosthetics defines new requirements for the materials and techniques used in dental technology.

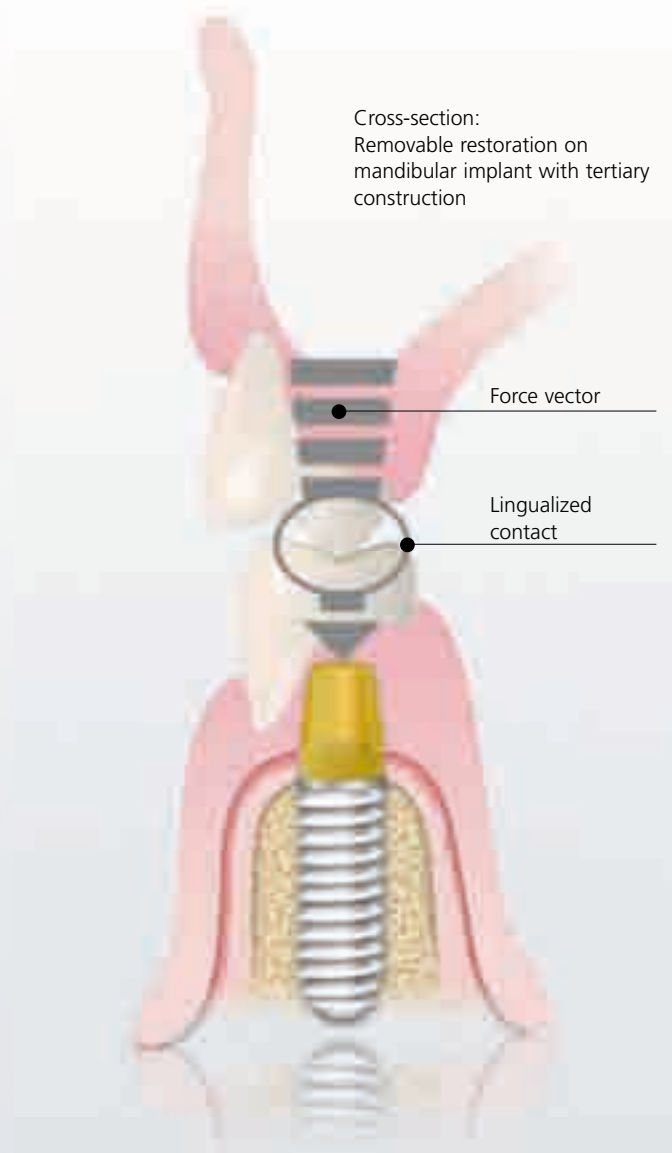
The periodontium is able to absorb some of the forces to which restorations on natural abutments are exposed.

In implant-supported dentures, however, these forces are not cushioned by the periodontal ligament. The proprioceptive feedback is reduced and edentulous patients with implant-supported restorations are capable of exerting significantly higher chewing forces than patients with natural abutments.

Dental prostheses are constantly exposed to shear, compressive and tensile forces. Compressive forces, however, affect the implant interface substantially less than the torque resulting from tensile or shear forces.

The SR Phonares II Lingual moulds are particularly suitable for implant-supported prosthetics:

- As most occlusal contact is centralized, denture stability is enhanced.
- The masticatory forces can be directed to the implant by a force vector in the longitudinal axis. This results in a reduction of the shear and tensile forces.
- The occlusal design of the mandibular Lingual mould is characterized by a widened occlusal table, reduced marginal ridges and freeway space in the centric position. As a result, high lateral forces are avoided.
- The specially developed Nano Hybrid Composite offers excellent wear resistance.



Implant prosthetics requires the coordination of different types of materials.

The SR Phonares II is composed of NHC and PMMA material.

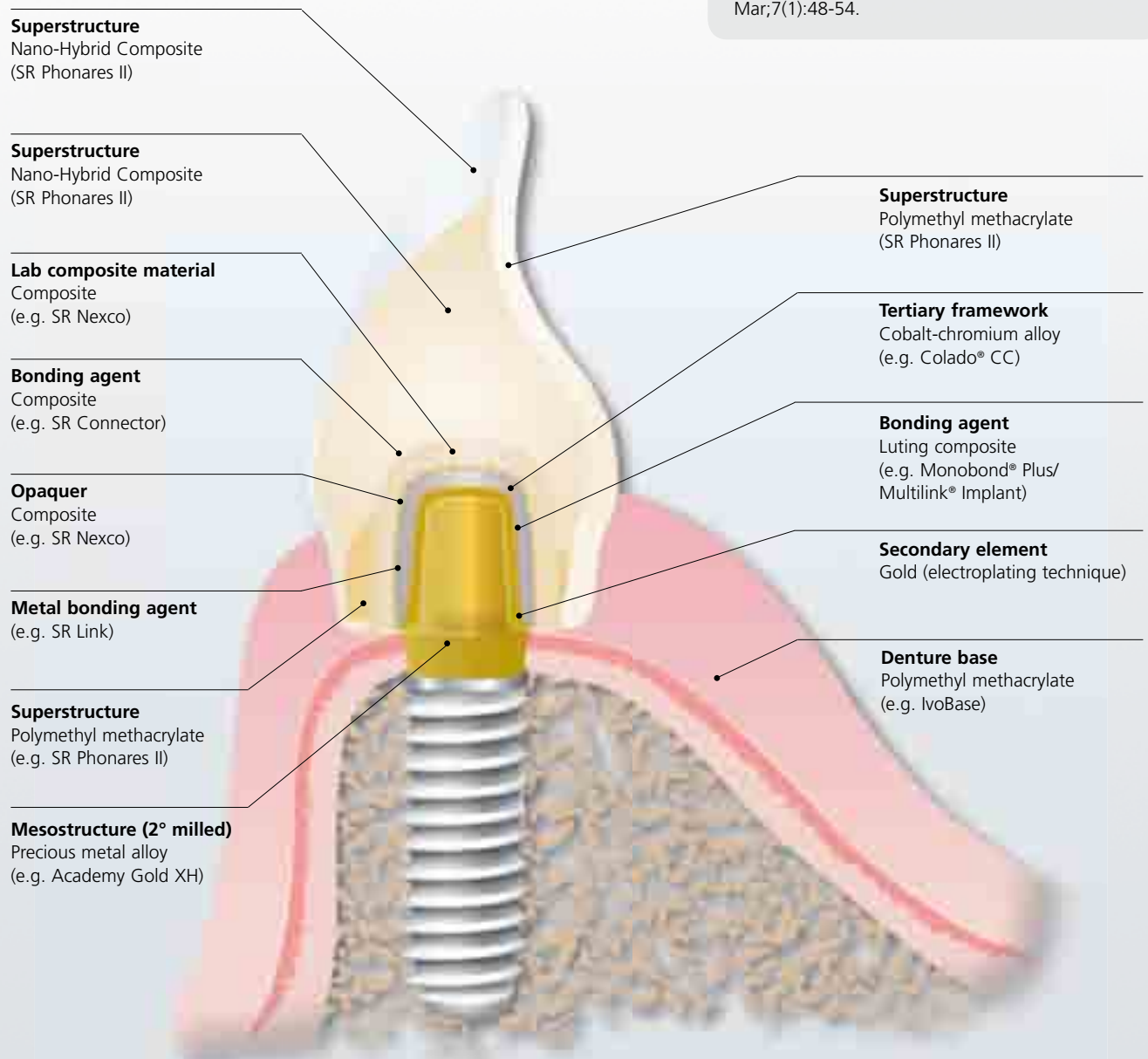
The graph below shows the wide range of materials involved in implant-supported removable restorations. It is essential that the materials are compatible with each other to ensure that the restoration offers optimum stability and longevity.

FACTS

- In the natural dentition, the Sharpey's fibres are responsible for anchoring the teeth to the alveolar bone. The gap created by the periodontal ligament is approx. 0.15 to 0.2 mm in width. Natural teeth are 10 to 100 times more flexible than osseointegrated implants.¹
- The threshold of tactile perception is 10 times higher for implants than for natural teeth.²

¹ Spiekermann (1993)

² Keller D, Hämmerle CH, Lang NP, Thresholds for tactile sensitivity perceived with dental implants remain unchanged during a healing phase of 3 months., Clin Oral Implants Res. 1996 Mar;7(1):48-54.



Schematic diagram: implant-supported removable restoration with tertiary construction

IMPLANT PROSTHETICS



A systematic approach to removable implant prosthetics encompasses the to meet the specific requirements of implant prosthetics and coordinate the should be observed along the prosthetics workflow to ensure that the result

PLANNING

- Use an X-ray template with functionally set up denture teeth (SR Vivo TAC / SR Ortho TAC teeth) for determining the correct position of the implants.
- Aim for as much soft-tissue support of the prosthesis as possible.
- Align the implant axis to the centric contacts of the teeth.
- Gather as much patient-specific information as possible (facebow, centric registration).

IMPLANTATION

- During implant insertion, carefully consider the location, position and number of implants to achieve a functional result.
- In particular, observe the instructions of the implant/prosthetics manufacturer.

TEMPORARY RESTORATION

- Check the passive fit of the framework on the model.
- Join the tertiary structure with the mesostructure in vivo.



***"The following factors are critical for the success of implant-supported BPS dentures:
individualized registration according to BPS, titanium-based superstructure and close cooperation between dentist and technician."***

Dr Giovanni Molina, Dentist, Mexico



entire workflow – from planning to follow-up care. Such a system should be especially designed procedures in the dental practice and laboratory. The following recommendations in particular ing restorations are capable of withstanding the increased mechanical forces impacting on them.

PERMANENT RESTORATION

- Use a retention pin to support SR Phonares II on the framework.
- Select a framework alloy with a high modulus of elasticity (e.g. Callisto Implant 60)
- Use a high-impact denture base material.
- Avoid single contact points or anterior contacts during function.
- Observe a minimum thickness of 2 mm for the denture base.
- Avoid large occlusal screw channel openings to prevent loss of tooth material.

PLACEMENT

- Check for balanced occlusion in vivo and, if necessary, adjust and polish according to the guidelines.

RECALL

- Reline the dentures to ensure a healthy soft tissue support.
- Plan recall appointments at short intervals to check the functionality of the dentures and to clean them professionally.

GENERAL INFORMATION

Additional information



SR Phonares II is part of BPS, the state-of-the-art brand prosthetic system, which offers customized lab marketing and professional support by specialized BPS consultants.



The **International Center for Dental Education (ICDE)** offers continuing education courses on SR Phonares II.



Further information on BPS and SR Phonares II can be obtained from Ivoclar Vivadent or from the company's website at:
www.ivoclarvivadent.com

Literature reference

- Handbook of Complete Denture Prosthetics, Ivoclar Vivadent, 1994
- BPS-Totalprothetik, Kurt Fiedler, Verlag Neuer Merkur GmbH, 2003
- Mavroskoufis, F.; Ritchie, GM.: The face-form as a guide for the selection of maxillary central incisors. J Prosthet Dent. 1980 May; 43(5):501-5
- Mavroskoufis, F.; Ritchie, GM.: Nasal width and incisive papilla as guides for the selection and arrangement of maxillary anterior teeth. J Prosthet Dent. 1981 Jun;45(6).592-7

Safety information

- These materials have been developed solely for use in dentistry. Processing should be carried out strictly according to the Instructions for Use. Liability cannot be accepted for damages resulting from failure to observe the Instructions or the stipulated area of use. The user is responsible for testing the materials for their suitability and use for any purpose not explicitly stated in the Instructions.
- Do not use if the patient is known to be allergic to any component of the product.
- Store out of the reach of children.

Delivery forms

SR Phonares® II

18 upper anterior moulds
6 lower anterior moulds



SR Phonares® II Typ

3 maxillary sets
3 mandibular sets



SR Phonares® II Lingual

3 maxillary sets
3 mandibular sets



Shade selection

16 A–D shades
4 Bleach shades



Physical values

	Test method		Example value Incisal	Example value Dentin	Example value Neck and back incisal
Flexural strength	ISO 10477	MPa	> 100	> 120	> 120
Modulus of elasticity	ISO 10477	MPa	> 3800	> 4200	> 3000
Ball indentation hardness	ISO 2039-1	MPa	> 200	> 200	> 170
Water absorption	ISO 10477	µg/mm ³	< 36	< 34	< 26
Water solubility	ISO 10477	µg/mm ³	< 0.8	< 0.1	< 0.1
Vickers hardness HV 0.5/30	Internal directive	MPa	> 240	> 240	> 190

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This product forms part of our Implant Esthetics competence area. All the products from this area are optimally coordinated with each other.

CE 0123

EN ISO 22112

Date data prepared: 03/2012 REV.0

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