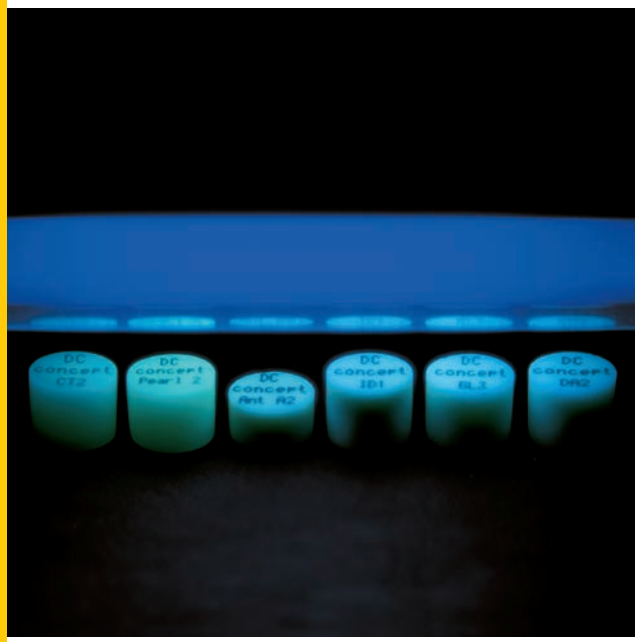
DENTAL CERAMIC

Lithium Disilikat Pressable Ceramic

ceramay®

dentalceramics

conceptPress



zubler group

DCCeram™

Contents

DC Ceram™

DC Ceram conceptPress is a lithium disilicate glass ceramic that is processed using pressing technology. Thanks to its high strength (420 MPa), as well as the various opacities and colors included in the DC Ceram product family, almost all indications, from inlays to 3-unit bridges, can be produced

ConceptPress is available in an economical concept of stackable 2 gramram and 3 gramram ingots, including various opacities. All the ingots in the system exhibit distinct chameleon effect and true-to-life fluorescence.

The aesthetic qualities, versatility and economy of usage of the DC Ceram family combine to create the ultimate in aesthetic quality with efficiency and affordability unmatched by other systems.

DC Ceram ConceptPress, DC Ceram 9.2 zirconium blended ceramics and DC Ceram conceptArt universal stains together, provide creative freedom for achieving highly aesthetic dental prosthesis.

ConceptVest investment provides further freedom and economy of usage while reducing waist and providing incredible surface finishes without the problems created by excessive reaction layer development. Specifically developed for the pressing of lithium disilicate ceramics, this investment ensures outstanding detail reproduction and fit accuracy consistently, batch to batch.

Product information

ConceptPress is an industrially manufactured lithium disilicate press ingot for the manufacture of high-strength, fully ceramic dental prostheses. The system contains ingot types of different translucencies and colors for the true-to-life production of dental prosthesis. The low chemical solubility ensures outstanding tissue tolerability.

Material data

Material designation	Silica-based glass ceramic
Chemical composition Al2O3, (major constituents)	SiO_2, Li_2O, K_2O, Al_2O_3, ZnO, ZrO_2, P_2O_5

Classification according to the standard ISO 6872:2008

Typ: II Klasse: 4b

Physical / chemical properties

(tested to ISO EN 6872)

Thermal coefficient of expansion	10,0 x $10^{-6} \cdot K^{-1}$
Transformation temperature (TG)	520 °C
Flexural strength (3-point)	420 MPa
Chemical solubility	< 40µg $\cdot cm^{-2}$

A material comparison test report from the LMU Munich can be downloaded from www.ceramay.de.

Indicated for:

- Thin veneers (non-prep. veneers)
- Veneers
- Inlays
- Onlays
- Occlusal Veneer
- Partial crowns
- Full crowns
- 3-unit bridges in the anterior and posterior tooth region up to the 2nd premolar
- Hybrid abutments in the anterior or posterior tooth region
- Hybrid screw retained abutment crowns in the anterior or posterior tooth region

Contraindicated for:

- Posterior bridges that include the molar region
- Free-end bridges
- Inlay bridges / Maryland bridges
- Bridges with more than 3 units
- In the case of bruxism
- Very deep sub-gingival preparation
- In the case of heavily reduced remaining teeth
- Falling below the connector cross-sections and minimum wall thickness
- In the case of temporary integration
- All applications not listed under indications
- conceptPress restorations manufactured with external materials from other manufacturers
- In the case of known intolerance of one or more constituents of the conceptPress ceramic.

System components

- conceptPress ingots
- Ring systems, 100 and 200 gram
- conceptVest investment
- Disposable plungers
- DC Ceram 9.2 (low-fusing glass ceramic with feldspar fractions for blending zirconium oxide and lithium disilicate)
- conceptArt stains

Ingot concept and portfolio

DC conceptPress CT

DC conceptPress CT (colored transpa):

Available in 3 colors CT1 – CT3 and in the ingot sizes 2 gram and 3 gram. Ideal for the manufacture of small restorations such as classic MOD inlays, onlays or veneers with a moderate layer thickness. Its high translucence and natural color, provides a distinct chameleon effect that allows the restoration to invisibly blend in with the natural dentition.

DC conceptPress Pearl

DC conceptPress Pearl (opaleszent):

Available in the three values Pearl 1 – Pearl 3 and in the ingot sizes 2 gram and 3 gram. Pearl ingot's natural opalescence make them ideal for the manufacture of minimally invasive prepared/non-prepared or classic veneers of high value, even in the bleached range.

DC conceptPress Dentin

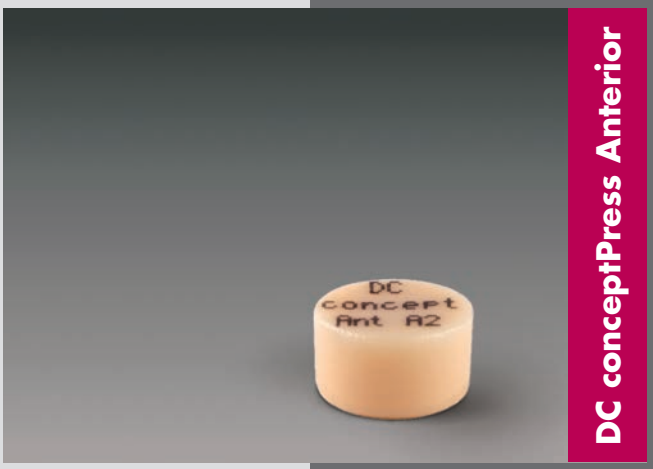
DC conceptPress Dentine

Dentine ingots are available in all 16 vita shades A1 - D4 plus 3 bleach shades BL1 – BL3, in 2 and 3 gram ingot sizes. This ingot type has a moderate translucence that is predestined for the manufacture of full crowns and 3-tooth bridges as well as onlays and partial crowns using the stain and cut-back technique. The incorporated fluorescence thereby prevents greying in the mouth and provides for a natural appearance.

Even slight discolorations can be covered with appropriate layer thicknesses.

DC conceptPress Anterior

Available in the colors A1, A2, A3, B1, B2, C1 and D2, exclusively in the ingot size 2 gram. In comparison with the Dentine ingot, this ingot type has a higher opacity with the same color saturation. As its name suggests, the Anterior ingot is particularly suitable for the manufacture of anterior-tooth crowns using the cut-back technique. It is particularly able to meet the requirements for attaining a high value in the anterior tooth region. This prevents a grey appearance of the dental prosthesis in comparison with the remaining natural teeth.



DC conceptPress ID (intensive dentine):

Available in the colors ID1 – ID5 and in the ingot sizes 2gram and 3gram. Thanks to its high opacity it is ideal for the manufacture of frameworks on moderately to strongly discolored stumps. The model should be designed in a reduced tooth shape, which is subsequently to be finished with DC Ceram 9.2 ceramic masses. Also suitable for the manufacture of individual abutments for bonding on a titanium basis.

Note:

In the DC Ceram conceptPress system, up to 3 ingots can be stacked and pressed depending on the ingot size. The combination of 2 gram and 3 gram ingot sizes makes it possible always to translate the wax weight into the required ceramic quantity and to avoid unnecessary and expensive press residues. Material savings of 50% can be achieved in this way.

To determine the required ceramic quantity in relation to the existing wax weight, please use the table on page 24.

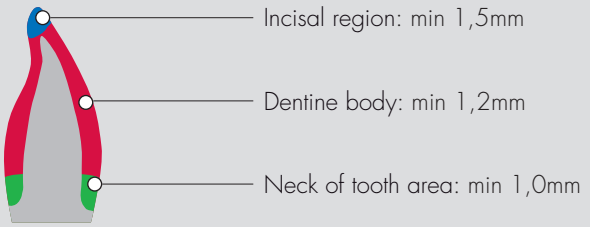
Preparation

To obtain a long-life, high-quality dental prosthesis, the following basic prerequisites should already be established during the preparation:

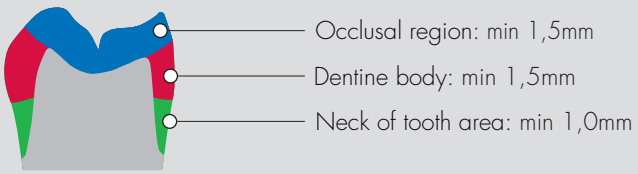
- Corners and edges should fundamentally be avoided during the preparation
- Preparation should be as even as possible in order to obtain the most even possible layer thickness with the dental prosthesis.
- A step preparation is necessary in every case. This should be arranged as an undercut (rounded-off inner edge of the step)

The following preparation examples indicate the minimum layer thicknesses to be achieved with the respective dental prosthesis:

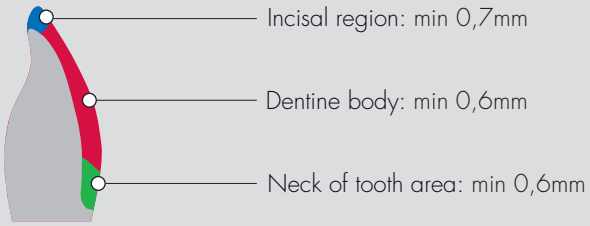
Anterior crown/bridge abutment in the anterior tooth region



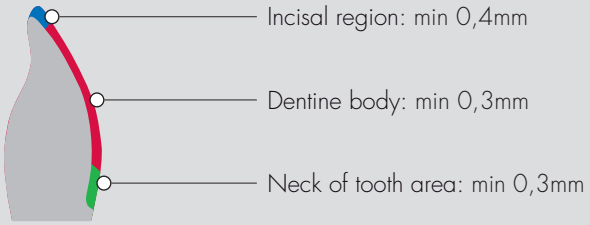
Posterior crown/ bridge abutment in the premolar region



Veneer

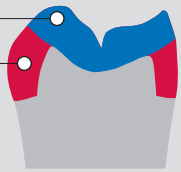


Thin Veneer



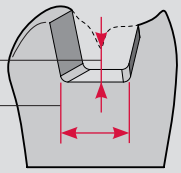
Occlusal Veneer

Occlusal region: min 1,0mm
Dentine body: min 1,0mm



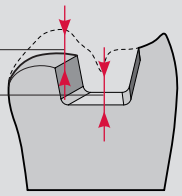
Inlay

Isthmus depth min 1,0mm
Isthmus width min 1,0mm



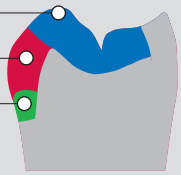
Onlay

min 1,0mm
min 1,0mm



Partial crown

Occlusal region:
Dentine body: min 1,0mm
Neck of tooth area: min 1,0mm



Caution:

When layering or using the cut-back technique, the pressed portion of the dental prosthesis must be at least 50%. If the portion of the layering material is increased at the expense of the pressed material, the result will be a considerable reduction in the strength of the dental prosthesis.

The general rule is: the higher the portion of pressed ceramic, the higher the strength of the restoration.

Therefore, especially when using the layering technique, the pressed framework should be modelled to support the tooth shape.

Ingot selection criteria

The basis for the manufacture of a natural looking dental prosthesis is the correct choice of press ingot.

This should be chosen on the basis of the patient's circumstances.

For this the dental technician requires the following information from the dentist:

- Color of the natural tooth stump
- The color to be achieved with the dental prosthesis in accordance with the patient's remaining teeth
- Color of the fixing material

The color of the "substrate" to which the dental prosthesis will be fixed plays a significant part in the final color effect in the patient's mouth.

The general rule is:

The thinner the restoration and the more translucent the press ingot used, the more the color of the "substrate" (stump color, color of the cement or adhesive) will show through.

In addition to the information from the dentist, the dental technician must consider the following factors in choosing the correct press ingot:

- the type of restoration (anterior crown, posterior crown, inlay, onlay, etc.)
- the expected layer thickness of the dental prosthesis (greater layer thicknesses require a certain opacity so as not to grey in the mouth)
- the brightness value to be achieved (the higher the value to be achieved, the greater the opacity required, especially with higher layer thicknesses)
- if the preparation limit lies in the visible area, as for example with inlays and partial crowns, a ingot with high translucence should be chosen (CT) provided no discolorations need to be covered

The overall color appearance of the dental prosthesis in the patient's mouth is only achieved after insertion!

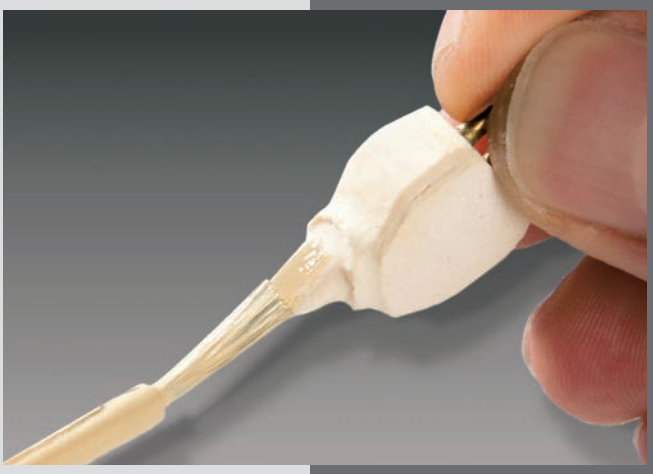
Manufacturing models

It is recommended to manufacture a saw-cut model. In order to be able to judge the color effect better when manufacturing the restoration, die spacers in the respective tooth color should be used.

These are offered by various manufacturers.

Depending on the die spacer used, an application of about 10 µm per layer results.

In the case of crowns, partial crowns, thin veneers, veneers and occlusal veneers, apply two coats no closer than 1 mm above the preparation margin.



Up to three layers are to be applied with inlays and onlays. Here the die spacer should extend to just before the preparation margin and thin out towards it. Three layers should only be applied in the cavity.

With single crowns, two layers should be applied up to about 1 mm above the preparation margin in the case of a 3-unit bridge. Beyond that it has proven to be advantageous to apply a third layer of die spacer interdentally to the connector in order to avoid a clamping effect in this area when fitting.

General indications for manual or digital modelling

Manual:

- Ensure that the workplace is kept clean; if contaminants (e.g. alloy particles) come into contact with the wax model, they will probably also be found later on in the pressed object (as small black or cobalt blue spots, depending on the type of alloy.)
- Isolate the gypsum model prior to modelling.
- Carefully remove surplus insulating fluid from the model using compressed air.
- Ash free (Non-residue) waxes must be used for modelling.
- Pay attention to the minimum layer thicknesses and connection cross-sections.
- Modelling as precisely as possible will save considerable amounts of trimming time.
- It is very helpful to smooth the surfaces of the wax model. This ensures a smoother pressing result and saves trimming time.
- After completion of the modelling, check the margins and rewax if necessary.

Digital:

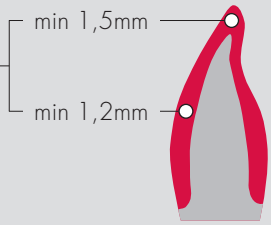
- For hollowing, please observe the details on page 13 "Manufacturing of models".
- Milling wax quality is a key component of precision and quality when pressings. The milling wax should maintain structural integrity without smearing, work easily in the hand and burnout clean, without decreasing the integrity of the ring mold (no finning or cracking caused by wax expansion during burnout). For this reason, we suggest the use of DC Milling Wax Press+Cast.
- After completion of the milling procedure, remove the wax objects from the wax disc use a scalpel.
- Check the modelling of edges and contact points on the model and correct with modelling wax if necessary.

Please refer to the diagrams on pages 15 - 19 for details on minimum layer thicknesses.

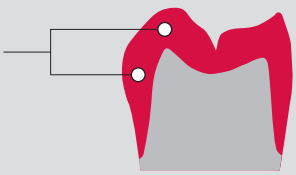
Modelling - stain technique

- Fully anatomical modelling of the restoration. Generate the smoothest possible surfaces in order to save trimming time. The contact points should be slightly underdeveloped, since the stain and glaze produces a slight increase in volume.

Pressed portion:

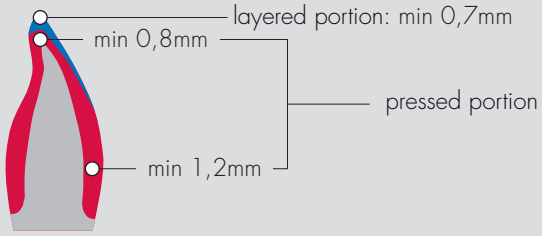


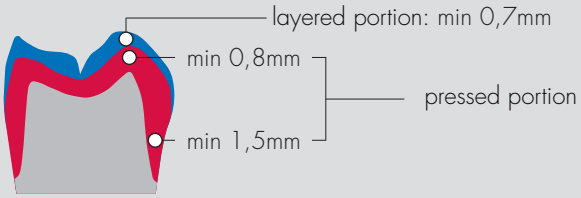
Pressed portion: min 1,5mm



Modelling - cut-back technique

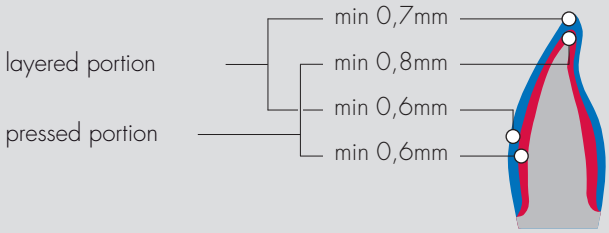
- First, produce a fully anatomical model of the restoration.
- For better assessment of the spatial conditions it is recommended to manufacture a silicone matrix prior to applying a cut-back.
- Apply the cut-back in wax, observing the minimum thicknesses in the incisal/occlusal third.
- Mamelons can easily be created in anterior region. In doing so you should avoid divergences, jagged edges and deep cavities, as this could lead to investment inclusions in the pressed object. If necessary the mamelons can be emphasised more clearly with trimming.

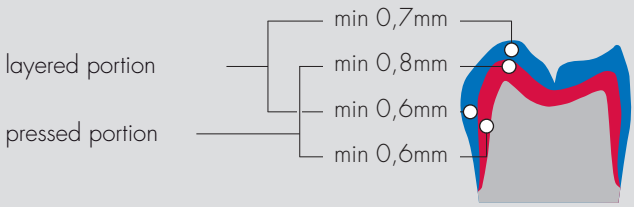




Modelling - layering technology:

- The modelling of the framework should be supportive of the tooth shape in order to achieve an even layer thickness of the layered ceramic.
- The framework should be designed so that the finished restoration is at least 50% pressed.

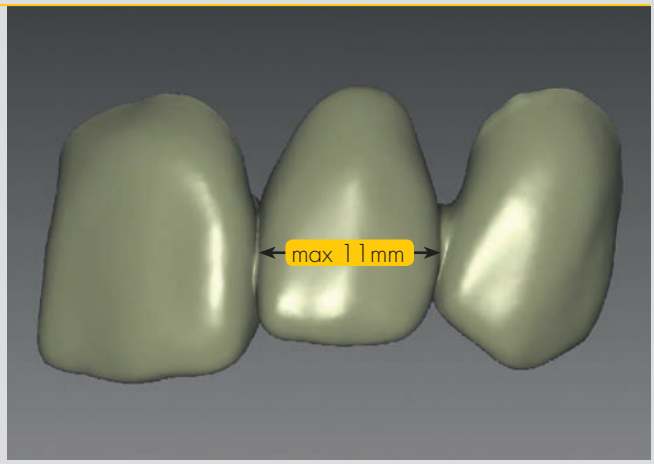


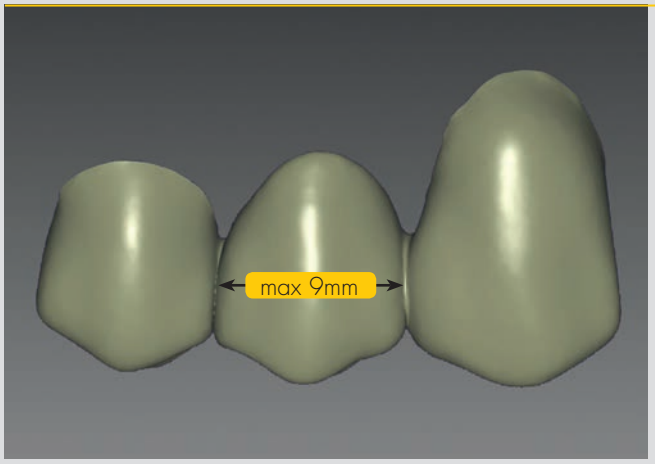


Modelling - bridges in the anterior or posterior region

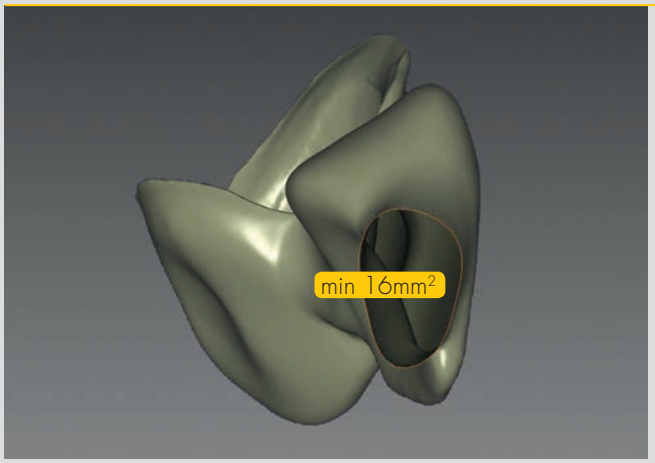
- For information regarding the precise layer thicknesses of bridge abutments, please refer to pages 15 and 17 for orientation and details for modelling single crowns using the stain or layering technique.
- Please refer to the following illustrations for the maximum pontic width and details regarding sufficient connector dimensions:

Anterior region





Premolar and canine region



The connecting cross-section is preferably extended vertically

Spruing and Investing

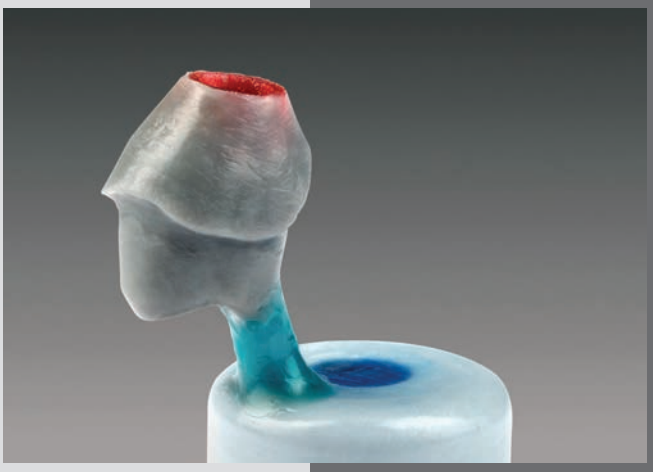
Please note the following information when spruing press objects:

General notes:

- Please make sure that the sprue former on the ring base that you are using has the correct diameter. The sprue must have a diameter of 13 mm in accordance with the press ingot! With press ring systems from Zubler this is recognisable by the grey color of the ring base.
- If using the 100 gram ring, please note that only one press ingot may be pressed. Please calculate the wax weight accordingly.
- The use of surfactants is not advisable. If absorbed in sufficient quantity they can negatively affect the curing of the investment, causing inclusions of the investment in the press object.
- Please follow the investment manufacturer's instructions when processing your investment (mixing duration and speed, storage temperature, bench set time).

Spruing

- To determine the wax weight, please weigh the ring base before spruing and note the weight on the base (value B) of the ring base. After spruing, weigh the ring base again, including the sprued objects (value A). Now subtract the weight of the ring base from the weight of the combined weight of the ring base and sprued objects to obtain the required net wax weight (value A – value B = wax weight). Refer to the table on page 24 for the required ceramic quantity based on the determined wax weight.



- Depending on the size of the wax object, select a sprue diameter between 2.5 mm – 3 mm.
- The length of the sprue should be 5 – 8 mm.
- Always wax on at the thickest point of your press object in the direction of flow. It is recommended to choose cusp tips when waxing posterior restorations and to sprue incisally for anterior restorations.
- Pay attention sprue technique when placing sprues. Undercuts in this region could cause investment inclusions in the press object.
- The total height of press object and sprue should not exceed 16 mm.
- Maintain a minimum distance of 3 mm between each object and a distance of 10 mm to the silicone ring inner wall.
- Sprue press objects at the edge of the sprue former at an angle of 45° to ensure clean, undercut-free waxing.
- If crowns are pressed onto stumps of a small diameter, select your sprues such that the stump is loaded axially as far as possible when pressing (incisal spruing with anterior teeth). This way you can avoid breaking off the investment stump during the pressing procedure. If that is not possible (like posterior restorations on implant superstructures), please sprue the wax object from two sides so that the lateral forces against the investment stump cancel each other out as much as possible.
- Please sprue bridges only on their abutments, not on the pontic.
- Bridges may only be pressed in 200 gram rings.

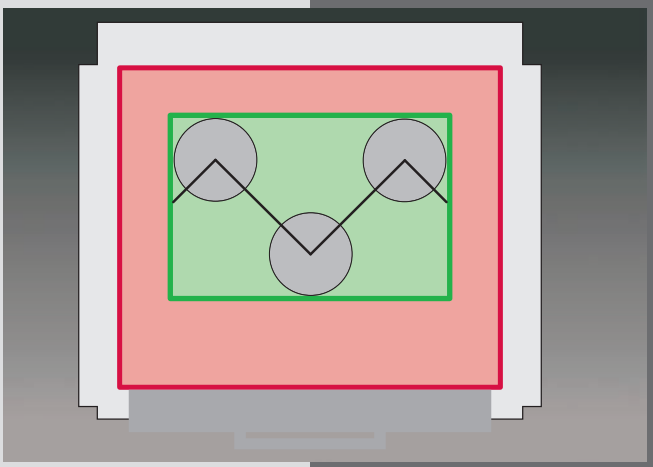
Investing:

- Process the investments that you use according to the manufacturer's instructions. Pay particular attention to compliance with the following parameters of your investment: mix duration, mix speed, bench-set time and storage conditions (temperature / humidity).
- Fill the investment into the press ring on vibrator (using light vibration) until the wax objects are completely covered by investment. Then fill the ring completely to the fill mark without vibration.
- When placing the ring lid (ring guage), pull the upper edge of the silicone ring to the side with one hand and place the ring lid (ring guage) at an angle onto the press ring with the other hand. This allows air to escape and avoids the formation of bubbles on the ring base.
- After filling the ring, the investment must cure without vibrations.

Preheating (Burnout)

- We generally recommend preheating the ring using the speed method. Tests have shown that reaction layer formation is reduced in comparison to longer conventional methods.
- Set your preheating furnace to 850°C (1562°F).
- At least one minute prior to the end of the bench-set time, carefully romove the ring form the ring former. Deburr if necessary and carefully remove any excess that has formed at the exit hole of the ring lid with a plaster knife. Then allow the ring to complete the remainder of the bench-set time outside the ring former to allow moisture to evaporate, before placing it in the furnace at 850 °C (1562°F).
- Always place your press rings as centrally as possible in the preheating furnace.
- If you place several rings inside, please make sure that there is a minimum distance of 2 cm between the individual rings and the insulating walls of your preheating furnace.
- Maintain a minimum distance of 5 cm to the door of your preheating furnace.
- Never shorten the necessary holding times in the preheating furnace. A 100 gram ring must be held for a minimum of 45 minutes, a 200 gram ring a minimum of 60 minutes at 850 °C / 1562°F prior to being placed into the pressing oven. The pre-heat timer should not be started, until the rings have attained final temperature (850 °C / 1562°F).

  Add 10 minutes to the timer for each additional ring placed in the pre-heating oven.
- Do not preheat press plungers or press ingots! These are placed in the ring cold.



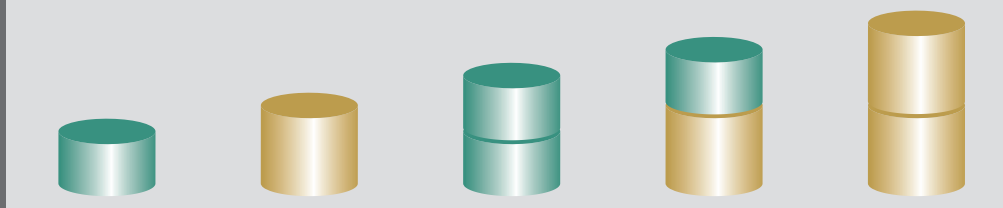
The preheating process plays an important part in the processing of press ceramics. Not only is the wax burnt out; the ring attains the prerequisite ring core temperature required for the prescribed/pre-set program parameters used in all pressing ovens.

The preheating process should therefore be adhered to as precisely as possible and pre-heating oven maintained diligently correctly with temperatures kept accurate.

Pressing

Wax weight	Ceramic quantity
up to 0,6 gram	1 x 2gram ingot
up to 0,9 gram	1 x 3gram ingot
up to 1,2 gram	2 x 2gram ingot
up to 1,6 gram	1 x 2gram + 1 x 3gram ingots
up to 2,0 gram	3 x 2gram or 2 x 3gram ingots

- Make sure that your press furnace is heated thoroughly by running a preheating or firing program.
- Prepare the press ingots based on the wax weight (See "Spruing and investing")
- Prepare the disposable press plunger. Ensure that the disposable press plunger has a diameter of 13 mm!
- We always recommend the use of disposable plungers. If you use reusable (alumina oxide) plungers, it may be necessary to adjust the press temperature!
- Start the appropriate pressing program (pressing parameters can be found on page 40 of these instructions). Press rings can be transferred to the press furnace as soon as the furnace has reached a temperature of 700 °C.
- The load and transfer of a ring to the pressing furnace from the preheat oven should not exceed 20 seconds for a 100 gram ring, 30 seconds for a 200 gram ring.

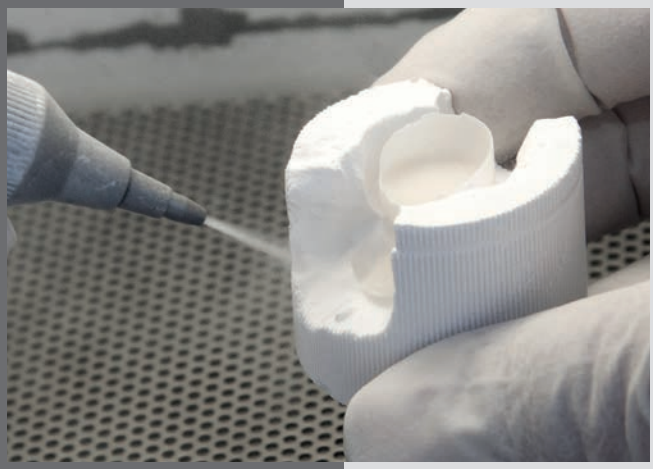


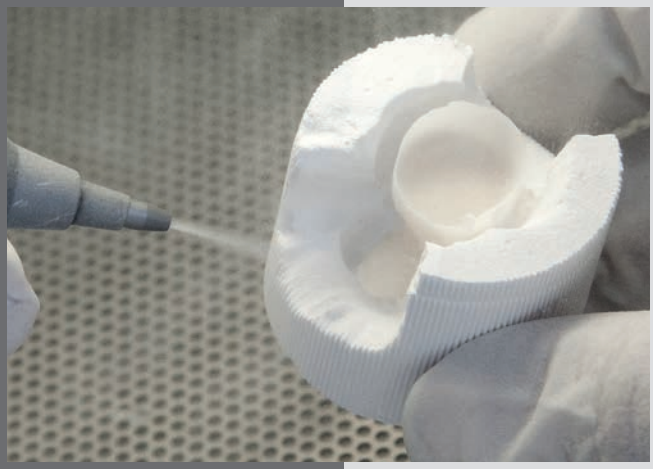
2 g ingot	3 g ingot	2 g ingot 2 g ingot	2 g ingot 3 g ingot	3 g ingot 3 g ingot
up to 0,6 g	up to 0,9 g	up to 1,3 g	up to 1,6 g	up to 2,0 g

Wax weight

- Do not expose rings to draughts during the transfer (if necessary close windows, turn off air conditioning).
- Transport the ring using ring tongs with the sprue channel facing downwards to avoid drafts flowing into the ring
- Open the chamber of your press furnace and, while the furnace is opening, load the ring with press ingots and the press plunger.
- The press ingots are radiused on the unprinted side. Please place the ingot in the ring with the radius facing downwards (Print side up).
- The press plungers (Zubler disposable plunger) are marked with a dot on one side. This side has no contact with the press ingot (Dot facing up).
- When placing the ring in your press furnace, make sure that the ring is placed correctly and level in your press furnace and does not wobble. If the ring is inclined or wobbles, this could result in a faulty pressing!
- On completion of the pressing program, remove the ring from the furnace and allow the ring to cool down to room temperature protected against draughts. It is possible that cracks may appear on the surface of the press ring during cooling and is not cause for alarm, because the outside layer of the investment cools more rapidly than the interior.
- Never re-press or re-use ingots! Only use NEW, unused ingots. The pressing of press residues will lead to a change in the thermal coefficient of expansion, a change in the color and, above all else, a major loss of flexural strength (approx. 60 – 70% loss).
- Press ingots and press plungers are not to be preheated!

Divesting and removal of reaction layer





Divesting

- Cut the ring open along the horizontal line using a cutting disc.
- Expose the objects by blasting with 50 µm Perlablast (polishing beads).

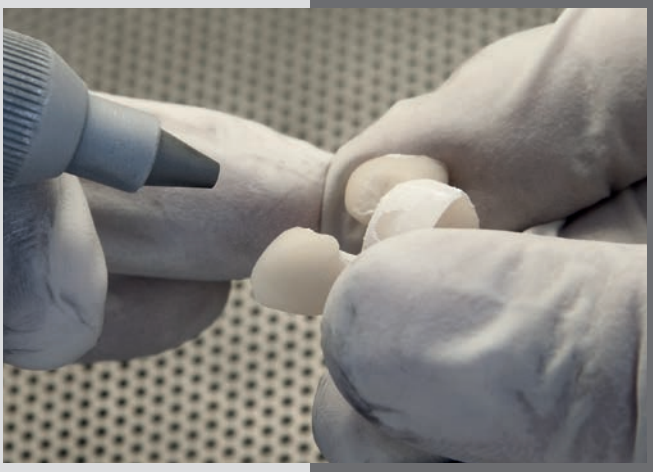
Tip: First of all, blast around the press residue. On the basis of the sprues you can then see where the objects are in the ring.

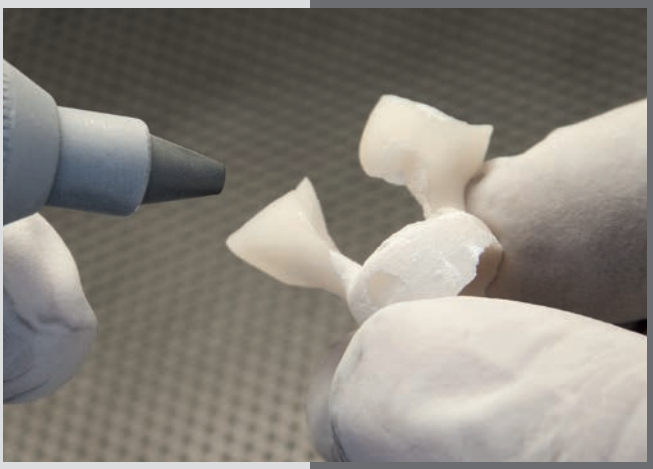
Coarse divesting can take place at a jet pressure of up to 4 bar. The fine divesting (removal of the investment from the press object) should take place at 2 – 3 bar.

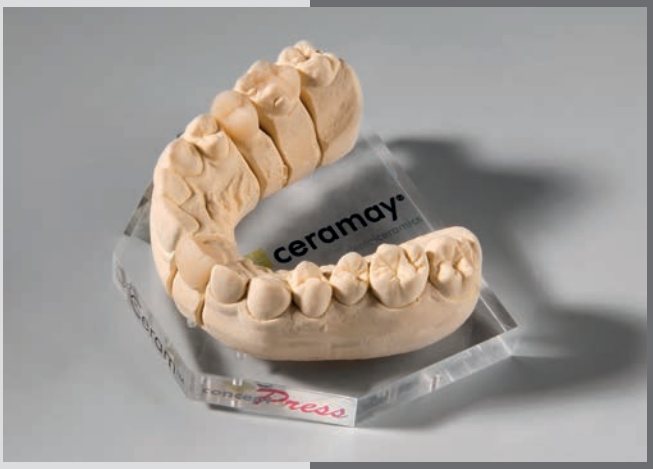
- Always maintain a distance of approx. 5 – 10 cm from the blasting stylus to the press object and avoid puncturing the press object.

Removal of reaction layer

- After complete removal of the investment from the press object, a thin white layer is visible on the surface of the restoration. Referred to as "reaction layer", it is to be removed with 50 – 100 µm aluminium oxide.
- The use of hydrofluoric acid for the removal of "reaction layer" (even in very low concentrations) is not advisable.
- Please remove the reaction layer from the outer surfaces of the restoration with 50 – 100 µm abrasives at a blasting pressure of 3 bar. When doing this, maintain a distance of approx. 5 – 10 cm from the blasting stylus to the press object and avoid puncturing the object.
- To remove the reaction layer in the cavity region of the stump, please reduce the blasting pressure to 2 bar.
- Once the reaction layer has been completely removed the restoration should fit on the gypsum model stump, provided the stump is free of undercuts.







Trimming

Use suitable grinding instruments for trimming and cutting. Our recommendations are:

- For cutting the sprue: sintered diamond separating/ cutting disc.
- Grinding the sprue: grinding stone for ceramics (wheel) with a coarse grit.
- Trimming: diamond grinders (blue and red coding) or grinding stones with a grit suitable for the machining of ceramics, sandpaper (approx. 100 – 120 grit) for conditioning the surface before the gloss or glaze firing.

We recommend that you observe the following points when trimming your pressed restorations:

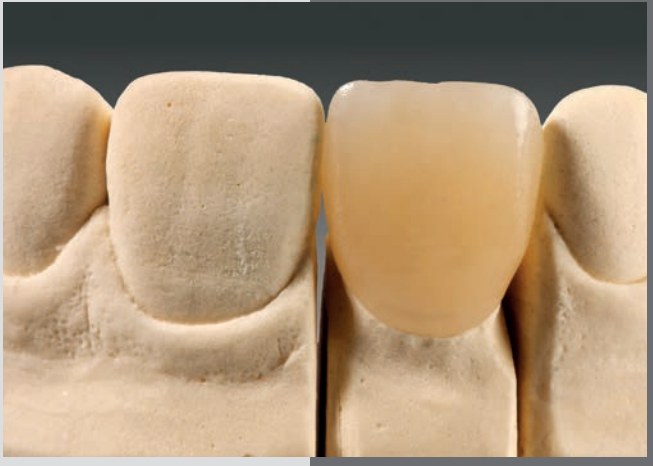
- Design your wax models to minimize grinding work.
- When grinding back or grinding the sprue, be sure not to excede the minimum layer thicknesses.
- Avoid overheating the ceramic. Cool with water if necessary (wet the object or the grinding stone with water).
- In the case of bridge restorations, never separate the connectors.
- In the cut-back process, make structures for mamelons as "soft" as possible.
- For the fabrication of surface textures (e.g. perikymata) it is recommended to use grinding stones instead of diamonds. These create a "softer image".
- When adjusting the margins, use grinding stones with a fine grit or rubber polishers and work with low pressure and speed to avoid chipping
- The smoother the surface of the restoration, the easier it will be to achieve the desired degree of gloss after the glaze firing.
- Before firing, clean the surface of the restoration first with 50 – 100 µm aluminium oxide at a pressure of 1 bar (14.5 PSI), then evaporate thoroughly (avoid overheating).

Ceramic layering

All ingot types from the conceptPress system can naturally also be finished using the layering or combination technique. DC Ceram 9.2, our low-fusing ceramic for zirconium frameworks and lithium disilicate, offers you a versatile selection of layering materials. Furthermore, it is distinguished by its simple, user-friendly processing.

Please observe the following points when you layer conceptPress restorations:

- Use exclusively layering components from the DC Ceram 9.2 system.
- Before applying the actual layer, please carry out a wash firing. To do this, use a dentine or incisal material of your choice and apply it in a thin, even layer to the area of the pressed restoration to be coated. This is very easy to do using a glass instrument for the application of powder opaques. Manufacture the same consistency with the layering material and build-up liquid that you are accustomed to for powder opaques.
- After the wash firing, supplement the tooth shape with layering materials.
- If desired, you can carry out discreet individualisations using conceptArt stains on the pressed framework/ crown before layering (on the fired wash firing). (In the case of the dentin firing, please observe the appropriate firing temperature for ceramic layered pressed restorations).



Stain and Glaze firing

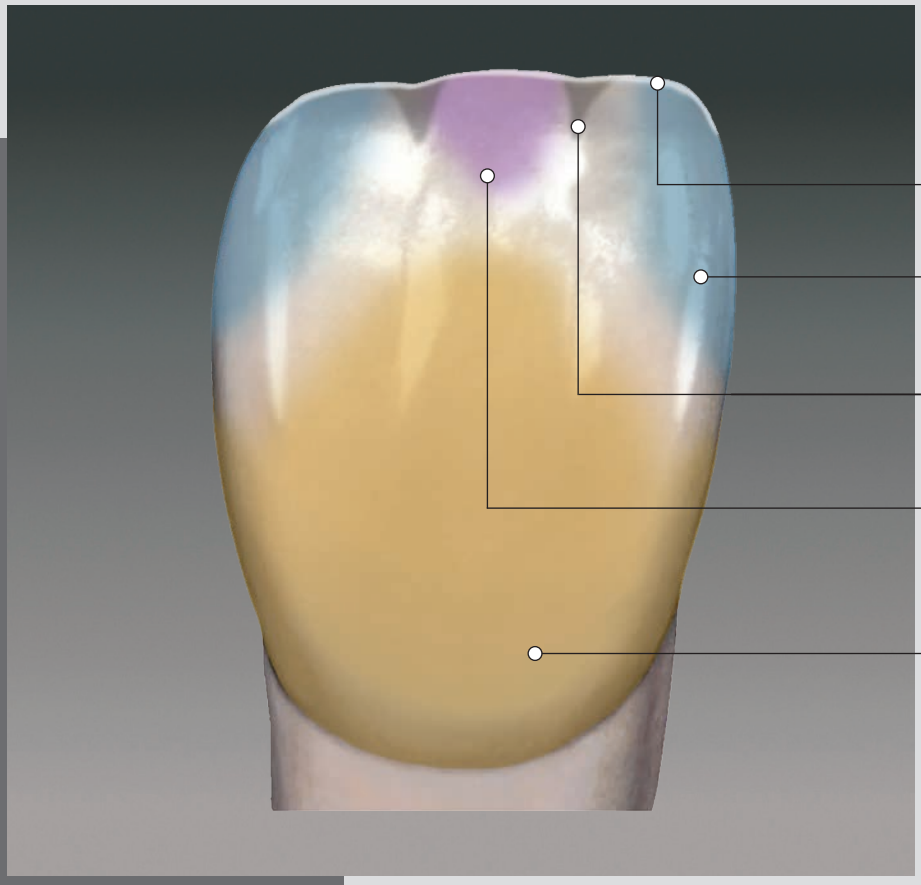
A glazing paste and various fluorescent stains from the conceptArt stain system are available to you for individualisation and glazing. The system can additionally be used for the finishing of monolithic zirconium restorations.

For details, please refer to the processing instructions for the conceptArt stain system.

Please note the following points for this concluding step:

- Stir stains and glaze paste well prior to use. During storage the glaze or stain paste can settle to the bottom of the container.
- Stains or glazes may only be applied to clean surfaces. These should be free from dirt and grease (see trimming instructions).
- Contact points and surfaces should be conditioned accordingly.
- If necessary, adjust the consistency of the stains in accordance with the type of application using glaze/ stain liquid.
- Avoid overly thick application of stain. This leads to "spot formation" after firing. A more intensive color can be achieved by repeated staining and firing.
- The glaze must be applied in the correct consistency and thickness. If applied too thick, cracks may form in the glaze during firing or the glaze may run into the cavities and turn white.
- The consistency of the glaze must be adjusted such that a thin, even coat can be applied with a brush without the glaze building up in fissures or at the crown edge of the restoration.

- We recommend that stain and glaze firing be done separately. However, it is possible to to fire them together. To do this, apply the glaze first and then apply the stain directly onto the unfired glaze. This technique requires a little practice, however ,if the consistency of the stain or glaze is wrong they will run during firing, producing an unsatisfactory result.
- Further stain or glaze firings can be performed with the same firing parameters. It is not necessary to reduce the firing temperature or holding time.
- Refer to the following illustrations for application examples of the conceptArt stains.
- For firing, always place your firing objects on a honeycomb carrier using a pin. The restoration should be fixed on the pin with peg putty (Easy Fix). This allows you to avoid the object falling off the pin while preventing direct contact with the ceramic. This also prevents the development of oxide spots or cracks in or on the restoration.
- Pay attention to the specifications for higher firing temperatures of glaze and stain with monolithic restorations.
- Restorations with uneven layer thicknesses as well as molars should be cooled slowly after firing. We recommend an opening time of 6 minutes or targeted cooling with a cool rate of 45 °C/min to 450 °C in the V200ZR or VP300.eZR.
- For the stain fixing firing or glaze firing of molars, it is recommended not to fix them to a firing pin using Easy Fix. Instead, it has proven to be best to place them directly on the honeycomb carrier using a firing pillow.
- After firing, take the firing object off the firing table and allow it to cool to room temperature protected from drafts. During that time, do not touch it with tweezers or the like and do not accelerate the cooling procedure (e.g. with compressed air).
- Finally, check all contact points
- Should it be necessary to re-polish some points on the restoration, it is recommended to use a diamond polishing paste and a goat's hair brush (with the stiffest possible bristles). Felt wheels should be used with great care, as considerable heat can be generated.



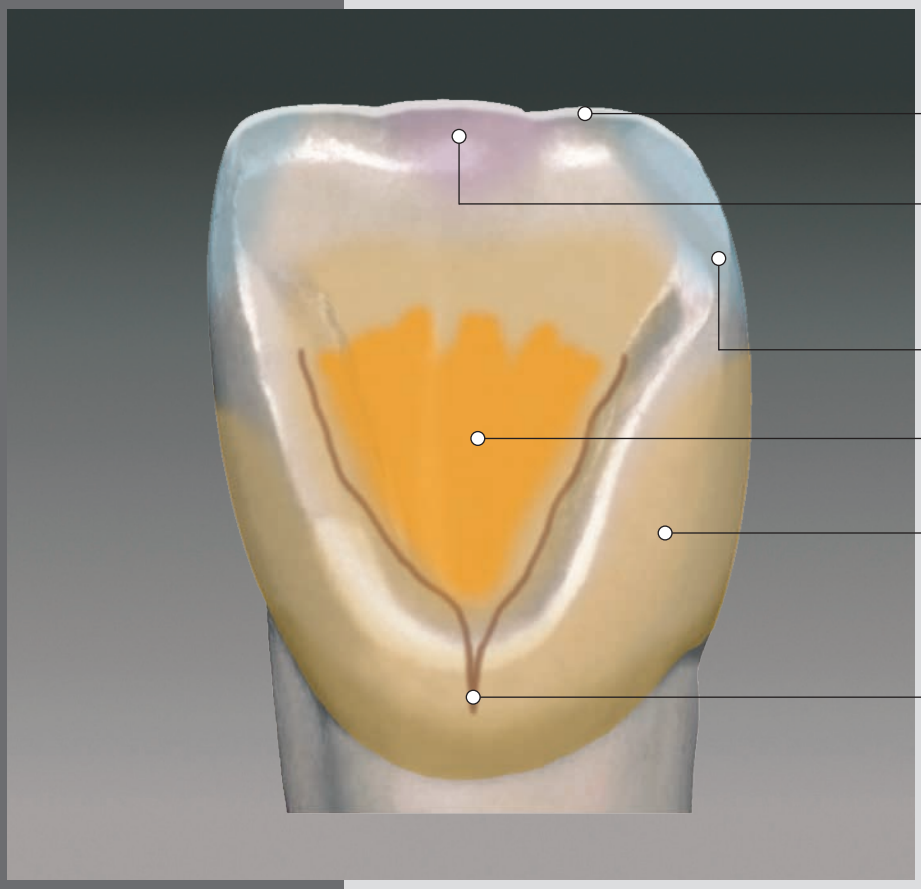
white reproduction halo
(thick consistency)

grey blue
(thin consistency, almost watery)

black reproduction of Transpa Clear wedges
(very thin consistency)

violet or **smoke** for an optical increase in transparency
(thin consistency)

apply respective **shade (A, B, C, D)** cervically and spread out to the incisal (medium consistency)



white reproduction halo
(thick consistency)

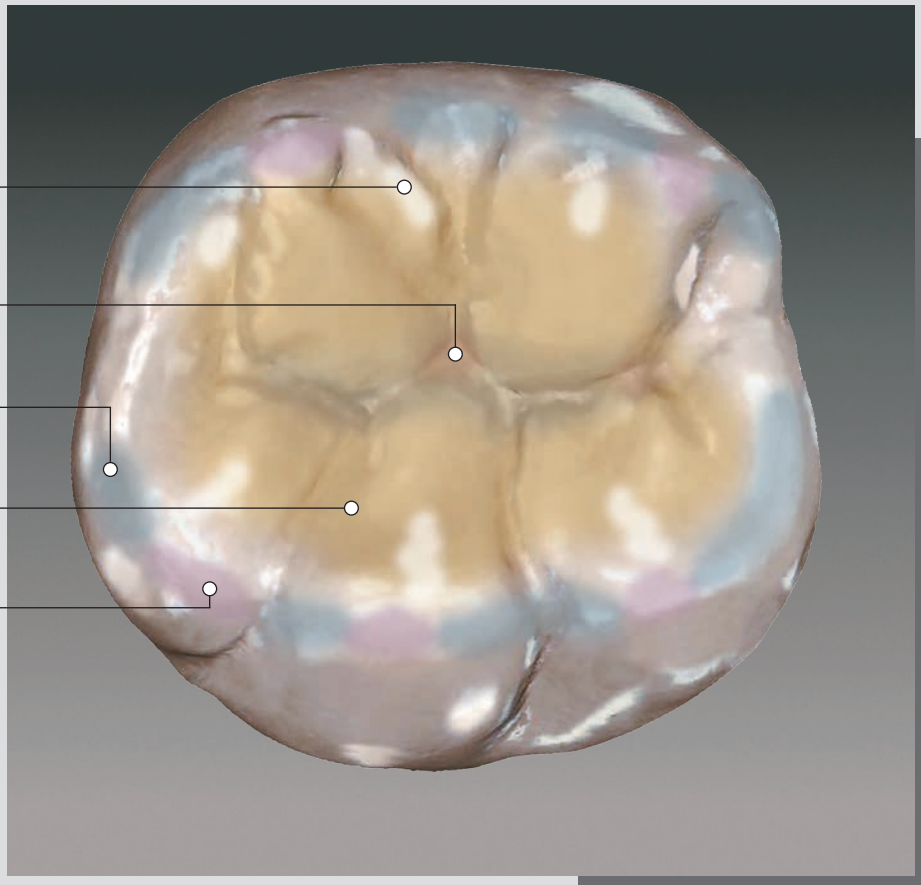
violet or **smoke** for an optical increase in transparency
(thin consistency)

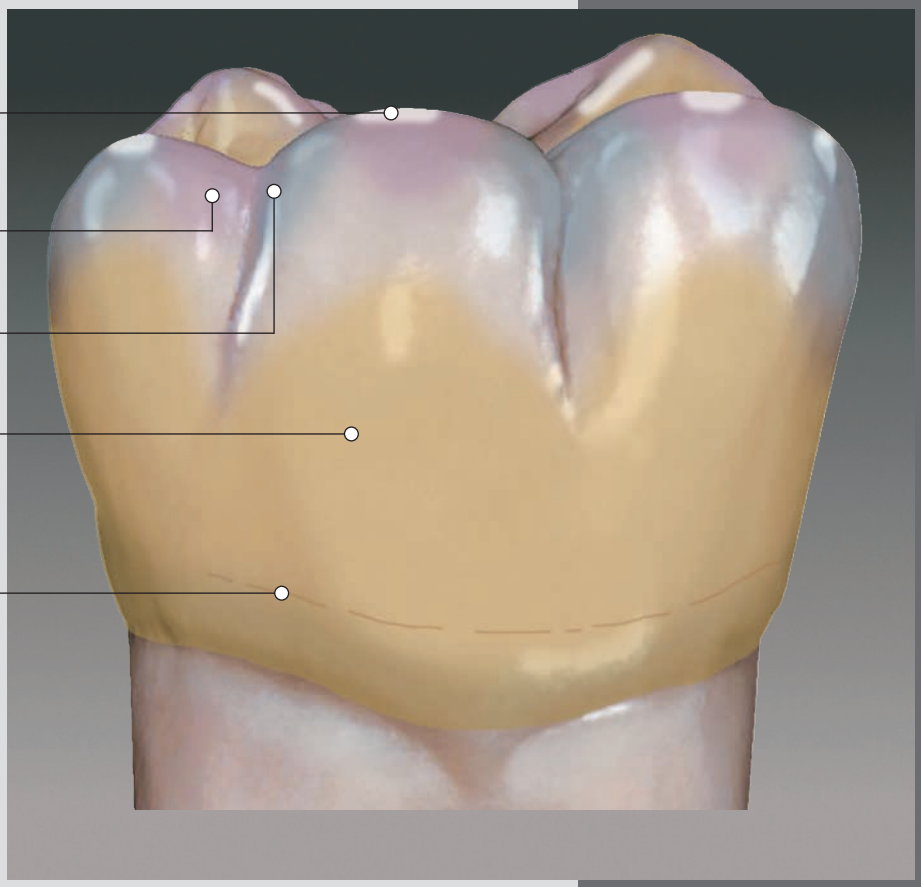
grey blue
(thin consistency)

orange
(medium consistency)

apply respective **shade (A, B, C, D)** cervically and allow to run out to the incisal
(medium consistency)

dark brown reproduction of palatinal discoloration
(thick consistency)


white as highlight for the cusp tips (thick consistency)
dark brown (thick consistency)
grey blue (thin consistency)
respective **shade (A, B, C, D)** (medium consistency)
violet or **smoke** (thin consistency)


white as highlight for the cusp tips (thick consistency)
violet or **smoke** (thin consistency)
grey blue (thin consistency)
apply respective **shade (A, B, C, D)** in cervical area and allow to run out to the mastical (medium consistency)
dark brown to offset the neck of tooth (optical shortening of the tooth crown) (thick consistency)

Classification of conceptPress restorations

Fixing methods according to the type of restoration

	Adhesive	Self-adhesive	Conventionally cemented
Veneer, non prep veneer, Inlay, onlay, partial crown	indicated	not indicated	not indicated
Full crowns, 3-tooth bridges up to premolar	indicated	indicated	indicated

We recommend adhesive bonding for fixing conceptPress restorations.

For the precise processing method please refer to the processing instructions for the fixing material used.

The following illustrations are intended to provide you with a rough overview of the individual steps of an adhesive fixing method.

Preparation of the restoration

1. Trial in mouth with try-in gel
2. Wash out try-in gel with running water - dry with air
3. Apply HF gel (6 - 9 %) to the inner surfaces of the restoration and etch for 20 seconds.
4. Thoroughly remove HF gel - rinse out well under running water - spray off - dry with air
5. Apply drying agent (high-percentage alcohol) - dry thoroughly with air
6. Apply silane - allow to work - dry with air (40 - 60 s)
7. Apply primer/adhesive - blow carefully with air - do not light-cure!

Follow the manufacturer's instructions to the letter!

Preparation of the tooth stump

1. Clean the surface of the tooth (powder jet or pumice stone)
2. Etch teeth with 37% phosphoric acid for 20s
3. Rinse thoroughly and dry lightly
4. Apply primer/adhesive in accordance with the manufacturer's instructions - blow the adhesive carefully with air - a shiny resinous surface is created - avoid puddle formation
5. Do not light-cure the adhesive on the tooth surface! Follow the manufacturer's instructions to the letter!

Etch the binding on the tooth stump with 37% phosphoric acid for 20 seconds

1

Rinse etching gel off well

2

Apply bonding (primer and adhesive)

3

Insert and intermediately cure 3 - 4 seconds

4

Remove surplus

5

Light-cure from all sides for 40 seconds

6

Remove interdental surplus using Epitex strips or dental floss

7

3D color assignment

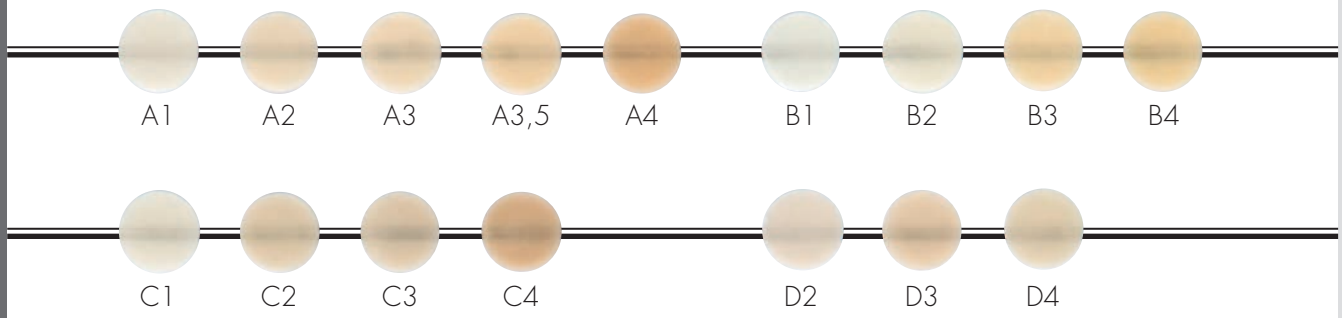
Vita 3D color	Press ingot conceptPress	Stain/Shade fluor. Neck of tooth	Body of tooth	Edge / cusp tips
0M1	BL1	khaki	khaki	grey blue
0M2	BL2	khaki	khaki	grey blue
0M3	BL2	mix khaki 4/5 + Shade A 1/5	mix khaki 4/5 + Shade A 1/5	grey blue
1M1	BL2	mix khaki 4/5 + Shade A 1/5	mix khaki 4/5 + Shade A 1/5	grey blue
1M2	BL3	Shade A	Shade A	grey blue
2L1.5	DC1	Shade A	Shade B	grey blue
2L2.5	DB2	ShadeB	Shade B	grey blue
2M1	DB1	Shade D	-	grey blue
2M2	DB2	Shade B	Shade B	grey blue
2M3	DB2	Shade A	Shade A	grey blue
2R1.5	DC1	mix Shade B 2/3 + grey* 1/3	mix Shade B 2/3 + grey* 1/3	grey blue
2R2.5	DB2	Shade B	Shade B	grey blue
3L1.5	DC1	Shade C	Shade A	mix grey blue 1/2 + smoke 1/2
3L2.5	DA2	Shade B	Shade B	grey blue
3M1	DC1	mix Shade C 2/3 + grey* 1/3	mix Shade C 2/3 + grey* 1/3	smoke
3M2	DB2	Shade A	Shade A	mix grey blue 1/2 +smoke 1/2
3M3	DB3	Shade B	Shade B	mix smoke + ein wenig of grey blue
3R1.5	DC1	Shade D	Shade D	mix grey blue + smoke
3R2.5	DB3	Shade A	Shade A	grey blue
4L1.5	DC2	Shade C (ein wenig) über Shade A	Shade A (ein wenig)	smoke
4L2.5	DA3.5	Shade C über Shade A	Shade A	mix grey blue 2/3 + smoke 1/3
4M1	DC1	mix Shade C 3/4 + violet 1/4	Shade C 3/4 + violet 1/4	smoke
4M2	DC3	Shade C	Shade C	mix smoke + grey blue (ein wenig)
4M3	DB4	Shade A	Shade A	mix smoke 1/2 + grey blue 1/2
4R1.5	DC3	Shade C	Shade C	mix grey blue 1/2 + grey* 1/2
4R2.5	DC3	Shade A leicht mit Shade C drüber	Shade A leich mit Shade C drüber	grey blue
5M1	DC3	mix Shade C 2/3 + grey* 1/3	mix Shade C 2/3 + grey* 1/3	smoke
5M2	DA4	mix Shade A 2/3 + Shade C 1/3	mix Shade A 2/3 + Shade C 1/3	smoke + grey blue
5M3	DB4	mix Shade B 9/10 + dark brown 1/10 **	mix Shade B 9/10 + dark brown 1/10 **	smoke+ grey blue

* grey = 2/3 white + 1/3 black

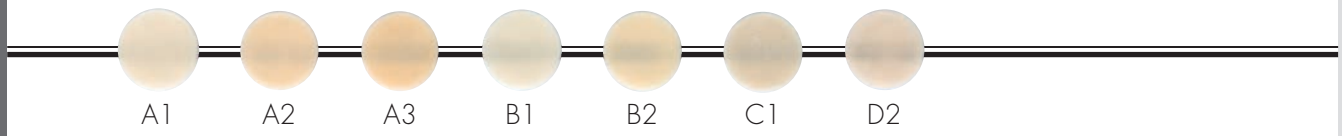
**A relatively large quantity of stain must be applied. Therefore we recommend carrying out two stain firings

Color combination tables

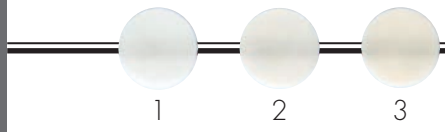
conceptPress **D**



conceptPress **Anterior**

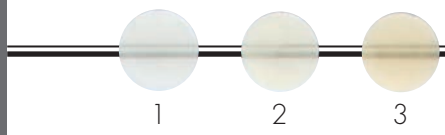


conceptPress **Bleach**



conceptPress **Pearl**

conceptPress **CT**



conceptPress **ID**

Color deviation are possible due to printing technology!

Full anatomic crowns/bridges or partial crowns using stain technique in posterior region (dentine ingots)

Tooth color	**A1**	**A2**	**A3**	**A3.5**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D2**	**D3**	**D4**
conceptPress Press ingot	DB1	DA1	DA2	DA2	DA3	DB1	DB1	DB2	DB3	DA1	DC1	DC2	DC3	DA1	DD2	DD3

Anterior crown/bridge/veneer using stain technique

Tooth color	**A1**	**A2**	**A3**	**A3.5**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D2**	**D3**	**D4**
conceptPress Press ingot	DB1	DB1	DA1	DA2	DA3	Pearl2	DB1	DB2	DB3	DA1	DA1	DC1	DC2	DA1	DD2	DD2

Anterior crown/bridge/veneer with incisal cut-back and layered edge

Tooth color	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
conceptPress Press ingot	Anterior A1	Anterior A2	Anterior A3	Dentin A3.5	Dentin A4	Anterior B1	Anterior B2	Dentin B3	Dentin B4	Anterior C1	Dentin C2	Dentin C3	Dentin C4	Anterior D2	Dentin D3	Dentin D4
DC Ceram 9.2 Enamel	1	2	2	4	4	1	2	3	4	2	2	3	4	1	2	3

Inlays/smaller partial crowns

Tooth color	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
conceptPress Press ingot	CT1	CT1	CT2	CT3	CT3	CT1	CT1	CT2	CT3	CT1	CT2	CT2	CT3	CT2	CT2	CT3

The aspect of the enamel must be considered here, however: whitish enamel = CT1, light-greyish enamel CT2, colored enamel (darker or orange) = CT3

Layered crowns/bridges in the posterior or anterior region (dentine and edge! ID ingots)

Tooth color	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
conceptPress Press ingot	ID1	ID1	ID2	ID2	ID4	ID1	ID1	ID2	ID2	ID1	ID3	ID3	ID3	ID1	ID5	ID5
DC Ceram 9.2 Dentin	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
DC Ceram 9.2 Enamel	1	2	2	4	4	1	2	3	4	2	2	3	4	1	2	3

Veneer/ non-prep veneer or anterior crowns using stain technique; higher brightness value desired or bleach cases with moderate brightening (e.g. no jump from A4 to A0)

Tooth color	OM1	OM2	OM3	A1	A2	B1	B2
conceptPress Press ingot	Pearl1	Pearl2	Pearl3	Pearl3	Pearl3	Pearl2	Pearl2

Bleach crowns/bridges with layered edge part

Tooth color	OM1/Bl1	OM2/Bl2	OM3/BL3
conceptPress Press ingot	BL1	Bl2	Bl3
DC Ceram 9.2 Enamel	neutral	1	1

Remark: if the color of the prepared tooth stump should be significantly darker than the tooth color to be achieved, please select the next brighter press ingot type from the respective combination table, especially in the case of anterior tooth restorations.

Press and firing parameters

General pressing programs conceptPress

Ring size [g]	Ingot Amount [g]	Start temperature [°C]	Heating rate [°C/min]	End temperature [°C]	Holding time [min]	Pressing time [min]
100	2/3	700	60	910	18:00	3:00
200	2/3/4	700	60	915	20:00	3:00
200	5/6	700	60	920	20:00	3:00

For the best possible pressing results with high surface quality and deep chroma, we recommend the use of a Zubler VP300.e or VP300.eZR.

The advanced pressing programs are specially developed for the pressing requirements of lithium disilicate and are factory pre-programmed by Zubler if desired or subsequently made available. Please contact your dealer for more information.

conceptPress pressing programs for Ivoclar furnaces EP600, EP3000, EP5000, EP3010, EP5010

Ring size [g]	Ingot Amount [g]	B [°C]	t [°C/min]	T [°C]	H [min]	V1 [°C]	V2 [°C]	A [µm/min]
100	2/3	700	60	910	18:00	500	910	600
200	2/3/4	700	60	915	20:00	500	915	600
200	5/6	700	60	920	20:00	500	920	600

conceptPress pressing programs for Dekema Austromat 3001 press-i-dent

Ring size [g]	Ingot Amount [g]													
100	2/3	L9	C700	V9	T060.	C910	T1080	L95	T180	V0	L9	C0	L6	T2
200	2/3/4	L9	C700	V9	T060.	C915	T1200	L95	T180	V0	L9	C0	L6	T2
200	5/6	L9	C700	V9	T060.	C920	T1200	L95	T180	V0	L9	C0	L6	T2

These pressing parameters are guidelines or suggested values. End temperatures must be adjusted if necessary.

General firing table for DC Ceram 9.2 on conceptPress

	Start temperature [°C]	Closing time [min]	Heating rate [°C/min]	End temperature [°C]	Holding time [min:s]	Opening time [min]	Vacuum
Wash	450	6	45	790	1	2	Ja
Dentin 1	450	6	45	780	1	2	Ja
Dentin 2	450	5	45	770	1	2	Ja
Stain (Layering technique)	450	5	45	740	1	2	Ja
Glaze (Layering technique)	450	6	45	750	0:30-1	2	Nein
Correction	450	4	45	720	1	2	Ja
Stain (monolithic)	450	5	45	780	1	4	Ja
Glaze (monolithic)	450	5	45	790	1	4	Nein

The firing parameters shown are guidelines or suggested values and may need to be adjusted

Firing programs - DC Ceram 9.2 on conceptPress in VP300e, VP300eZR, V200, V200ZR - program type Professional

	Start [°C]	Pre-drying	Pre-drying time [min]	Closing time [min]	Soak- temp. [°C]	Soak- time [min]	Heating rate [°C/min]	End temp. [°C]	Holding time[min:s]	Opening temp. [°C]	Opening time [min]	Vacuum	Vacuum release	Vacuum end [°C]
Wash	450	ja	3	3	450	0:30	45	790	1	790	2	yes	Heat-up	790
Dentin 1	450	ja	3	3	450	0:30	45	780	1	780	2	yes	Heat-up	780
Dentin 2	450	ja	3	2	450	0:30	45	770	1	770	2	yes	Heat-up	770
Stain (Layering technique)	450	ja	2	3	450	0:30	45	740	1	740	2	yes	Heat-up	740
Glaze (Layering technique)	450	ja	3	3	450	0:30	45	750	0:30-1	750	2	no	-	-
Correction	450	ja	2	2	450	0:30	45	720	1	720	2	yes	Heat-up	720
Stain (monolithic)	450	ja	2	3	450	0:30	45	780	1	780	6	yes	Heat-up	780
Glaze (monolithic)	450	ja	2	3	450	0:30	45	790	1	790	6	no	-	-

The firing parameters shown are guidelines or suggested values and may need to be adjusted

Re-adjustment of pressing temperatures

If you adjust pressing parameters, please restrict yourself to the end (final) temperature. Parameters such as holding time and pressing time should not be changed.

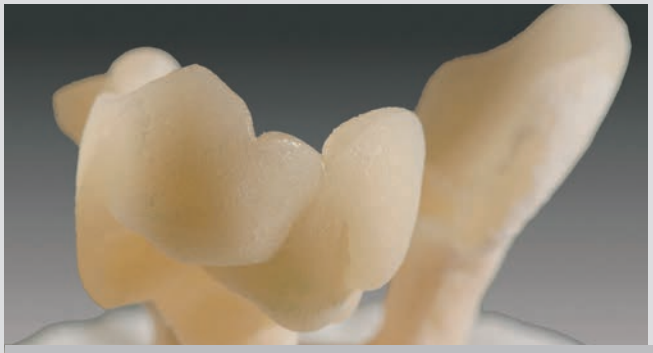
An indication that the press temperature needs to be changed is always the extent of the reaction layer: the higher the press temperature, the more reaction layer will be on the object and the more difficult it will be to remove, conversely, the lower the pressing temperature the greater the extent of defects. The more massive a pressed object is, the more frequently defects occur with lower pressing temperatures.

The following pictures show pressings with the same objects but different pressing temperatures.

They are intended to illustrate how and to what extent the material reacts to temperature change.

Pressing approx. 20 °C too cold- Just the sprue and the first third are pressed.

Pressing approx. 15 °C too cold- The inlay is almost complete, approx. 50% of the veneer and approx. 65% of the molar crown are missing.



Pressing approx. 10 °C too cold- Inlay and veneer are completely pressed and exhibit a corresponding reaction layer. In the case of the molar a large part of the palatinal surface is missing on the opposite side to the sprue. There is hardly any reaction layer on the surface of the molar. The chewing surface is present, however.

Pressing approx. 5 °C too cold- Inlay and veneer are completely pressed and exhibit a corresponding reaction layer. In the case of the molar a small part is missing in the crown edge area on the opposite side to the sprue (approx. 1 - 2 mm).

Optimum pressing- All objects pressed with good surface quality; reaction layer relatively thin and even

Pressing approx. 5 °C too high- All objects pressed. Surface quality is still acceptable. However, there is more reaction layer than with the optimum pressing and this is already more difficult to remove.

Pressing approx. 10 °C too high- All objects are pressed. Compression lugs can already be clearly seen on the press residue and sprues. The crown edges are slightly fringy. The reaction layer is very difficult to remove. The surface of the ceramic (especially in the case of smaller, delicate pressed objects) already exhibits an „orange-peel"-type surface.

Pressing approx. 15 °C too high- All objects are pressed. The compression lugs on the press residue and sprues are even more pronounced in comparison with the +10 °C pressing. The reaction layer is barely removable, in particular on the small, delicate pressed objects. If this is removed, the orange-peel-like surface is visible. Crown edges exhibit clear fringes.

Note: before changing the pressing program due to faulty pressings, please run through the entire sequence once again in your mind, from pinning to pressing. Readjust the pressing temperature only if you are sure that you have not made any mistake in these steps.

If you use advanced pressing programs, please note that you can only adjust the temperature via the "Customize calibration" function. When doing so, the ranges „Pressing below 1000 °C" and „Pressing above 1000 °C" must be altered to the same degree.

FAQ

Problem description	Cause	Solution
Press ring burst in the preheating/burnout furnace	Too much residual moisture in the press ring before placing inside the furnace.	- Remove the ring from the ring former earlier in accordance with the processing instructions for the investment to allow for evaporation. - Avoid liquid concentrations of 100% - Check the storage and mixing parameters for the investment. Most investments require a processing temperature of approx. 20 °C. Liquid and powder must be stored accordingly. Specifications for the mixing duration and speed must also be adhered to without fail
Press ring cracked/split after pressing process or pronounced compression lugs on the sprue and/or press object	- Investment too soft - Pressing pressure too high - Pressing temperature much too high - Too many objects in the ring and they are sprued too close to one another - Press object sprued too close to the silicone ring former (in case of lateral stamping of the ring).	- Check the pressing pressure - Use the intended pressing program - Check the vacuum of the mixing device - Check the mixing parameters - Observe the reaction time of the investment - Check the storage temperature or processing temperature of the investment - Min. 3 mm distance between the press objects - Min. distance to the silicone sleeve 10 mm
Press object not fully pressed	- Pressing pressure too low - Press plunger jammed in the sprue - Preheating time/temperature too low - Pressing furnace not preheated - Ring transfer time too long - Pressing temperature too low - Pressing done with self-made press plungers	- Check the pressing pressure - Make sure that the press ring is placed perpendicular to the press base without wobbling and that it is centred perfectly. - Observe the preheating temperature and time. See point „Preheating" in the operating manual - Max. ring transfer time is 20 sec for 100 gram ring, 30 sec for 200 gram ring; avoid drafts when transferring - Do not make your own press plungers - Adjust the temperature. Please refer to the chapter „Readjustment of the pressing temperature"
Very thick reaction layer with poor surface of the press object and possibly fringed crown edges.	- Pressing temperature too high - Preheating temperature too high - Unsuitable investment used - Modelling plastic used and burnt out using the speed method - Model manufactured from unsuitable wax ingot using CAD/CAM method	- Adjust pressing temperature. Please refer to the chapter „Readjustment of the pressing temperature" - Use a suitable investment - If using modelling plastics, place inside at 400 °C and then heat up to 850 °C - Use suitable CAD/CAM wax ingots
White inclusions in the press object	- Unsuitable modelling wax used (very opaque) - Surface relaxer used - Improper waxing of the sprue - Fissures or mamelons made too deep	- Use a wax that is suitable for full ceramic - It is better not to use surface relaxers - Ensure undercut-free waxing - Do not make mamelons and fissures too deep

Problem description	Cause	Solution
Black or blue spots in the press object	- Contamination of the model / modelling wax / sprue wax with alloy splinters	- Keep the workplace clean - It is best to cover the workplace with kitchen towels (household roll) for modelling. - Make sure your fingers are clean when modelling
The press object has a different color at the sprue separation point (greyish)	- Model was pinned incorrectly	- Avoid pressing against a wall; place the sprue so that it always presses on an edge (place the sprue on a cusp tip or, in the case of the anterior tooth region, precisely on the incisivum)
Cracks in the press object after the glaze firing	- Press object cooled too quickly or unevenly	- In particular full anatomical molars exhibit a certain susceptibility to cracks. Therefore it is better to place molars directly on the honeycomb carrier for stain and glaze firings and to dispense with the use of peg putty - Open the furnace slowly (Opening time approx. 5 minutes)
Stain has spots after the fixing firing	- Too much stain applied at once and not sufficiently distributed over the surface	- If necessary, perform several stain fixing firings Spread the stain well over the surface Stir the stain well before removal
Object exhibits too little gloss after the gloss firing	- Glaze not stirred before removal - Glaze diluted too much - Surface of the press object too rough before the glaze application - Temperature of the glaze firing too low	- Stir glaze well before removal - Do not dilute the glaze too much - Ensure that the surface quality of the press object is adequate before applying the glaze - Carry out the glaze firing in accordance with the specifications
Glaze has turned whitish at the edge of the crown and/or in the fissures following firing	- Glaze was not stirred before application - Too much glaze was applied with too thick a consistency - Glaze was fired at a temperature exceeding 800 °C	- Stir the glaze before application - Adjust the consistency of the glaze such that the surface of the press object is closed, but a thin even layer can be applied - Observe the glaze firing temperature
Cracks in the glaze following the glaze firing	- Glaze was applied with too thick a consistency	- Dilute the glaze paste a little; stir the glaze well (before removal from the packaging)
Press object exhibits grey stripes following the glaze firing	- Residues of grinding stones and/or silicone polisher were not removed before the glaze firing	- After trimming and before further firings, blast the press objects clean with Al2O3 at low pressure (0.5 bar) following by thorough evaporation
In the case of lower anterior teeth or implant crowns for cementing, the stump has broken off during pressing (crown basally closed)	- Press object was sprued incorrectly	- Arrange the sprue so that the investment is loaded axially as far as possible or so that lateral shear forces against the stump mutually cancel one another (see chapter „Spruing and investing“

ceramay®
dentalceramics

Manufacturer:
Ceramay
Luitpoldstrasse 11
89231 Neu-Ulm

CE 0483

Tel.: +49(0)731 - 93807770
Fax: +49(0)731 - 938077717
www.ceramay.de
www.zubler-group.de

Presented by:

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