



**cercon**  
smartceramics

## Cercon<sup>®</sup> ceram press

Product description  
and instructions for  
Cercon<sup>®</sup> ceram press  
– Press-on porcelain –



press & smile<sup>™</sup>

**DeguDent**

*A Dentsply International Company*

# General instructions

Published: September, 2006

Market launch: September, 2006

## Cercon® ceram press

CE 0124

### Indications

- Cercon® ceram press is a press-on porcelain developed specifically and solely for pressing onto zirconia frameworks (Y-TZP) with a CTE of 10.5  $\mu\text{m}/\text{m}\cdot\text{K}$  (25–500°C), preferably made of Cercon® base.
- Cercon® ceram press is indicated for pressing onto anterior and posterior zirconia crowns and bridges as well as inlay bridgework.
- Cercon® ceram press must only be veneered with Cercon® ceram kiss porcelain.
- For dental use only.

### Contraindications

- Solely indicated for the range of indications listed above.
- Cercon® ceram press is contraindicated for cases with bruxism or other parafunctions.
- Cercon® ceram press is also contraindicated for cases with compromised periodontal tissues or clinical crowns of inadequate height or which are severely damaged.

### Warnings for medical products

It is expected that undesired side-effects caused by these medical products will be extremely rare if they are processed and used correctly. However, immune reactions (e.g. allergies) and/or local paraesthesia (e.g. taste irritation or irritations of the mucosa) cannot be ruled out completely. Should you become aware of undesired side-effects – even where doubts exist – please let us know.

Should the patient be hypersensitive to Cercon® ceram press or one of its constituents, either do not use this medical product or only use it under the strict supervision of the doctor/dentist in attendance. Known cross-reactions or interactions of this medical product with other medical products/materials already in the mouth must be taken into account by the doctor/dentist when using this product.

Please provide the attending doctor/dentist with all the above mentioned information if you are using this medical product for fabricating a custom restoration.

- Do not inhale dust from grinding.
- The pastes and paste liquids are hazardous to health if swallowed (R 22).

### Precautions

When using this product, please heed the instructions and safety data sheets.

### Side-effects/Interactions

We know of no risks and/or side-effects concerning Cercon® ceram press.

### Technical data

- CTE: 10.5  $\mu\text{m}/\text{m}\cdot\text{K}$  (25–500°C)
- Dental ceramic, type 2 according to DIN EN ISO 6872

### Transport and storage

- Protect pellets against dampness during storage.
- ☞ Keep dry.

### Please note the following symbols on the product labels:

- REF Product number
- LOT Batch number
- 📅 Use-by date
- ⚠ Read the instructions
- 🚫 Do not re-use

### Liquids for combining

- Opaquer powder: Ducera® Liquid B  
Ducera® Liquid O  
Ducera® Liquid OCL universal  
Ducera® Liquid OL
- Opaquer paste/Liner: Fluid paste opaque
- Shoulder porcelains: Ducera® Liquid Quick
- Dentines/Enamels etc.: Ducera® Liquid SD  
Ducera® Liquid Form
- Stains/Glazes: Ducera® Liquid Stain
- Separating: Ducera® Sep Isolating Fluid

### Furnace

For best results, make sure that the required pressing/firing temperatures and times are observed strictly. If necessary, please adjust the furnace settings.

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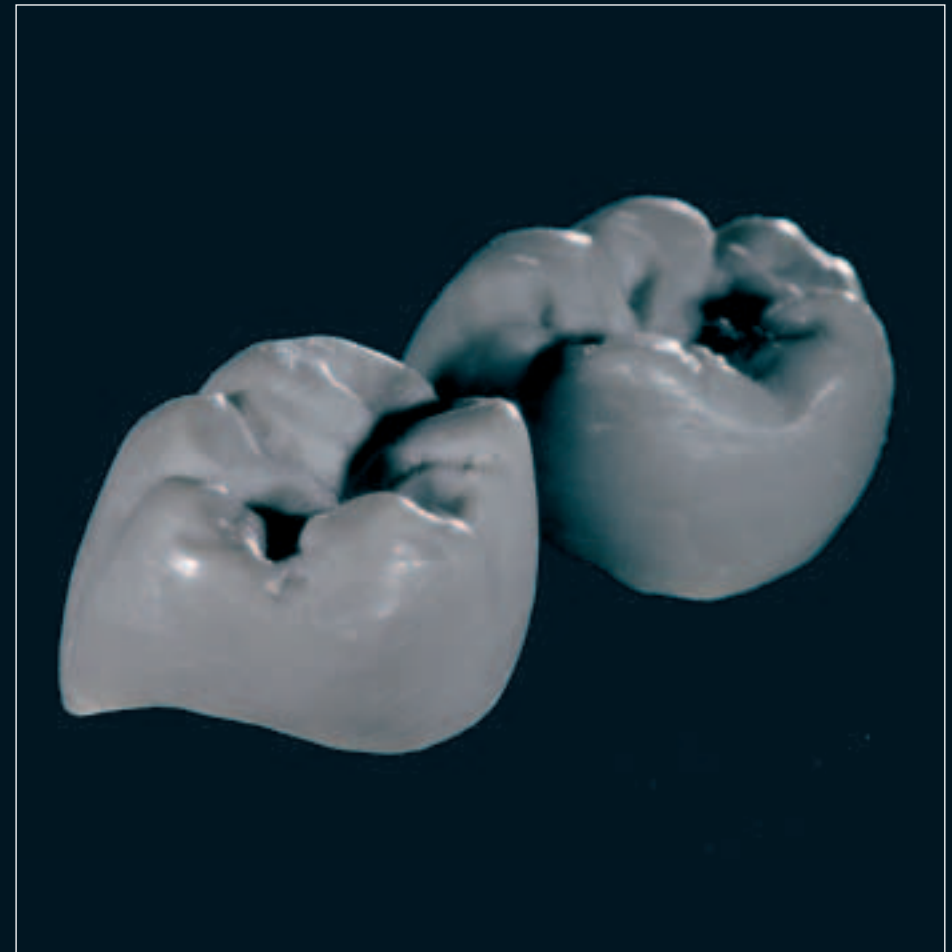
# Objective

When starting in dental technology, an understanding of the use of wax in dental technology accompanies us right from day one.

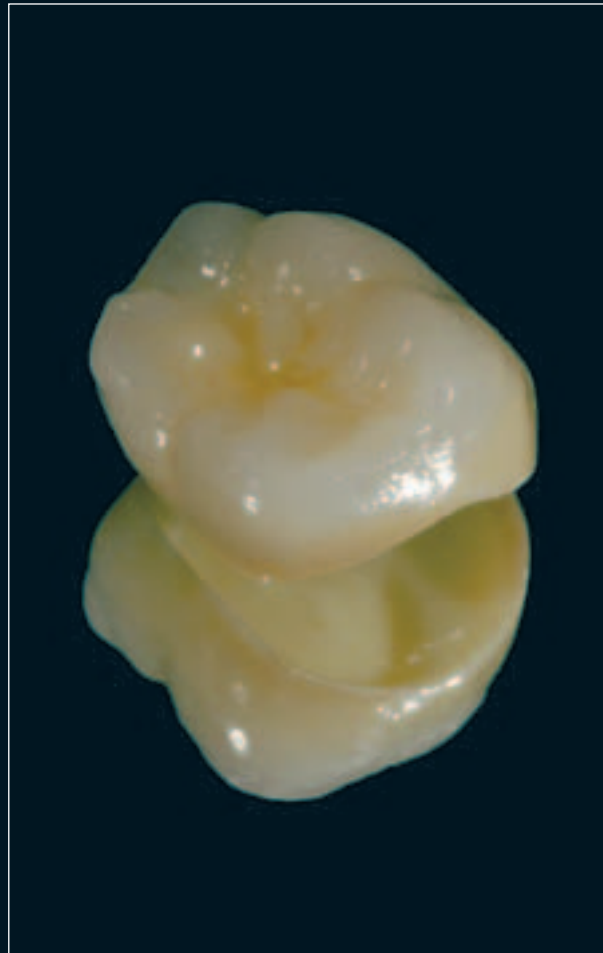
## Much more than just a material!

Cercon® press&smile combines mechanised perfection and customised dental technical manual work with previously unheard of options. This material concept provides you with the necessary flexibility during your everyday work – ranging from efficient to aesthetic applications.

Carsten Fischer



press&smile™ enables you to create a detailed reproduction of your wax pattern for the fascinating world of all-ceramics.



## Cercon® base versus Cercon® base colored

Cercon® ceram press is a special pressable porcelain for pressing onto zirconia frameworks (Y-TZP) with a CTE of  $10.5 \mu\text{m/m}\cdot\text{K}$  (25–500°C) and preferably made of Cercon® base. Cercon® ceram press is then completed using either the press&stain or press&veneer techniques.

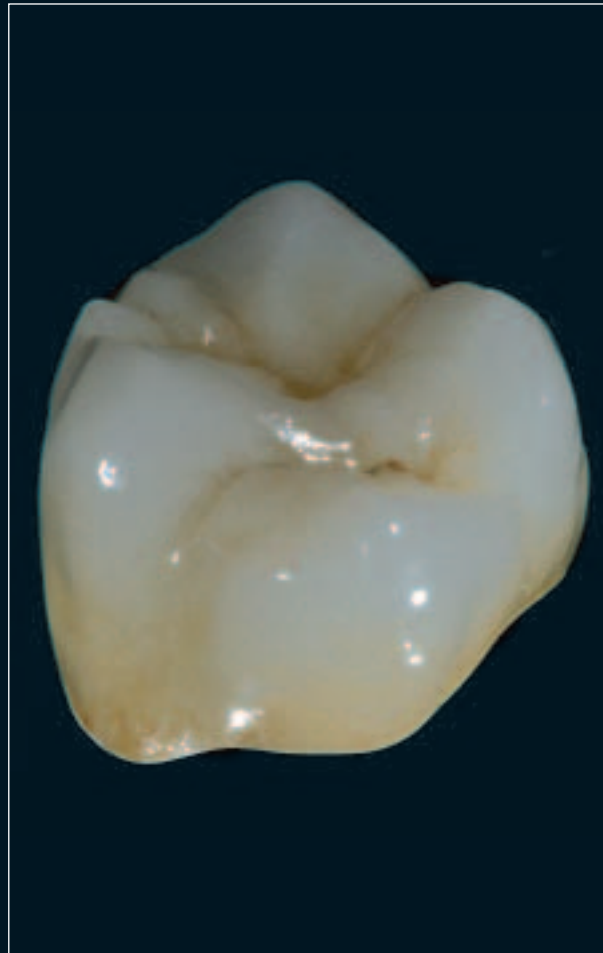
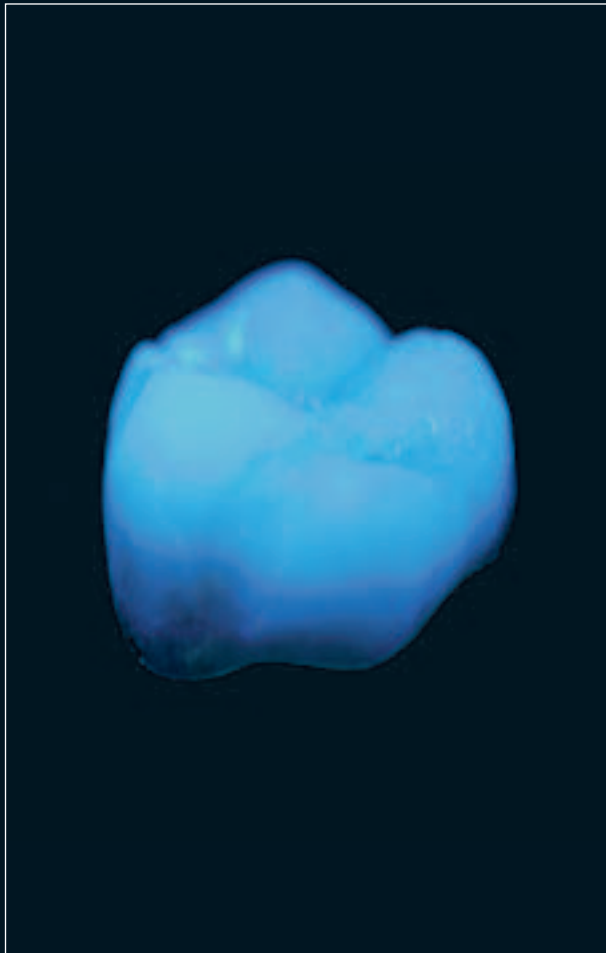
Selecting the correct blank is essential for both techniques. When using the press&smile concept, the press&stain technique requires an ivory framework using Cercon® base colored. When creating light tooth shades with the press&veneer technique, classic, white Cercon® base blanks may be used.

No liner is required when using press&smile pellets. The porcelain can be pressed directly onto the zirconia framework, yet another stage is eliminated from this efficient technique. In case of discoloured preparations or similar indications, the framework may be coated with liner. In such cases, please use the same shade of liner as the basic shade of the Cercon® ceram kiss veneering porcelain. Please refer to the Cercon® ceram kiss instructions for the processing details and furnace settings.



## Pellet selection for Cercon® base colored

Since the framework shade is standardised, the specific pellet is very important for the shade of the restoration. Therefore, the mixture of the pellet has a very decisive influence. It must meet the requirements for light-optical phenomena and provide the user with the multiplicity of natural tooth shades.

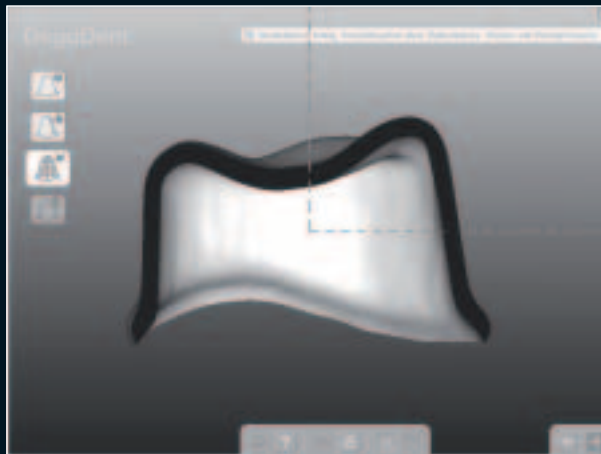
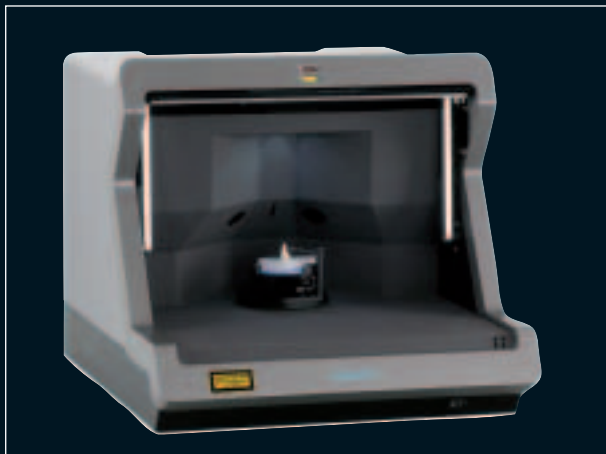
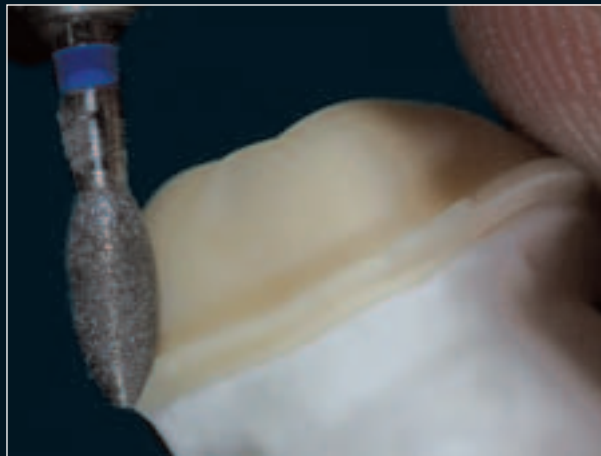
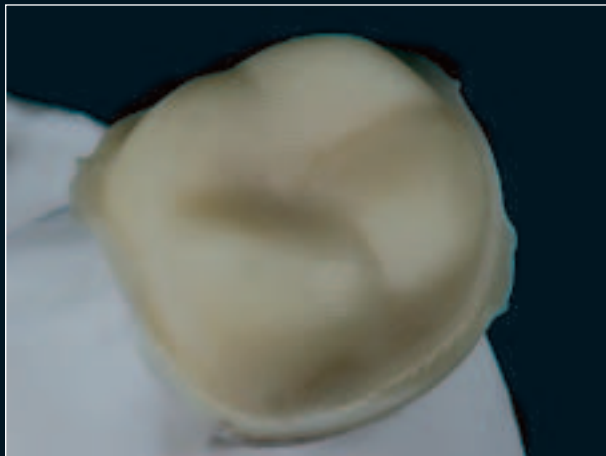




# Coping fabrication

The coping is either fabricated/designed after scanning the die with a Cercon® eye CAD module or classically via a wax pattern which is then scanned and milled in a Cercon® brain milling unit.

Any adjustments and thinning of the cervical margin are carried out with a water-cooled turbine to prevent localised overheating. The zirconia coping must be at least 0.4 mm thick. Principally, all copings must be designed with the anatomical form of the tooth but with smaller overall dimensions – this ensures that the pressable and veneering porcelains are supported uniformly.





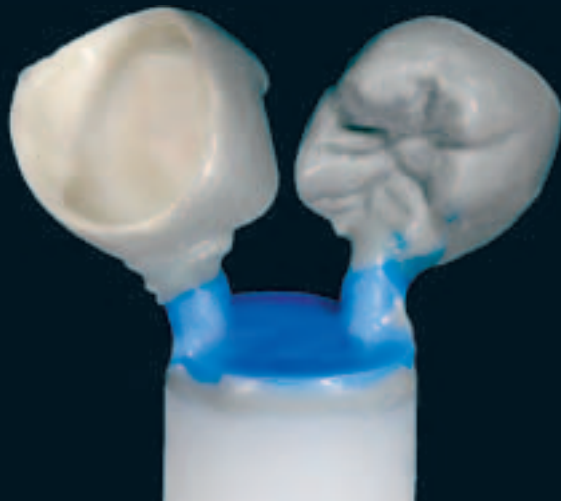
# Wax-up and sprue attaching

## Wax-up:

A fully anatomical or cut-back wax pattern is applied to the Cercon® base coping. You may use your all-ceramic waxes for this as usual. The sides of the wax pattern must be at least 0.4 mm thick.

## Sprue attaching:

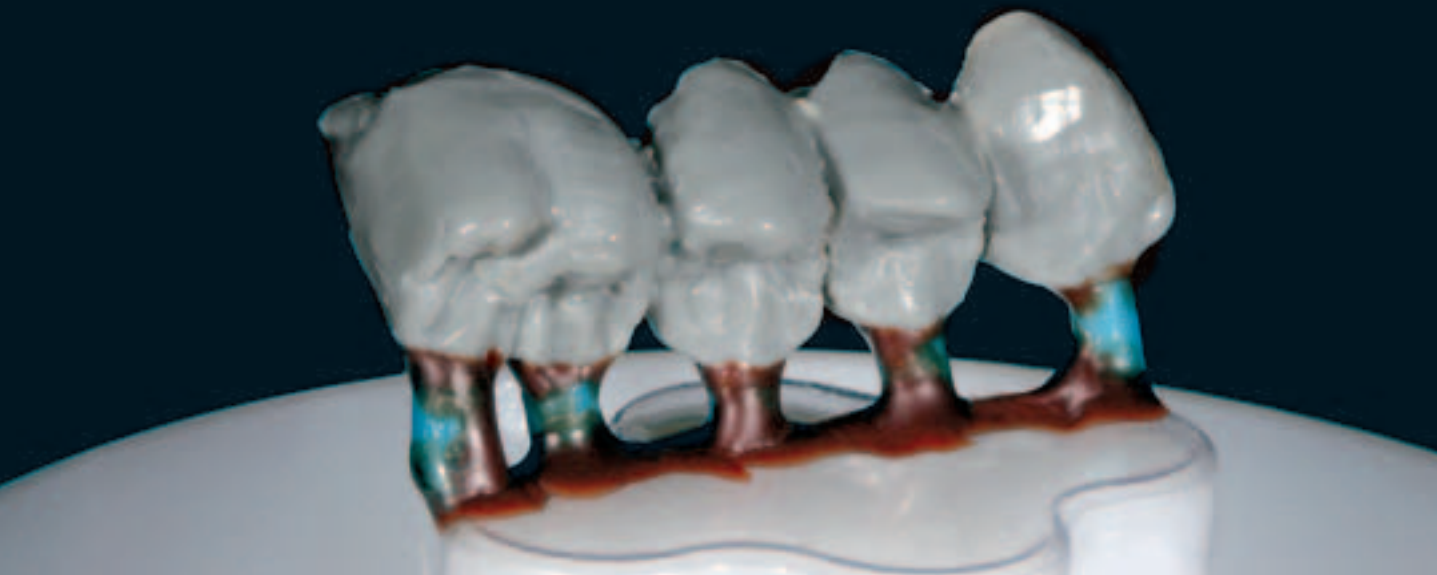
Normal 3.5 mm diameter wax sprues may be attached to the pattern. All junctures must be smoothed. The material must always flow from thick to thin areas. The sprue must be attached to the thickest section of the wax pattern and the joint smoothed. Never apply wetting agent of any kind to the wax patterns. A very thin coating of Vaseline should be smeared onto the casting ring. Allow to harden without exerting pressure. Speed investment materials are an advantage but their instructions must be strictly adhered to.



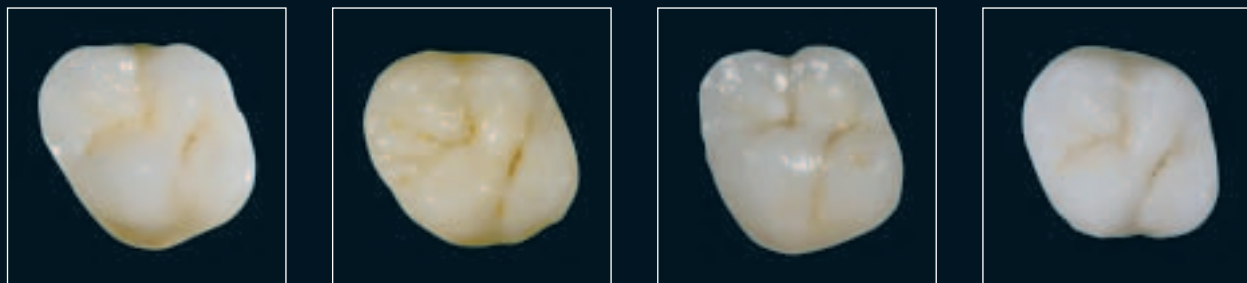
# Cercon® PressMaster

The Cercon® PressMaster enables large volume patterns to be injected and different shades of pellet to be used for the same pressing cycle.

The pattern is placed on the foil. The wax must be at least 0.4 mm thick and the weight of the wax must not exceed 6.4g (17.6g pellet). The pellets may be joined with Fixpaste to simplify placing them in the hot ring. The segment shape reduces the devesting times and enables the different shades of pellet to be allotted easily.



# Pellet selection



The full press&smile assortment was kept to a minimum on purpose.  
Most natural tooth shades can be reproduced with only 4 enamel and 2 dentine shades.

**White (W)** Light shades, medium opacity, B1, A1, bleaching shades or shades with light incisal areas and minimal translucency.

**Universal (U)** Highly translucent, for universal use. Particularly with C- and D-shades.

**Red (R)** A2–A4

**Yellow (Y)** B2–B4

**Dentin High Value (HV)** Dentine base material for light base tones, high opacity (press&veneer technique using Cercon® ceram kiss).

**Dentin Low Value (LV)** Dentine base material for dark base tones, high opacity (press&veneer technique using Cercon® ceram kiss).

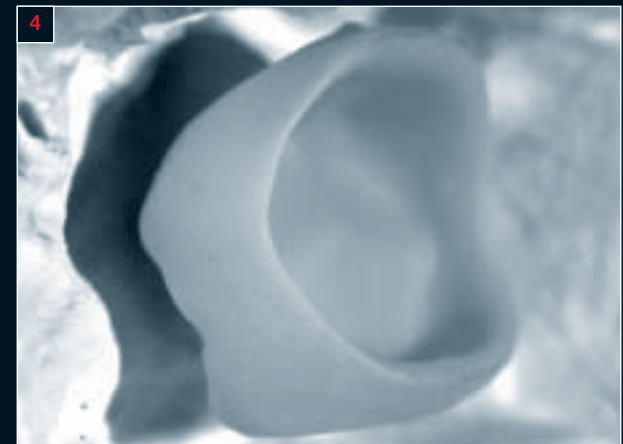


# Pressing

We recommend the following preparatory measures:

- Run a full pressing cycle to preheat the furnace.
- Use disposable investment plungers.
- Do not preheat the investment plungers or pellets.
- Several pellets may be fixed together with Fixpaste (DeguDent) to simplify placing them in the insert.
- If speed investment is used, the instructions must be strictly adhered to.  
(Preheating temperature of Cergo® fit speed – 850°C)

1–4: Devesting



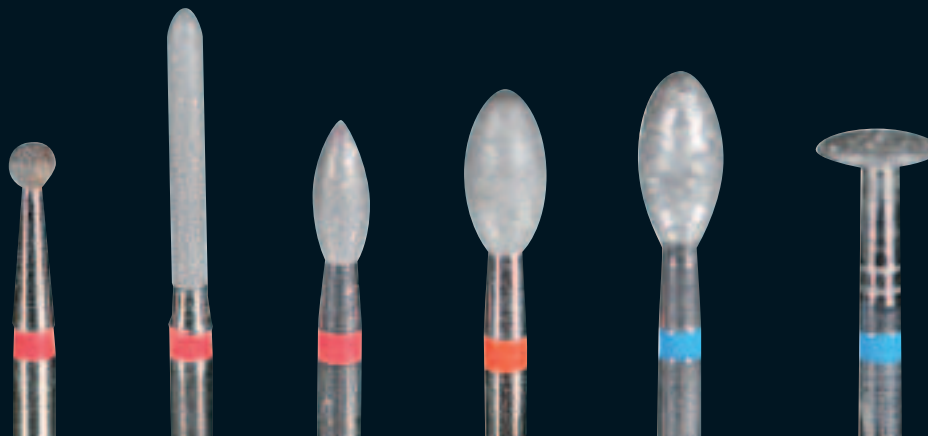
# Trimming

Cercon® ceram press all-ceramic copings are trimmed with a water-cooled turbine and suitable rotary instruments, which prevent damage to the material. A micromotor may only be used for trimming the surfaces and minimal adjustments to the occlusion.

Trimming after glazing – Please note that if Cercon® ceram kiss veneering porcelain has to be adjusted after firing the glaze (grinding in the occlusion/contact areas), the entire restoration must be glazed again and refired.



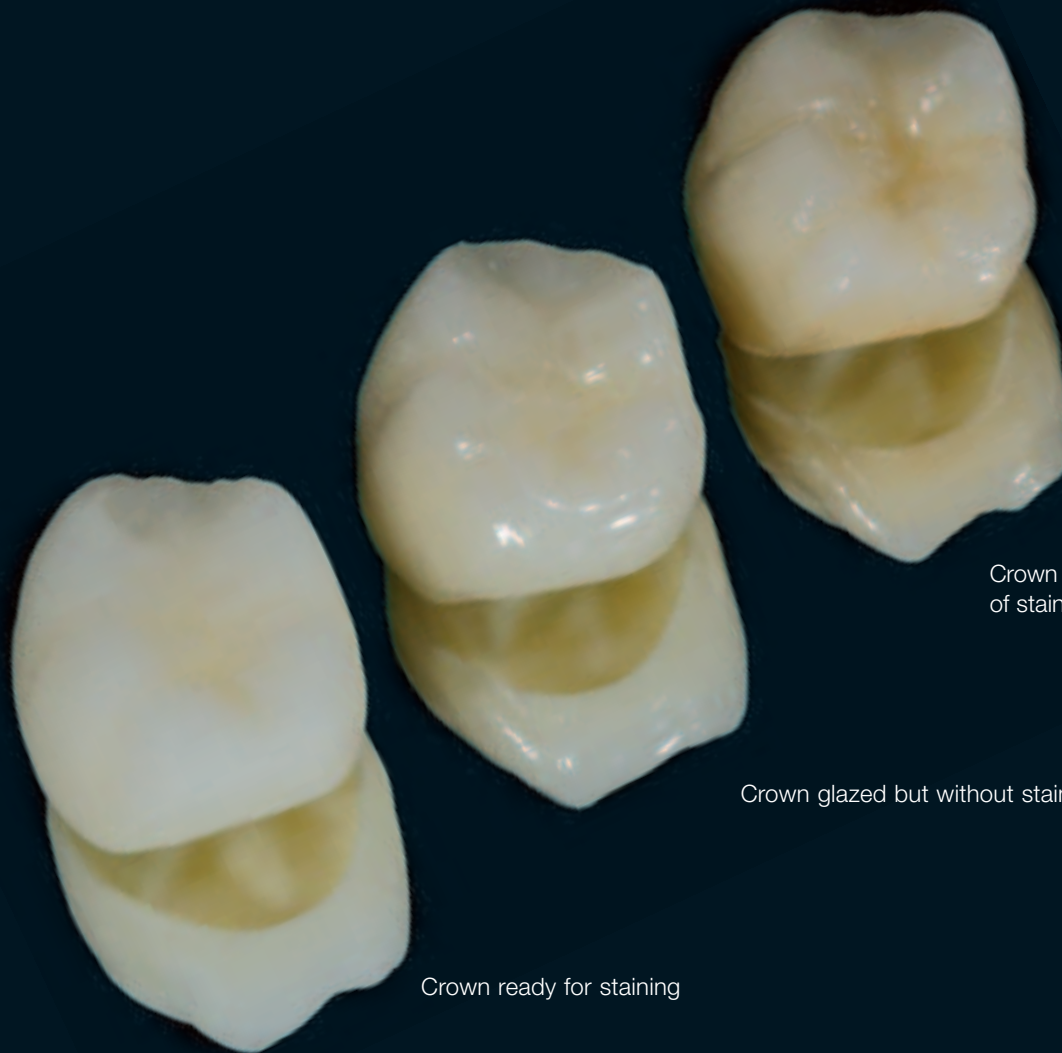
If a cemented restoration is adjusted intraorally, it is essential to polish those areas with a rubber polisher suitable for use on porcelain.



# Shading



If required, the surface of the crown can be sandblasted with 50 µm aluminium oxide to enhance shade application. Localised areas can be polished with a rubber polisher. press&smile absorbs the stain like a sponge. Amazing results can be achieved with just a minimal amount of Cercon® body stains.



Crown after firing the first layer of stain and glazing

Crown glazed but without stain

Crown ready for staining



# Shade combination chart

Shade combination chart – press&stain

Body stain	Dentine shade	Pellet	Number of orders
Body 3	A1	U(W)	1x
	A2	R	1x
	A3	R	2x
	A3,5	R	3x
	A4	R	4x
Body 5	B1	U(W)	1 x
	B2	U	1–2x
	B3	U(Y)	2x
	B4	Y	4x
Body 6	C1	U	1x
Body 7	C2	U	1x
	C3	U	2x
	C4	U	3x
Body 8	D2	U	1x
	D3	U	2x
Body 9	D4	U	2x





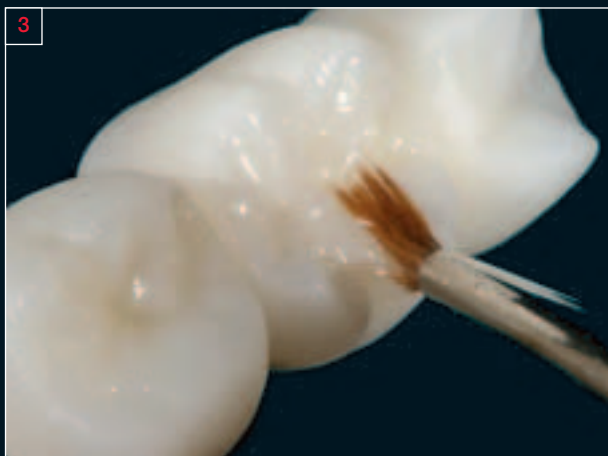
## press & stain

The framework is provided with the anatomical shape of a tooth, but with smaller overall dimensions. The junctures must be smooth and rounded. The framework should be sandblasted with 110–125  $\mu\text{m}$  aluminium oxide at a pressure of 3–3.5 bars before being steam-cleaned. The surface must be free of grease and clean.

Prefabricated occlusal patterns are positioned according to the functional criteria and the functional details added. The pattern is then waxed-up fully anatomical.



- 1: This press&smile bridge has been prepared for staining and steam-cleaned.
- 2/3: The stain fixation firing simply fixes the stain which is matt after firing.  
The shade can be checked by wetting with Stain Liquid to make it visible.
- 4/5: The glaze firing completes the case. Adjustments are easily carried out with Final kiss.



## press & veneer

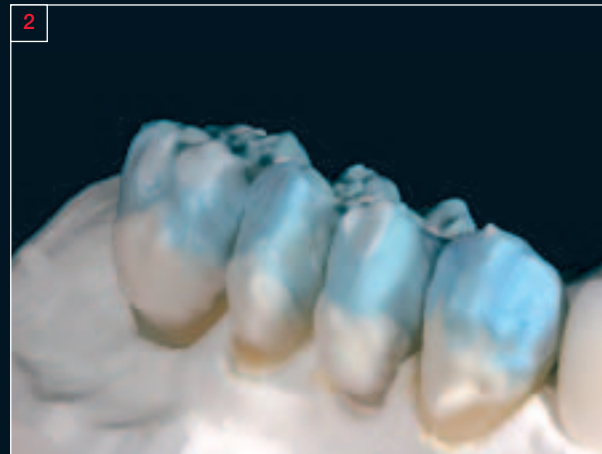
All pellets in the assortment can be coated with Cercon® ceram kiss. First, produce a full wax-up (Fig. 2) on the Cercon® base/Cercon® base colored framework (Fig. 1).



## press & veneer

A silicone overcast can be used to reduce the incisal and occlusal areas in a controlled manner (Fig. 1). When using the press&veneer technique, shading or custom adjustments can be achieved with two methods. Using the HV and LV pellets, the body shade can be modified with body stains as in the press&stain technique. When using this method, only the incisal region is cut back. Finally, the stains are fired to fix them in place and then coated with incisal and occlusal porcelain.

Alternatively, the porcelain can be cut back to the body region of the crown to allow the shade to be customised with dentine and enamel porcelains (Fig 2). Using this technique, highly aesthetic all-ceramic restorations can be created easily and quickly (Figs. 3&4). In addition, “V”-shade porcelains can be pressed over the zirconia framework. In this case, only a minimum amount has to be cut back and rebuilt with enamel and opal porcelains.

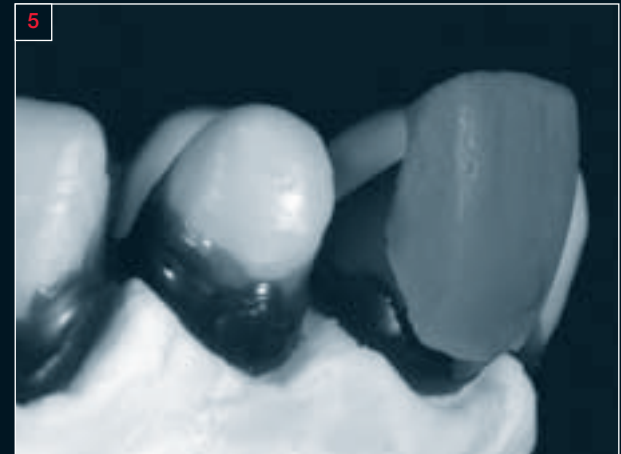
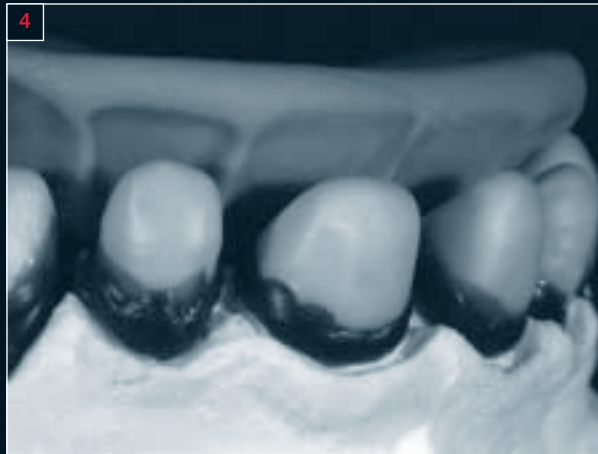


# press & veneer

Aesthetically sophisticated prosthetic restorations can be fabricated reliably, accurately and efficiently:

1: Initial status

2-5: Wax-up





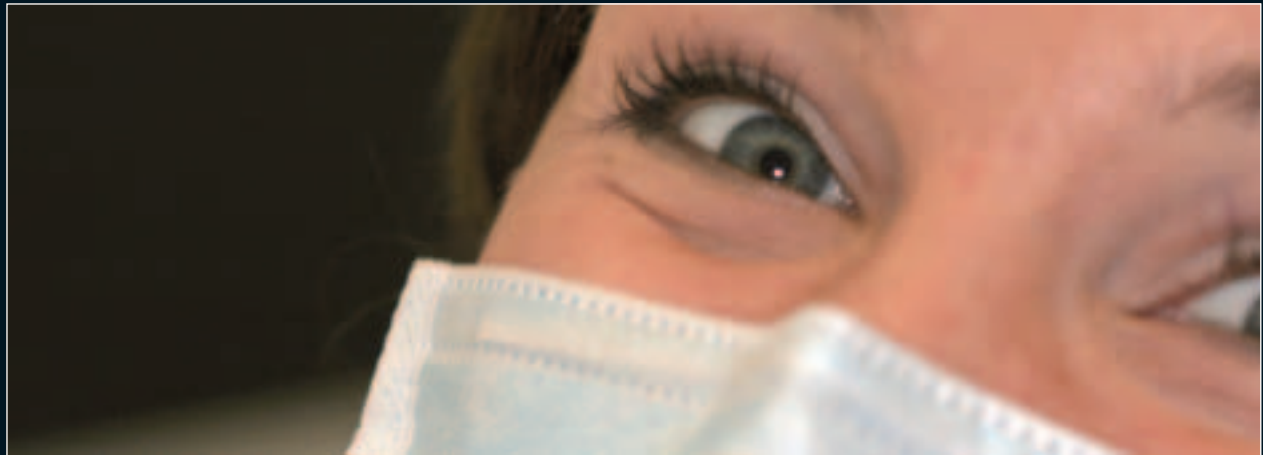
- 1: Fully anatomical restoration, pressed to reproduce the wax-up.
- 2: The visible area is reduced in a controlled manner with a water-cooled turbine, as when preparing for a laminate veneer. The shade can be applied with Cercon® ceram kiss body stains or dentine porcelains. The palatal and interdental zones remain untouched and only need glazing.
- 3/4/5: Advanced aesthetics can be achieved in the visible region with Cercon® ceram kiss.



# Clinical information

Predictable prosthetics can only be achieved with a clearly defined, clinical treatment concept.

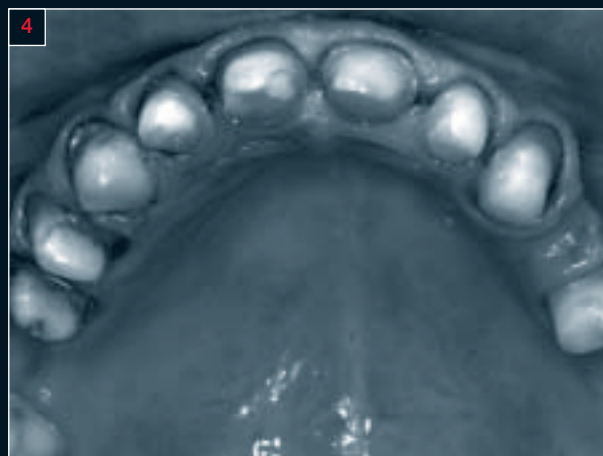
- 1: Conventional luting is feasible with phosphate cement or glass ionomer cement. Resin-bonding is also possible.
- 2: Excess cement must be cleaned off carefully.
- 3: Temporary cementation is possible, but not without risk.





Cementation: Cercon® ceram press restorations must be luted as described in the guidelines for Cercon® smart ceramics technology.

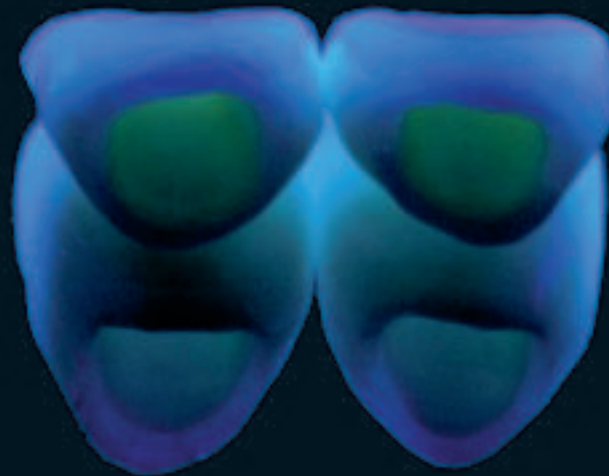
- 1: Initial status.
- 2: The temporary phase is over.
- 3: A "prep guide", produced from the wax-up, is used for guidance during preparation.
- 4: All clinically risky areas have been stabilised and the gingiva is sufficiently mature.
- 5: The double cord technique has been employed in readiness for taking an optimum impression of the preparations.



# Porcelain shoulders

Creating a porcelain shoulder always weakens the framework. The following hints must always be followed when fabricating a porcelain shoulder:

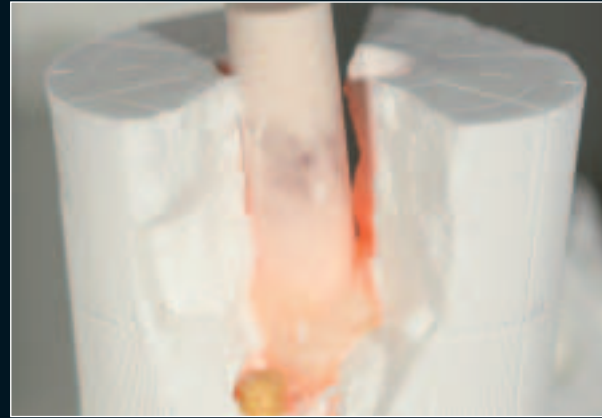
- 1/2: Prepare an adequate shoulder or deep chamfer.
  - 2: Resin-bonding is a must.
  - 3: Trim the cervical areas of the copings minimally (0.5–0.8 mm).
  - 4: Only the visible area is reduced.
- Do not cement temporarily



# Troubleshooting



- It is essential to support the side of the mould fully (avoids defective pressing).
- Ensure that the supporting surface is clean and smooth.



- Excessive pressure.
- Investment processed incorrectly.
- Incorrect setting time.
- The plunger wedged.



- Incorrect temperature cycle.
- Coping not fixed firmly in investment.
- Mould cooled excessively before pressing.



- Mould too cold.
- Sprues attached incorrectly.
- Inadequate pressing time.
- Inadequate pellet material.
- Inadequate pressure.



- The coping was thinner than the minimum thickness.
- Trimmed before cooling.
- Excessive pressure.
- Already fractured before firing.
- Incorrect investment.



- Neither the pellets nor the single-use plunger should be preheated.



## press & esthetics

Views of finished Cercon® ceram press restorations. Teeth 15–17: press&stain. Teeth 14, 13–23, 24–26: press&veneer.

1: Initial status.

2: Cercon® base colored copings.

3/4: Show the finished restoration on the model and in situ.

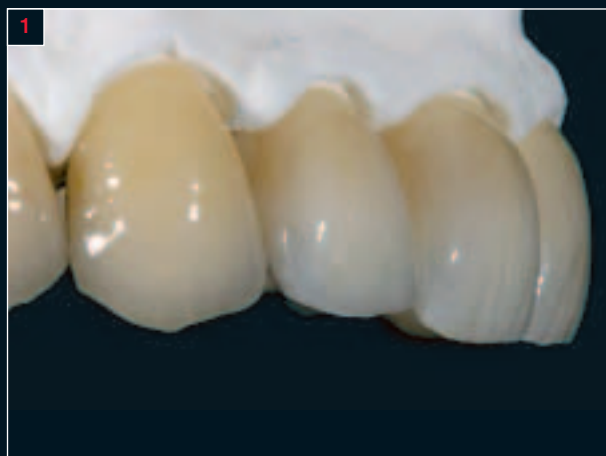




This product manual was produced in cooperation with Carsten Fischer. Special thanks go to Dr. Rafaela Jenatschke/Frankfurt for the clinical support.



1/2: Show the finished restoration on the model and in situ



# Tips & tricks

## Preparation/Wax-up

- Only waxes and materials suitable for use with pressing systems may be used.
- Do not apply wetting agents.
- Contaminated wax instruments and pattern resins are not suitable.
- The framework must be absolutely clean and free of grease.
- It should be sandblasted with 110–120 µm grit at 3–3.5 bars pressure.
- The framework must be steam-cleaned.



## Trimming/Staining

- The coping should be shaped like a tooth, but with reduced overall dimensions, to provide the required dependability to withstand the shearing forces experienced in the mouth.
- Trimming is carried out with a Cercon® turbine.
- Only special diamond burs may be used.
- Porcelain shoulders must only be of minimal dimensions and must be resin-bonded.
- The framework must be at least 0.5–0.6 mm thick.



## Veneering

- All pellets can be veneered with Cercon® ceram kiss.
- The surface must be clean.
- A stain fixation firing may be run to create the shade.
- The surface of the framework must shine after firing to ensure that the pellet and porcelain bond properly.
- The Cercon® ceram kiss instructions must be adhered to.



# Pressing and firing settings

Pressing settings in a Cergo® Press Furnace:

	Initial temp.	Final temp.	Heat-rate	Hold-time	Press time	Pressure	Vacuum
100 g ring	700	940	60	20	10	5	cont
200 g ring	700	940	60	20	10	5	cont
Cercon® Press Master	700	940	60	40	20	5	cont

Pressing settings in a Multimat® Touch&Press Furnace:

	Initial temp.	Final temp.	Heat-rate	Hold-time	Press time	Pressure	Vacuum
100 g ring	700	940	60	20	10	2,7	50 hPa
200 g ring	700	940	60	20	10	2,7	50 hPa
Cercon® Press Master	700	940	60	40	20	3,0	50 hPa

Firing settings in Cergo® Press and Multimat Touch&Press Furnaces:

	Predrying °C	Predrying min	Closing min	Preheating °C	Preheating min	Heat-rate °C/min	Vacuum	Vacuum On °C	Vacuum Off °C	Final temp. °C	Hold V min	Hold min
Staining technique												
Stain fixation firing*	135	2:00	2:00	450	0:00	55	Cont	450	700	700	–	1:00
Glaze firing*	135	2:00	2:00	450	0:00	55	Off	–	–	800	–	1:00
Veneering technique												
Dentine/Enamel*	135	2:00	3:00	450	3:00	55	Cont	450	830	830	–	1:30
Glaze firing*	135	0:00	3:00	450	2:00	55	Off	–	–	800	–	1:00
Add-on firing*	135	2:00	3:00	450	3:00	55	Cont	450	680	680	–	1:00

\* When firing bridgework with more than 5 units, the final temperature should be raised 5°C and for bridges with more than 10 units it should be raised 10°C.

Shade combination table for press&smile pellets (stain and veneer techniques):

	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Blank (t)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
press&stain (2)	U(W)	R	R	R	R	U(W)	U	U(Y)	Y	U	U	U	U	U	U	U
Body stain (3)	3	3	3	3	3	5	5	5	5	6	7	7	7	8	8	9
Number orders	1	1	2	3	4	1	1–2	2	4	1	1	2	3	1	2	2
press&veneer (2)*	HV	LV	LV	LV	LV	HV	HV	LV	HV	HV	LV	LV	LV	HV	LV	LV
Body stain (3)	3	–	3	3	3	–	5	5	5	6	7	7	7	8	8	9
Number orders	1	–	1	2	4	–	1	2	4	1	1	2	3	1	2	2

(1) Blank: press&smile pellets must only be pressed onto Cercon® base colored (C) blanks.

(2) press&smile pellets (PS): W = White, U = Universal, R = Red, Y = Yellow, HV = High Value, LV = Low Value

(3) These values are guidelines only. Body stains can always be used as required.

\* Further special shade effects can be created with body stains or porcelains.

Shade combination table for press&smile V classic (veneer technique):

	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Blank*	B	B/C	C	C	C	B	B/C	C	C	B	C	C	C	C	C	C
Veneering technique** (Dentine blank)	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4

\* Blank: B = Cercon® base, C = Cercon® base colored

\*\* Further special shade effects can be created with body stains or porcelains.

These values are only approximate and are intended as guidelines only. The fired restorations may vary. The firing results depend on the performance of the particular furnace, its manufacturer and age. Therefore, the settings must be adjusted for every firing. We recommend running a test firing to check the furnace. Although we have written and checked all details carefully, we cannot guarantee them.





For further information or to place an order, please visit:

[www.degudent.com](http://www.degudent.com)

[www.cercon-smart-ceramics.com](http://www.cercon-smart-ceramics.com)



DeguDent GmbH

P. O. Box 13 64 · 63403 Hanau

GERMANY

[www.degudent.com](http://www.degudent.com)

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