



# User instructions

## Carrara Volumia



Dental ceramic system for over-pressing metal sub-structures for crowns and bridges.

Made in Holland

Rx only  
ISO 9693 + ISO 6872

Elephant Dental B.V.  
Verlengde Lageweg 10  
1628 PM Hoorn, The Netherlands  
Tel: +31 229 25 90 00  
Fax: +31 229 25 90 99  
E-mail: info@elephant.nl  
www.elephant-dental.com



Elephant Hoom Holland

### 1. General information

#### 1.1 Product description

*Carrara Volumia* is a new system component in the *Carrara Original System* that offers an interesting and economical alternative to the dental ceramic layering technique. The *Carrara Volumia* technique is designed to press ceramic onto metal copings using the 'full contour technique'. The combination of the colour-related *Liner* and the press pellets which transparency harmonises between the dentin and the enamel enables the technician to make a reliable and simple reconstruction of the 16 classical 'V' colours. *Carrara Volumia* can also be used in the Cutback-technique.

#### 1.2 Indication

Dental-ceramic for over-pressing metal sub-structures for crowns and bridges made in:

- *Carrara Pdf*
- *Cera E*
- *Vi-Comp LFC*

Maximum wax weight (weight without sub-structure) of 1.4 g with a minimum strength of 0.8 mm (wax-up).

*Carrara Pdf*: The restoration should never exceed 4 units, with a maximum of one pontic.

#### 1.3 Contraindication

The over-pressing in combination with:

- Zirconium oxide sub-structures
  - Aluminium oxide sub-structures
  - Glass-infiltrated aluminium oxide substructures
  - All other alloys not listed under 'indication'
- Bruxism and other parafunctions

If patients are known to be allergic to one of the components, the material should not be applied.

#### 1.4 Reuse

*Carrara Volumia* cannot be reused.

#### 1.5 Precautions

Consult the Material Safety Data Sheet (MSDS) for more information.

### 2. Preparation

#### 2.1 Preparation

To ensure a successful restoration using the *Carrara Volumia* system, please follow the general guidelines for preparation and layering thicknesses, as also described for full-ceramic restorations.

Preparation form	Circular preparation	Angle	Incisal/occlusal
Shoulder*	1.5 mm (-/- 0.5 mm)	110° - 130°	1.5 mm - 2.0 mm
Chamfer	1mm (-/- 0.5 mm)	110° - 130°	1.5 mm - 2.0 mm
Knife-edge	-	110° - 130°	1.5 mm - 2.0 mm

\* In occasion of pressing a ceramic shoulder, the metal edge can be reduced with maximal 1 mm.

### 3. Processing

#### 3.1 Preparation of metal framework

- The anatomical shape of the restoration should be considered when designing the sub-structure, as is the case with the standard dental ceramic layering technique.
- To stabilise the metal sub-structure in the muffle after burnout, you **must** apply a retention bar (T-shape lingual, palatal).
- Instead of oxidising the alloys, a liner wash-bake **must be** used for all three alloys.
- Apply the *Carrara Volumia Liner* in a thin coat and fire according the firing schedule below (see 3.2).
- Afterwards apply a masking layer of *Carrara Volumia Liner* and fire according the firing schedule below (see 3.3).
- If required, a second coat can be applied again afterwards.

It is also possible to use hollow pontics. It is recommended to fill the hollow pontic with *Liner* first, before the final ceramic layers are applied.

#### 3.2 Wash-bake chart (only applicable for *Carrara Volumia Liner*)

Preheat	Start temp.	Rate of heat increase	Final temp.	Vac.	Hold time
4 min.	400°C	60°C/min.	915°C	1 min.	2 min.*

\* 1 minute with vacuum, 1 minute without vacuum.

#### 3.3 Liner (paste opaque) firing chart

Preheat	Start temp.	Rate of heat increase	Final temp.	Vac.	Hold time
8 min.	400°C	60°C/min.	915°C	1 min.	2 min.*

\* 1 minute with vacuum, 1 minute without vacuum.

#### 4.1 Wax-up

- Before starting the wax-up, the restoration has to be weighed (incl. *Liner*) to determine the exact weight of the wax.
- Prepare the required wax model 'full contour' by using a fully residue-free combustible modelling-wax suitable for press-ceramic systems.
- Keep in mind that the minimum thickness of the wax model should be no less than 0.8 mm.
- With the *Carrara Volumia* technique, shape and occlusion of the wax-up can be perfectly modelled and checked in an articulator.

#### 4.2 Layer thickness

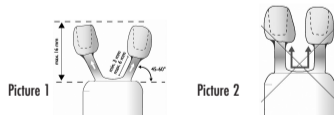
Layer thickness sub-structure	Crown / 3 unit bridge *
Layer thickness sub-structure	min. 0.4 mm after finishing

\* To assure the colour aesthetic please keep to equally divided layer thickness among the bridge-units.

#### 4.3 Sprueing

It is important to keep the following guidelines in mind when sprueing the press-channels:

- When sprueing with only one press-channel, the diameter of the wax wire should be at least 3.5 mm Ø using a fully residue-free combustible wax suitable for press-ceramic systems.
- Do not exceed the length of max. 6 mm.
- Large molars: attach a press channel at every cusp (Ø 3 mm) to distribute the pressure evenly during pressing.
- Preserve the occlusal contacts (UJ buccal, LJ lingual).
- The muffle former must be kept completely clean and free of wax or other residues.
- Check the correct position of the object (see picture 1&2).
- Avoid sharp edges (see picture 1 & 2).
- Ensure that all transitions blend (see picture 1&2).
- Determine the final wax weight, including the press channel(s).
- The sprueing angle from the wax object to the muffle *Former* must be 45° (see picture 1&2).



#### 4.4 Wax weight chart including press channel

	1 pellet	2 pellets
Wax weight	up to 0.7 g	0.7 g – 1.4 g
Ring-size	100 g	200 g
Number of objects	Single crowns	Bridges with max. 1 pontic or multiple crowns*

\* Do not exceed the max. wax-weight.

#### 5.1 Investing

For investing, use *Carrara Universal Dustless Investment* (art. no. 232978050) and follow the user instructions. (Recommended liquid-concentration: 50% *Carrara Universal DL Liquid* – 50% distilled water)

#### 5.2 Burnout program (preheating)\*

Start temp.	Rate of heat increase	Final temp.	Hold time
600°C	10°C/min.	900°C	30 min.

- Please follow the manufacturer's instructions for your specific furnace.
- Minimal burnout time for the *Carrara Volumia* system: 30 minutes.
- Do **not** exceed the maximum burnout time of 2 hours!

#### \* Note:

- For each additional muffle, the minimal hold-time should be increased by 10 minutes.
- The maximum hold-time should **not** exceed 2 hours!

#### 6.1 Pressing

- Take the muffle out of the furnace immediately after preheating.
- Insert the required quantity of press pellets (see chart 4.4) and the *Carrara Press Plunger* (art. no. 004100580) with the smooth side facing down and place the muffle in the furnace.

#### Colour-schedule for Full-Contour only

Indication	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Liner	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Transpa Dentin Pellet	TD1	TD1	TD2	TD2	TD3	TD4	TD4	TD5	TD5	TD1	TD2	TD2	TD3	TD6	TD6	TD6
Carrara Shade point	1	2	2	2	2	4	5	4	4	5	6	7	7	3	8	9

#### Note:

- Please be aware that after inserting the first press pellet, it is advised to start by positioning the *Carrara Press Plunger* to ensure that the press pellet is correctly inserted.
- Then insert the second press pellet and secure it with the *Carrara Press Plunger*, as before.

#### 6.2 Pressing parameters *StratoPress*

Start temp.	Rate of heat increase	Final temp.	Hold Time	Press time	Vac. Start	Vac. level	Vac. level	Pressure
700°C	60°C/min.	940°C	20 min.	10 min.	700°C	101% *	940°C	5 bar

\* Continuous maximum vacuum

#### After pressing:

- Take the muffle out of the furnace and let it cool to room temperature.
- Do **not** force the cooling process (air pressure)!
- After cooldown, divest immediately.

#### Note:

Press parameters for other furnace manufacturers see 11.

#### 7.1 Divesting

- Mark the height of the cylinder on the outside of the muffle with the help of another press plunger.
- Make an incision at the marked height using a separating disk.
- Now you can safely separate the ceramic restoration from the plunger.

#### 7.2 Sandblast

- Divest the objects by sandblasting with 50 µm glass beads (s.a. *Elephant Bright Blast 50*. Art. no. 255052310) at a max. pressure of 1.5 bar.

#### 8.1 Finishing

- Carefully cut off the press channels with a diamond disc.
- To avoid local overheating of the ceramic, make sure that neither the working pressure nor the rotational speed (max. 8,000 rpm) of the disc is too high.
- The final trimming and shaping of the ceramic restoration can be done using sharp and fine-grained diamond cutters (max. 15,000 rpm).
- The entire surface of the restoration **must** be reworked.

#### 8.2 Glaze firing

- Clean the restoration thoroughly with a steam cleaner before you start with the glaze firing.
- Use the *Carrara Shade paints* (art. no. 435003401 - ... 409) to improve the natural appearance of the restoration and to copy other anomalies. With these 9 shades, it is also possible to optimise the character of the 16 V colours. This can also be done using the *Carrara Paint* system (art. no. 435095070) or the *Classic Stains* (art. no. 495295010).
- For glazing the ceramic surface; mix *Carrara & Antagon Glaze* (art. no. 484228071) with *Paint Liquid* to a creamy substance. Apply the mixture and fire according the glaze firing program listed below.

#### 8.3 Shade paint & Glaze firing program for *StratoPlus / StratoPress*

Dry	Start temp.	Vacuum Start	Rate of heat increase	Final temp.	Vacuum Off	Hold time
4 min.	450°C	450°C	60°C/min.	830°C	830°C	1-2 min. (without Vac.)

Glaze firing programs from other furnace manufacturers can be found in the extensive *Carrara Interaction* manual.

#### Note:

- In combination with *Cera E*, cool down each firing cycle for 5 minutes.
- *Carrara Pdf* & *Vi-Comp LFC* do not require any cooling.

#### 9. "Cutback-technique"

- If the application and firing of incisors (and/or other effect-materials) is desired, the required space can be provided if the dentin-core is shaped and pressed in an anatomical shape instead of pressing a "full contour" crown.
- In the case of the part-anatomical wax-up (dentin shape), make sure that the wax-up has a minimal thickness of 0.8 mm and the wax weight does not exceed 1.4 g.
- All further procedures correspond to those in the user instructions for the full contour technique and the layering technique in the *Carrara Interaction* manual.
- The part-anatomical pressed restoration can be perfectly fired and finished using *Carrara Interaction*.

#### Tip:

With the application of large ceramic volumes it is advised to first apply a thin layer of *Antagon & Carrara (Spray) Glaze* on the *Carrara Volumia* sub-structure. (Use distilled water in combination with Glaze powder.) The adding ceramic materials can be applied immediately on this glaze-"wash-layer" and then fired according to the *Carrara Interaction* dentin firing program.

#### Colour-schedule for Cutback-technique only

Indication	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Liner	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Pellet	TD1	A2	A3	A3,5	A4	TD4	B2	B3	B4	TD2	TD5	TD3	C4	TD6	D3	D4
Action-i dentin	1A2			3A4			1B2		3B4	1C2		3C4		1A2	1B2	1C2
X-tra incisors	Red - Blue - Orange - Grey - Clear															
	Bright - Medium - Dark															
Incisal	58	58	59	59	60	57	59	59	59	60	59	59	60	60	59	59

#### 10. "Correction firing"

- *Carrara Interaction Correction* (art. no. 484435081) can be used for correcting firing.
- The firing instructions can be found in the *Carrara Interaction* manual.
- It is also possible to use *Carrara Interaction Margin Correction* (art. no. 482125018 - ... 020) for margin corrections.

#### 11. Press programs:

##### EP 500 (Ivodar)

Start temp. (B)	Rate of heat increase (TI)	Final temp. (T)	N	Hold time (H)	Vac. start (V1)	Vac. (V2)	Pressure
700°C	60°C/min.	940°C	-	20 min.	500°C	940°C	5 bar

##### EP 600 (Ivodar)

Start temp. (B)	Rate of heat increase (TI)	Vac.	Final temp. (T)	Hold time (H)	(E)
700°C	60°C/min.	101%	940°C	20 min.	300µm/min.

##### Multimat Touch & Press (Dentsply)

Start temp.	Vacuum Level	Rate of heat increase	Press temp.	Hold time	Press Time	Pressure
700°C	50 HPa	60°C/min.	940°C	20 min.	10 min.	2.7 bar

##### Ceram Press Qex (Dentsply)

Start temp.	Rate of heat increase	Final temp.	Hold time	Press time	Vac. Start	Vac.	Vac. Level	Pressure
700°C	60°C/min.	940°C	20 min.	10 min.	700°C	940°C	Cont.*	5 bar

\* Continuous maximum vacuum

##### Cergo Press (DequDent)

Start temp.	Rate of heat increase	Final temp.	Hold time	Press time	Vac. Start	Vac.	Vac. Level	Pressure
700°C	60°C/min.	940°C	20 min.	10 min.	700°C	940°C	Cont.*	5 bar

\* Continuous maximum vacuum