VITA**PM**®**9** | VITA**VM**®**9 ADD-ON**

Working Instructions

VITA shade determination | VITA shade communication | VITA shade reproduction | VITA shade control

Date of issue: 06.20

VITA – perfect match.

Press ceramic system for pressing to partially yttrium-stabilized zirconia substructures and for the fabrication of inlays, onlays, veneers, anterior and posterior crowns

Indication

	VITA**PM**®**9**	
	Overpressing technique	Substructure-free staining and layering technique
	–	●
	–	●
	–	●
	–	●
	●	●
	●	–
	●	●
	●	–
Characterization	VITA AKZENT Plus	VITA AKZENT Plus
Individualization	 with all VITA VM 9 materials	 only with VITA VM 9 ADD-ON materials

● recommended

- **Press-on technique**
  Pressing to colored and non-colored partially yttrium-stabilized ZrO_2 crown and bridge substructures in the CTE range of approx. 10.5 · 10^{-6} · K^{-1}, such as substructures made of VITA YZ T.*
- **Substructure-free staining and layering technique**
  Fabrication of inlays, onlays, veneers, partial crown and crowns.

Individualization:

- Press-on technique:
  With all VITA VM 9 materials.
- Substructure-free staining and layering technique:
  With VITA VM 9 ADD-ON materials.
  Subsequent glazing with VITA AKZENT Plus GLAZE LT.

Characterization:

- With the stains of the VITA AKZENT Plus assortment

* If the processing instructions and the guidelines on substructure design recommended by VITA are observed, VITA PM 9 is suitable for all substructures made from 3Y-TZP (-A). Since the function depends on a variety of parameters, only the user can ensure the quality in the individual case.

Contraindication

- Bridges without zirconia substructure
- Pressing to zirconia substructures beyond the CTE range given
- For patients with parafunctions (e.g., bruxism)
- In cases of inadequate oral hygiene
- If minimum layer thicknesses of the ceramic can not be adhered to

⚠ Note:
VITA PM 9 is not suitable for pressing on substructures made of alloys and titanium.

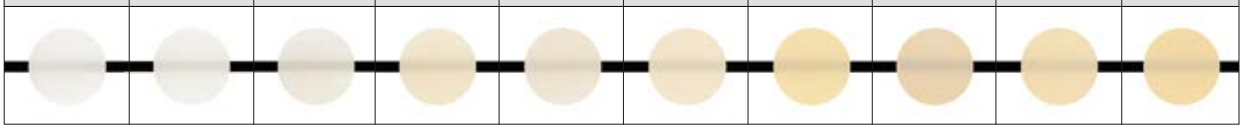
Technical data

Property	Value
CTE (25–500°C)	9.0–9.5 · 10^{-6} · K^{-1}
Flexural strength	approx. 100 MPa

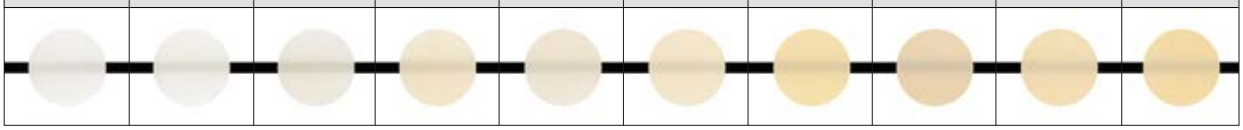
The shade concept

VITA PM 9 is available in 10 VITA SYSTEM 3D-MASTER shades and in three different translucency levels:

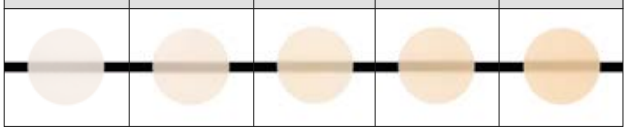
Opaque (O) Dentin shades

0 M1P-O	0 M2P-O	1 M1P-O	1 M2P-O	2 M1P-O	2 M2P-O	2 M3P-O	3 M1P-O	3 M2P-O	3 M3P-O
									

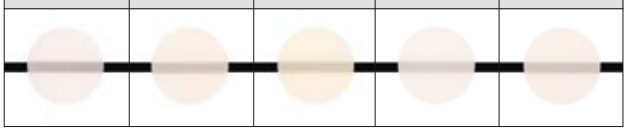
Translucent (T) Dentin shades

0 M1P-T	0 M2P-T	1 M1P-T	1 M2P-T	2 M1P-T	2 M2P-T	2 M3P-T	3 M1P-T	3 M2P-T	3 M3P-T
									

High Translucent (HT) Dentin shades

0 M2P-HT	1 M1P-HT	1 M2P-HT	2 M2P-HT	3 M2P-HT
				

High Translucent (HT) Enamel shades

EN0P-HT	EN1P-HT	EN2P-HT	ENLP-HT	ENDP-HT
				

Selection of pellets

The recommendation on the selection of the pellets depends on the indication and on the minimum layer thickness for the pressing technique.

The first selection criterion is based on the indication:

Press-on technique	Substructure-free staining and layering technique
0 pellets T pellets	T pellets: primarily for anterior and posterior crowns HT pellets: primarily for inlays, onlays and veneers

HT pellets are available in:

Dentin shades	Enamel shades
0 M2P, 1 M1P, 1 M2P, 2 M2P, 3 M2P	EN0P, EN1P, EN2P, ENLP, ENDP

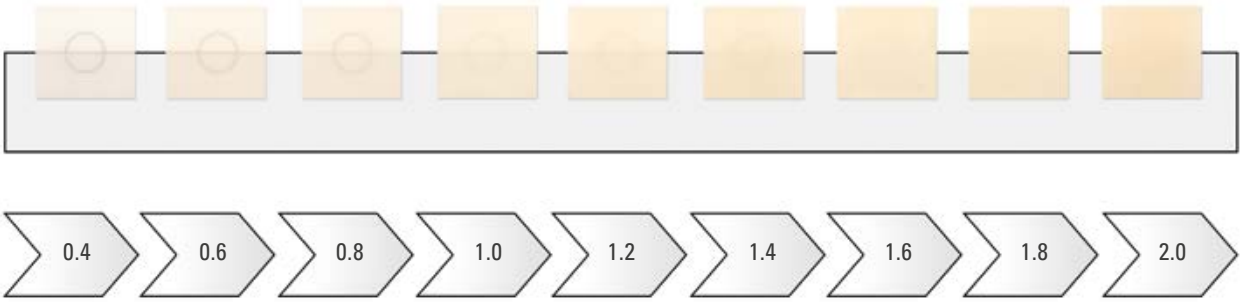
The following aspects need to be considered for the selection of the HT pellets:

- When restorations are reproduced that are primarily in the incisal or translucency area, it is recommended to select a pellet which is one level lighter or one chroma level lower than the selected dentin shade to prevent the restoration from appearing too dark or too chromatic.
- Based on the dentist's shade determination and depending on the tooth area to be reproduced, the following HT pellet shades can be recommended:

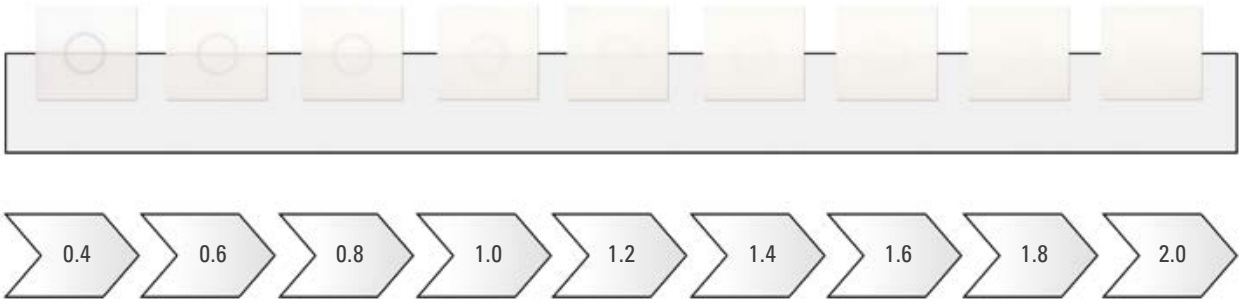
Determined tooth shade	Restoration replaces dentin and enamel	Restoration replaces mainly enamel	Restoration replaces exclusively enamel
0 M1	0 M2P-HT	EN0P-HT	ENLP-HT
1 M1	1 M1P-HT	EN1P-HT	
1 M2	1 M2P-HT	EN2P-HT	
2 M2	2 M2P-HT	1 M2P-HT	
3 M2	3 M2P-HT	2 M2P-HT	ENDP-HT

Change of the shade effect (chroma and value)
for different layer thicknesses of the press ceramic:

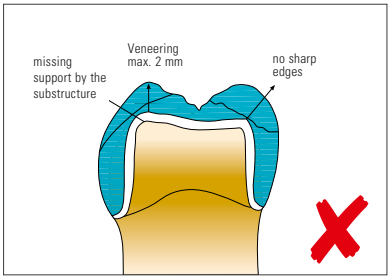
Example: 2 M2P-HT

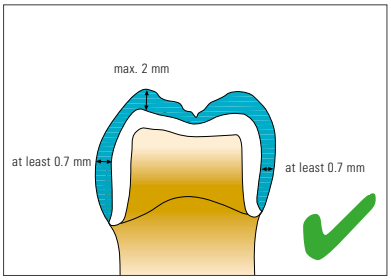


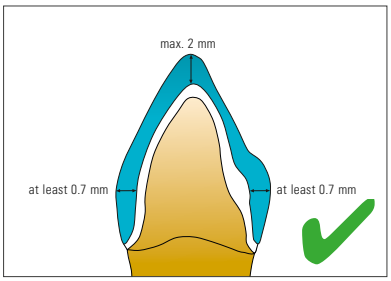
Example: ENLP-HT



Minimum and maximum layer thicknesses for the press-on technique



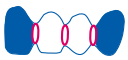




⚠ Important:
The press-on technique requires uniform and complete support of VITA PM 9 by the zirconia substructure to avoid clinical failure caused by chipping or cracks in the veneer. The substructure must not have any sharp edges.

- Please observe the minimum wall thicknesses in mm and minimum connector areas in mm^2 of the substructures made from VITA YZ T on page 8.

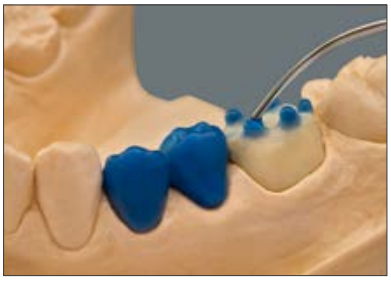
Minimum wall thicknesses in mm and minimum connector areas in mm² for zirconia substructures

VITA YZ T		mm/mm²
Incisal/occlusal wall thickness Primary elements - double crowns		0.7
Incisal/occlusal wall thickness Single crown substructure		0.7
Incisal/occlusal wall thickness Abutment crowns of bridge substructure with one pontic		0.7
Incisal/occlusal wall thickness Abutment crowns of bridge substructure with two pontics		1.0
Circumferential wall thickness Primary elements – double crowns		0.5
Circumferential wall thickness Single crown substructure		0.5
Circumferential wall thickness Abutment crowns of bridge substructure with one pontic		0.5
Circumferential wall thickness Abutment crowns of bridge substructure with two pontics		0.7
Connector area[1)] Anterior bridge substructure with one pontic		7
Connector area[1)] Anterior bridge substructure with two pontics		9
Connector area[1)] Posterior bridge substructure with one pontic		9
Connector area[1)] Posterior bridge substructure with two pontics		12
Connector area[1)2)] Cantilever bridge substructure		12

[1)] Connector surface: juncture abutment crown – pontic, or between two pontics

[2)] Cantilever bridge unit should be modelled approx. one third narrower in its vestibular/oral dimension.

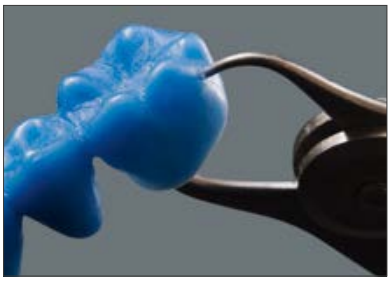
⚠ Important:
Prior to waxing up, the zirconia substructure must be weighed to determine the required number of press pellets later on (see note on page 11).



Model preparation
Separate the model using a standard plaster-wax separating liquid.
The wax model is prepared directly on the sintered zirconia substructure.
The substructure must not be fired with a liner.
The substructure must be clean before waxing up. Only wax for all-ceramic systems that burns without leaving any residue may be used for the wax-up.
The moulds to be pressed can also be milled from the VITA CAD-Waxx blocks using CAD/CAM technology.

A fully anatomical wax-up is prepared. If individualization is carried out using VITA VM 9, the model may also have a reduced anatomical size.

A smooth and precise wax-up is particularly essential at the preparation margins. Sharp edges (e.g., fissures that are too deep and sharp bulges) must be avoided in order not to press investment material into the ceramic during the pressing process.



⚠ Important:
The minimum layer thickness of the wax-up must be 0.7 mm to avoid incomplete pressing. The layer thickness for the cusp, however, should not be more than 2 mm to avoid the risk of chipping.
Adequate support of the substructure is always required (see information on page 7).

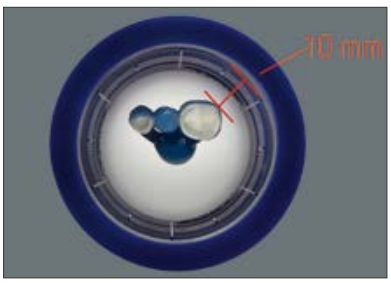
Attaching the press sprues
Wax wires (with a diameter of at least 4 mm) with a minimum length of 3 mm and a maximum length of 8 mm are attached to the wax-ups, similar to metal casting. The sprues must not taper towards the wax-up (shaped like a trumpet).
Crowns and bridges are always sprued at the thickest point: incisal at the thickest cusp. Each bridge unit requires at least one press sprue.
In the case of bridges, the sprue is always attached to the external cusp.

⚠ Note:
The wax weight is calculated from the difference of the unveneered zirconia substructure and the substructure with the wax-up (including the sprues).

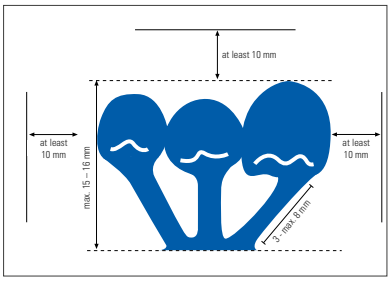
Attachment points between the press sprue, press object and the sprue former must be rounded. Sharp edges and narrow points must be avoided.

Rounded press sprues are attached with wax to the sprue former and have an angle of 45°– 60° towards the investment ring wall (minimum distance of 10 mm).

A small quantity of Vaseline is applied to the sprue former to enable simple removal later on.



The sector markings on the inner side of the investment ring allow fast and controlled detection of the press object during devesting.



Press object and press sprue should form a single line to allow unobstructed pressing of the ceramic.

If several objects are invested in one investment ring, the margins of the objects should be equally high. The press objects should be aligned symmetrically.

Investing

⚠ **Important:**
Prior to investing, the wax weight, including the press sprues, must be determined to calculate the required quantity (max. two pieces) of VITA PM 9 press pellets.

The wax weight is calculated from the difference between the unveneered zirconia substructure and the substructure with the wax-up.

Reference value for the number of press pellets to be used	
1 x 2g press pellet	max. wax weight of 0.4 g
2 x 2g press pellet	max. wax weight of 1.2 g

VITA**PM**® **investment material**
is a graphite-free, phosphate-bonded investment material for speed preheating, particularly for VITA PM 9.

⚠ **Note:**
VITAPM investment material mixing liquid that has become cloudy must not be used any longer. Please observe the expiration date!

Storage	Keep powder in cool, dry place	Do not store the mixing liquid below 5°C as it is sensitive to frost.
Processing temperature	approx. 22°C (room temperature)	
Mixing ratio	100g powder – 22ml mixing liquid	Mixing ratios: • Powder (g): 100 Mixing liquid (ml): 22 • Powder (g): 200 Mixing liquid (ml): 44

		Bag 1 x 100 g		Bag 2 x 100 g (200 g)	
Adjusting the concentration	Concentration (%)	Mixing liquid (ml)	dist. water (ml)	Mixing liquid (ml)	dist. water (ml)
	90	20	2	40	4
	85	19	3	38	6
	80	18	4	36	8
	75	17	5	34	10
	70	15	7	30	14
	65	14	8	28	16
	60	13	9	26	18
	55	12	10	24	20
	50	11	11	22	22

Expansion control (%)		
	Mixing liquid (ml)	Dist. water (ml)
Press-on technique (crowns, bridges):	75 %	25 %
Substructure-free staining and layering technique:		
Molar crowns	75 %	25 %
Premolar crowns	75 – 80 %	25 – 20 %
Anterior crowns	75 – 80 %	25 – 20 %
Veneers	70 %	30 %
Inlays, one-surface and two-surface	40 – 50 %	60 – 50 %
MOD inlays	70 %	30 %
Onlays	85 – max. 90 %	15 – 10 %

- For premolar and anterior crowns, attention has to be paid to the fact that the higher expansion value (80%) will result in enhanced fit of thin and small-sized preparations. Expansion values given above are reference values, which may vary and have to be adjusted accordingly, due to different preparation models, preheating furnaces and press temperatures.

Mixing		Use a spatula to stir the investment material by hand until the powder has been wetted thoroughly.
Time for mixing in vacuum	60 seconds	Place in vacuum for 15 seconds, but do not activate the stirring mechanism. Mix for 60 seconds. Proper function of the vacuum stirrers must be checked repeatedly. Inadequate vacuum results in inaccurate fit and bubbles on the casting.
Processing time span	approx. 6 minutes at approx. 22°C (room temperature)	The processing time span depends on the room temperature. Heat reduces the processing time span.
Investing		Fill the ring with investment material: the vibrator should only be used if the flow behavior needs to be improved. Avoid excessive vibration! This will lead to the formation of bubbles and breakdown of the mixture.
Setting time	20 minutes from beginning of mixing	
Placing the ring	1. Straighten bottom of the ring (e.g., plaster knife/abrasive paper) 2. After 20 minutes, place the ring into the furnace, which should be preheated to 850 °C. **Note:** The furnace should not be opened during the first 15 minutes (risk of deflagration).	
Preheating temperature	850°C	
Holding time	Holding time of ring once preheating temperature (850°C) is reached again 100 g ring: at least 50 minutes 200 g ring: at least 75 minutes If three 100 g or 200 g rings (or more) are placed into the preheating furnace, the holding time must be increased by 15 minutes.	

⚠ **Note:**
Do not open the furnace during preheating as this would cause aggressive combustion. Investment materials contain quartz sand or quartz powder! Take suitable measures to avoid inhalation, such as wearing a dust respirator.

Pour a thin stream of investment material into the investment ring up to the marking, and avoid the formation of bubbles.

Before the level gauge is placed, use your thumb to pull the ring slightly to the side so the air can escape more easily.

Total setting time: 20 minutes from beginning of mixing.
Strict adherence is required!

The level gauge determines the height of the investment material mould and the straight position in the press furnace. Any defect on the base must be smoothed or carefully removed with a plaster knife.

⚠ **Important:**
Check vertical position of the ring to avoid any problems during pressing.

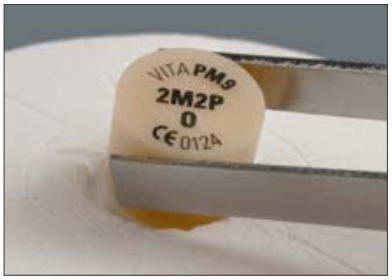
Preheating

The investment ring should be placed in the center of the preheating furnace. The preheating furnace may only be filled up to half of its capacity. The correct temperature in the preheating furnace should be checked in regular intervals (e.g., using the silver test set).

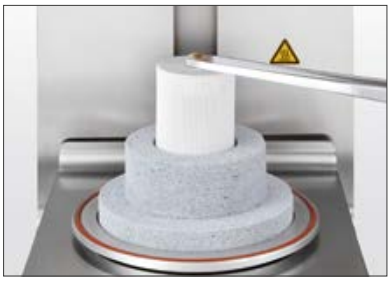
⚠ **Important:**
Please adhere to the preheating parameters of the VITA PM investment material:
Preheating temperature: 850°C
Holding time of the investment ring when the preheating temperature (850°C) is reached again
100 g investment ring: at **least** 50 minutes
200 g investment ring: at **least** 75 minutes
If three 100 g or 200 g rings (or more) are placed into the preheating furnace, the holding time must be increased by 15 minutes.
The disposable press plungers and the VITA PM 9 pellets are not preheated.

Do not place the investment ring into the preheating furnace with other casting objects (metal casting rings) or solder models, to avoid the risk of discoloration caused by metal oxides. Investment material residue or dirt must not enter the sprue. Blow into the sprues, if required.

Preparing for pressing



⚠ **Important:**
After preheating, the ring should be quickly transferred from the preheating furnace to the press furnace to avoid heat loss. Do not put the ring down while transferring it! The cold VITA PM 9 press pellets must be placed into the investment ring with the rounded side facing downward (stamped VITA logo facing up). This way abrasion of the investment material in the press sprue is avoided.
For control purposes, the imprinted side should face upward (see Fig.).

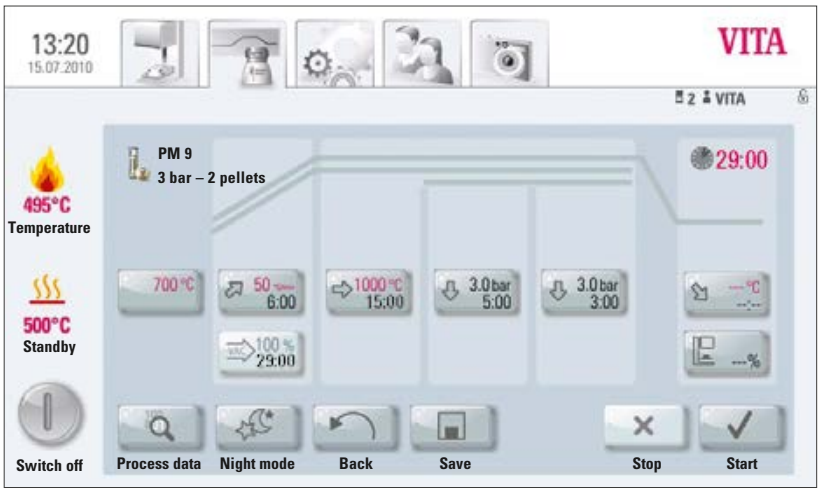


Inserting the VITA PM 9 press pellet.

Place the disposable press plunger with the black marking facing upward. The front, which features slightly rounded edges, must face downward.

Recommended firing - VITA VACUMAT® 6000 MP combipress furnace for 100 g and 200 g investment rings

Press-on technique



Explanation of the press parameters[1]:

The furnace features monitoring of the press stroke. As soon as the ring has been filled completely, pressing time one is ended automatically and pressing time two is started. As a result, the overall pressing time can be less than eight minutes.

Predry. °C	Start temperature
→	Predrying time in minutes, closing time
↗	Heating time in minutes
↗	Temperature rise rate in degrees Celsius per minute
Temp. approx. °C	End temperature
→	Holding time for end temperature
VAC min.	Vacuum holding time in minutes

⚠ Important:
Remove the investment ring from the furnace immediately after the end of the pressing program and place it on a grid to cool it down to room temperature. Do not quench in cold water.

[1] Press parameters for 450 g investment rings and furnaces of other manufacturers, see page 38.

Divesting
Determine the exact depth of press using a second press plunger.
The depth is marked on the outside of the ring using a pen.
The pressed objects are located within the markings (lines).
Use a separating disc to cut deep into the investment material alongside the marking. Split the investment material carefully using a plaster knife.
Do not use a hammer.

Sandblast with glass beads with a grain size of 50 µm at a pressure of 4 bar.
Once the object to be pressed can be seen, reduce the pressure to 2 bar.

⚠ **Important:**
The cervical region is sandblasted at low pressure and at a flat angle.

Exposed restoration after sandblasting

Cutting-off

Cut off the press object from the press sprue using a sharp diamond disc while applying slight pressure and keeping a distance to the object (restoration) to avoid cracks in the pressed object, which may result when cutting off the sprues. Generally, overheating of the ceramic must be avoided since this may result in microcracks.

Finishing

Use only fine-grit and sharp diamond tools for grinding.
Apply little pressure and use a low speed. Avoid the generation of heat and adhere to minimum layer thicknesses.

⚠ Note:
Cooling with water is recommended when cutting off the sprues and finishing.

⚠ Important:
Since dust is formed when grinding sintered dental ceramic products, always wear a face mask or grind when wet. Additionally, it is recommended to work behind a safety shield and use an extraction unit.

Shade characterization (staining technique)
VITA AKZENT Plus stains or glaze material are suitable for characterizing the shade and for glazing of VITA PM 9 restorations fabricated using the press-on technique.

Please observe the respective working/processing instructions.

Alternatively, stains-fixation firing can be carried out beforehand.

Recommended firing of VITA AKZENT Plus GLAZE and VITA AKZENT Plus GLAZE SPRAY in the VITA VACUMAT 6000 MP

	Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	↘ °C	VAC min.
Stains fixation firing	500	4.00	3.15	80	760	1.00	600*	–
Glaze firing	500	4.00	5.00	80	900	1.00	600*	–

* Long-term cooling down to the respective temperature is recommended for the last ceramic firing cycle. The lift position for VACUMAT furnaces should be > 75%.

Individualization of the shade (cut-back technique)
Restorations made from VITA PM 9 can be individualized with the materials of the VITA PM 9 fine-structure ceramic.

The firing parameters for the conventional VITA VM 9 layering technique must be used. Please observe the information in the Working Instructions No. 1190.

Recommended firing for VITAVM 9 and VITA AKZENT Plus in the VITA VACUMAT 6000 MP

	Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	↘ °C	VAC min.
Dentine firing	500	6.00	7.27	55	910	1.00	**600***	7.27
Stains fixation firing	500	4.00	3.15	80	760	1.00	**600***	–
Glaze firing	500	0.00	5.00	80	900	1.00	**600***	–
Glaze firing with powder/spray	500	4.00	5.00	80	900	1.00	**600***	–
Corrective firing with CORRECTIVE	500	4.00	4.20	60	760	1.00	**500***	4.20

* Long-term cooling down to the respective temperature is recommended for the last ceramic firing cycle. The lift position for VACUMAT furnaces should be > 75%.

Completed posterior bridge on the working model

Clinical aspects

Fitting

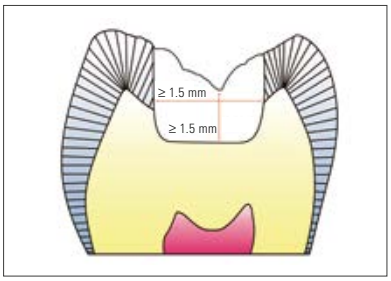
When fitting restorations, it must be ensured that they are not removed with a hook or a probe, but with dental floss or a rubber dam in order not to damage them.

Bonding zirconia restoration (press-on technique)

Adhesive bonding with composites or conventional bonding with zinc phosphate or glass ionomer cements can be used for crowns and bridges made from zirconia press ceramic (press-on technique), since they exhibit high inherent strength. For details, see the VITA brochure No. 1696 "Clinical Aspects of All-Ceramics."

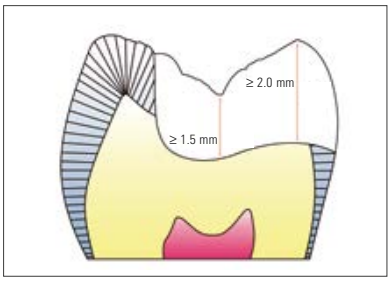
Zirconia bridge overpressed with VITA PM 9 (21–23) immediately after seating.

Clinical photo: Schmid Zahntechnik, Regensburg (Germany)



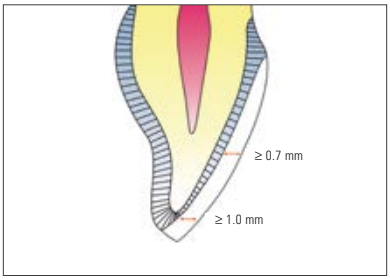
Inlays

Ceramic layer thickness
Bottom of the fissure: **at least 1.5 mm**
Area of the isthmus: **at least 1.5 mm**



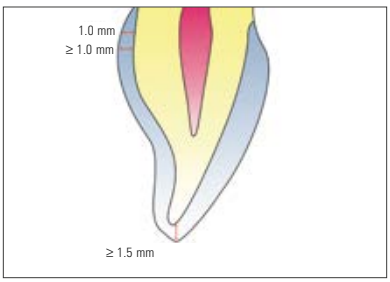
Onlays

Ceramic layer thickness
Bottom of the fissure: **at least 1.5 mm**
Area of cusps: **at least 2.0 mm**



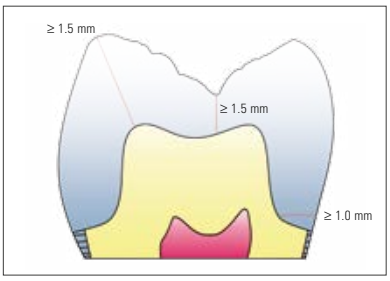
Veneers

Ceramic layer thickness
on average: **at least 0.7 mm**
Incisal: **at least 1.0 mm**



Anterior crowns

Ceramic layer thicknesses
Incisal: **at least 1.5 mm**
Circumferential: **at least 1.0 mm**
Crown margin: **1.0 mm**



Posterior crowns

Ceramic layer thickness
Area of the cusps: **1.5 – 2.0 mm**
Bottom of the fissure: **at least 1.5 mm**
Circumferential: **1.0 – 1.5 mm**
Crown margin: **1.0 mm**

⚠ Note:
For additional information on the preparation of all-ceramic restorations, please read our detailed brochure "Clinical Aspects of All-Ceramics" No. 1696.

Model preparation

Application of the spacer

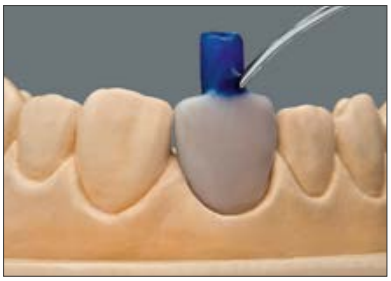
Undercuts must be blocked out prior to the preparation of the model. To create space for the adhesive composite, the die must be coated with removable die spacer (two to three coats) up to a distance of approx. 1 mm to the preparation margin (corresponds to approx. 30 – 50µm).

Separate the plaster dies using a standard plaster-wax separating agent. Only wax for all-ceramic systems, which burns without leaving any residue, may be used for modelling. A fully anatomical wax-up is prepared.

A precise wax-up is particularly essential at the preparation margins. Sharp edges (e.g., fissures that are too deep and sharp bulges) must be avoided in order to prevent pressing investment material into the ceramic during the pressing process.

The moulds to be pressed can also be milled from the VITA CAD-Waxx blocks using CAD/CAM techniques.

> ⚠ **Important:**
> The minimum layer thickness of the wax-up or the CAD-Waxx mould is 0.7 mm to avoid incomplete pressing.



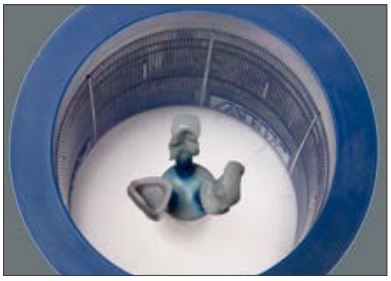
Attaching the press sprues

Wax wires with a **minimum length of 3 mm and a maximum length of 8 mm** are attached to the wax-ups or moulds milled from VITA CAD Waxx, similar to metal casting.

A wax wire with a diameter of **3.0 mm** can be attached to small-size restorations, such as inlays and veneers.
A wax wire with a diameter of at least **4.0 mm** must be attached to all other large-size restorations, such as crowns.

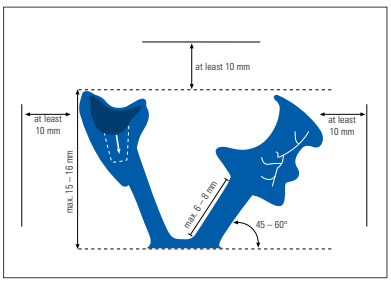
> ⚠ **Important:**
> Prior to investing, the wax weight, including the sprues, must be determined in order to select the required quantity (max. two pieces) of VITA PM 9 press pellets.

Attachment points between the press sprue, press object and the ring base must be rounded. Sharp edges and narrow points must be avoided. The sprues must not taper towards the wax-up (shaped like a trumpet).



If several restorations are to be pressed, they must be aligned symmetrically in the center of the ring.

Sprued anterior mould made from VITA CAD-Waxx.



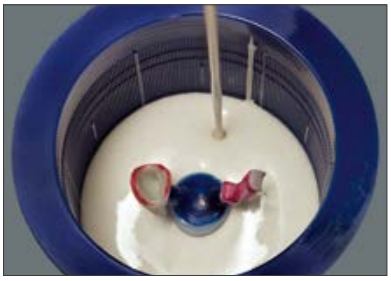
Correct spruing for the substructure-free staining and layering technique

Press objects are attached with wax to the center of the sprue former and have an angle of 45°– 60° towards the investment ring wall (minimum distance of 10 mm).

If several objects are invested in one investment ring, the margins of the objects should be equally high.

The sector markings on the inner side of the investment ring allow fast and controlled detection of the press object during devesting.

Investing
Please adhere to the processing parameters (mixing ratios and mixing times) for the VITA PM 9 investment material starting on page 11.



Pour a thin stream of investment material into the investment ring, up to the marking.

Before the level gauge is placed, use your thumb to pull the ring slightly to the side so air can escape more easily.

Total setting time: 20 minutes from beginning of mixing.
Strict adherence is required!

The level gauge determines the height of the investment material mould and the straight position in the press furnace. Any defect on the base must be smoothed or carefully removed with a plaster knife to ensure vertical position of the mould in the press furnace and to eliminate problems during pressing.

⚠ **Important:**
Check vertical position of the ring to avoid any problems during pressing.

Preheating

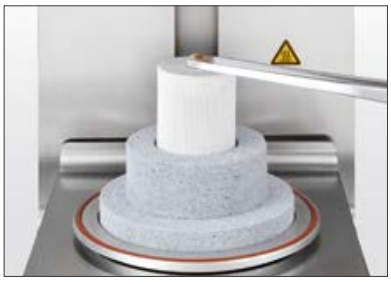
Place the investment ring into the preheating furnace. The preheating furnace should only be filled up to half of its capacity.

⚠ **Important:**
Please adhere to the preheating parameters of the VITA PM investment material:
Preheating temperature: 850°C
Holding time of the investment ring when the preheating temperature (850°C) is reached again
100 g investment ring: at **least** 50 minutes
200 g investment ring: at **least** 75 minutes
If three 100 g or 200 g rings (or more) are placed into the preheating furnace, the holding time must be increased by 15 minutes.
The disposable press plungers and the VITA PM 9 pellets are not preheated.

To avoid the risk of discoloration caused by metal oxides, do not place the investment ring with other casting objects (metal casting rings) or solder models into the preheating furnace. Investment material residue or dirt must not enter the sprues. Blow into the sprues, if required.

Preparing for pressing

⚠ **Important:**
After preheating, the ring should be quickly transferred from the preheating furnace to the press furnace to avoid heat loss. Do not put the ring down while transferring it! The cold VITA PM 9 press pellets must be placed into the investment ring with the rounded side facing downward (stamped VITA logo facing up). This way abrasion of the investment material in the press sprue is avoided.
For control purposes, the imprinted side should face upward (see Fig.).

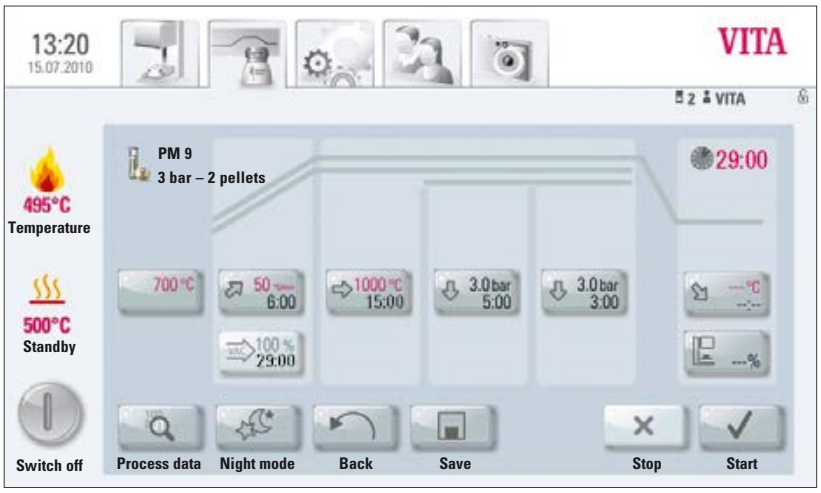


Inserting the VITA PM 9 press pellet

Place the disposable press plunger with the black marking facing upward. The front, which features slightly rounded edges, must face downward.

Recommended firing - VITA VACUMAT 6000 MP combipress furnace for 100 g and 200 g investment rings

Substructure-free staining and layering technique



Explanation of the press parameters[1]:

The furnace features monitoring of the press stroke. As soon as the ring has been filled completely, pressing time one is ended automatically and pressing time two is started. As a result the overall pressing time can be less than eight minutes.

Predry. °C	Start temperature
→	Predrying time in minutes, closing time
↗	Heating time in minutes
↗	Temperature rise rate in degrees Celsius per minute
Temp. approx. °C	End temperature
→	Holding time for end temperature
VAC min.	Vacuum holding time in minutes

⚠ Important:
Remove the investment ring from the furnace immediately after the end of the pressing program and place it on a grid to cool it down to room temperature. Do not quench in cold water.

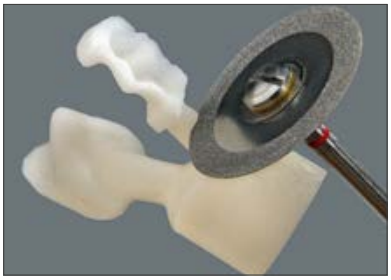
[1] Press parameters for 450 g investment rings and furnaces of other manufacturers, see page 38.

Divesting
Determine the exact depth of press using a second press plunger.
The depth is marked on the outside of the ring using a pen.
The pressed objects are located within the markings (lines).
Use a separating disc to cut deep into the investment material alongside the marking. Split the investment material carefully using a plaster knife.
Do not use a hammer.

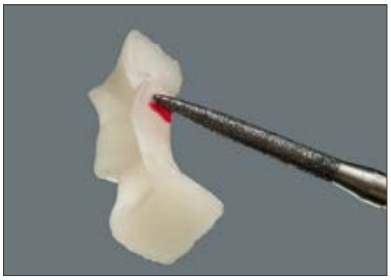
Sandblast with glass beads with a grain size of 50 µm at a pressure of 4 bar.
Once the object to be pressed can be seen, reduce the pressure to 2 bar.

⚠ **Important:**
The cervical region is sandblasted at low pressure and at a flat angle.

Exposed restorations after sandblasting



Cutting-off
Cut off the press object from the press sprue using a sharp diamond disc while exerting slight pressure and keeping a distance to the object (restoration) to avoid cracks in the pressed object, which may result when cutting off the sprues. Generally, overheating of the ceramic must be avoided since this may result in microcracks.



⚠ **Important:**
Cooling with water is recommended when cutting off the sprues and finishing.

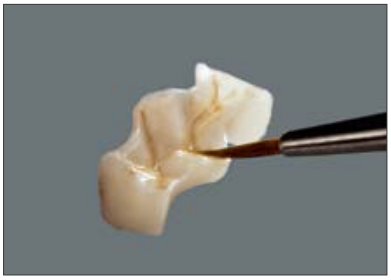
Fitting
Use lipstick, control pastes or occlusion spray for fitting the restoration.

Inlay fitted on the die.

Finishing
Use only fine-grit and sharp diamond tools for grinding.
Work with low contact pressure and low speed. Avoid the generation of heat and adhere to minimum layer thicknesses.

⚠ Note:
Cooling with water is recommended when cutting off the sprues and finishing.

⚠ Important:
Since dust is formed when grinding sintered dental ceramic products, always wear a face mask or grind when wet. Additionally, it is recommended to work behind a safety shield and use an extraction unit.



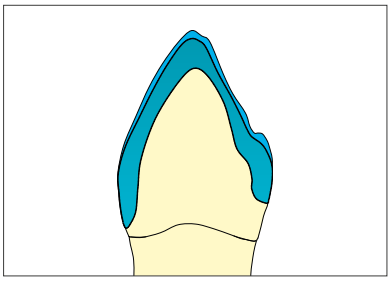
Shade characterization (staining technique)
VITA AKZENT Plus stains are used for characterizing the shade of substructure-free VITA PM 9 restorations.
Please observe the respective working/processing instructions.

⚠ Important:
Only the low-melting glaze materials Glaze LT powder or paste may be used for glazing.

Recommended firing of VITA AKZENT Plus GLAZE LT powder and paste in the VITA VACUMAT 6000 MP

	Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	↘ °C	VAC min.
Stains fixation firing	500	4.00	3.15	80	760	1.00	**600***	–
Glaze firing – powder	500	4.00	3.30	80	780	1.00	**500***	–
Glaze firing – paste	500	6.00	3.30	80	780	1.00	**500***	–

* Long-term cooling down to the respective temperature is recommended for the last ceramic firing cycle. The lift position for VACUMAT furnaces should be > 75%.



Individualization (cut-back technique)

⚠ Important:
Restorations made from VITA PM 9 without zirconia support may only be individualized with the low-melting VITA VM 9 ADD-ON materials at 780°C to avoid any deformation during firing.
Use VITA AKZENT Plus GLAZE LT powder or paste (low temperature) for glazing at 780°C.

Since substructure-free VITA PM 9 restorations have a lower strength than restorations with zirconia support, they may only be cut back up to one third to individualize them with VITA VM 9 ADD-ON materials later on. Deep notches must be avoided prior to individualizing.

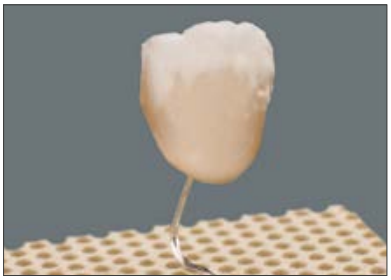
VITA VM 9 ADD-ON
– low-melting materials (800°C)
– especially for individualizing substructure-free VITA PM 9 restorations
– are based on the fine-structure veneering material VITA VM 9
– Eight different shades

	Design.	Prod. No.	Shade
	ADD1	B4229112	transparent
	ADD2	B4229212	enamel, light
	ADD3	B4229312	enamel, dark
	ADD4	B4229412	whitish-transparent
	ADD5	B4229512	yellowish-translucent
	ADD6	B4229612	orange-translucent
	ADD7	B4229712	red-translucent
	ADD8	B4229812	blue-translucent

Reduced anterior crown to be individualized with VITA VM 9 ADD-ON.

Individualizing with VITA VM 9 ADD-ON.

Individualized anterior crown prior to firing.



Platinum pins should be used since the black firing pins may adhere to substructure-free restorations and – due to the shape – cause cracks in the incisal edge.

⚠ Important:
The low-melting VITA VM 9 ADD-ON materials should not be used together with VITA Firing Paste. Risk of discoloration!

Recommended firing – VITA VM 9 ADD-ON/VITA AKZENT Plus GLAZE LT

	Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	↘ °C	VAC min.
VITA VM 9 ADD-ON	500	6.00	6.14	45	780	1.00	**500***	6.14
Glaze firing – powder[1]	500	4.00	3.30	80	780	1.00	**500***	–
Glaze firing – paste	500	6.00	3.30	80	780	1.00	**500***	–

[1] To achieve an optimal result during glaze firing, VITA AKZENT Plus Glaze LT powder should be mixed with VITA AKZENT Plus FLUID to obtain a viscous consistency.

* Long-term cooling down to the respective temperature is recommended for the last ceramic firing cycle. The lift position for VACUMAT furnaces should be > 75%.

Individualized restoration on the working model.

For substructure-free, high-translucent VITA PM 9 anterior restorations, it is recommended to fabricate an artificial die in the shade of the prepared tooth, which allows the opportunity to reproduce the shade result more easily and safely.

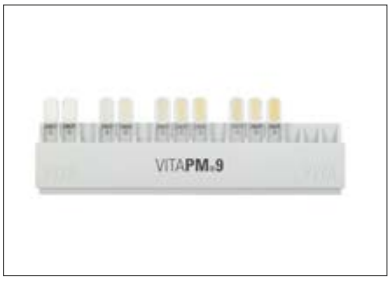
Bonding of substructure-free restorations made from VITA PM 9
Restorations without oxide ceramic substructures (substructure-free staining and layering technique), such as inlays, onlays, veneers and anterior crowns, must be cemented adhesively using a dentin bonding system.

For details, see the brochure "Clinical Aspects of All-Ceramics," No. 1696.

Single items

VITA PM 9 press pellets

Available in packs cont. five pellets in the 10 shades 0M1P, 0M2P, 1M1P, 1M2P, 2M1P, 2M2P, 2M3P, 3M1P, 3M2P, 3M3P each available in the O (opaque) and T (translucent) variations. The HT (High Translucent) variation is available in the following 10 shades: 0M2P, 1M1P, 1M2P, 2M2P, 3M2P, EN0, EN1, EN2P, ENLP and ENDP.



VITA PM 9 shade indicator O, T and HT

VITA PM disposable press plungers

Pack cont. 50 disposable press plungers, diameter of 12 mm for 2 g pellets. Suitable for all press ceramics. Time-consuming sandblasting of the aluminium oxide plungers is no longer required, and the unique composition of the plungers avoids microcracks in the press cone.

VITA PM investment system, 200g

Pack cont. investment ring, sprue base and level gauge. Thanks to the clearly visible markings on the inner side, the silicone investment ring allows fast and controlled detection of the pressed object and saves time and material during sandblasting.

VITA PM investment material

Phosphate-bonded and graphite-free investment material for speed heating, especially for VITA PM 9 press ceramic.
Content: pack of 56 bags, 100 g each.

VITA PM investment material mixing liquid
Bottle cont. 900ml. Special mixing liquid for VITA PM investment material.

Do not store below 5°C since the product is sensitive to frost!

VITA AKZENT Plus
New fluorescent stains for staining, marking and glazing of all types of dental ceramic materials, including layering and press ceramics, feldspar ceramic blocks and monolithic restorations made from zirconia or glass ceramic. Available as powder-liquid and ready-to-use pastes or spray.

VITA Firing Paste
Ready-to-use, fireproof material for simple and fast fabrication of individual firing trays. The soft, creamy consistency results in exceptional processing characteristics.
Inlays, onlays, veneers and crowns can be easily fixed on platinum pins or directly on the firing tray or fibrous pad.
The material can be easily removed from the firing object after firing.
Do not sandblast!
Do not use together with the low-melting VITA VM 9 ADD-ON materials.
Risk of discoloration!

VITA Karat diamond polishing set
Assortment for high-gloss polishing of ceramic restorations cont. 5 g diamond polishing paste, 20 diamond felt wheels, Ø 12 mm and one nickel-plated mandrel.

VITA VM 9 veneering material
Special fine-structure feldspar veneering material for partially yttrium-stabilized zirconia substructures in the CTE range of approx. 10.5 (such as VITA YZ T) and for individualizing restorations made from VITA PM 9 and VITABLOCS.

VITA VM 9 ADD-ON
Low-melting materials in eight different shades, based on the fine-structure veneering material VITA VM 9. They are used especially for individualizing substructure-free VITA PM 9 restorations.

Press-to technique and substructure-free staining and layering technique – VITA VACUMAT 6000 MP for 100 g and 200 g investment rings*

Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	Pressing time 1 min.	Pressing pressure bar	Pressing time 2 min.	Pressing pressure bar	VAC min.
700	0.00	6.00	50	1000	15.00	5.00	3.0	3.00	3.0	29.00

Press-on technique and substructure-free staining and layering technique – VITA VACUMAT 6000 MP for 450 g investment rings*

Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	Pressing time 1 min.	Pressing pressure bar	Pressing time 2 min.	Pressing pressure bar	VAC min.
700	0.00	6.00	50	1000	40.00	5.00	5.0	10.00	5.0	61.00

Press parameters for furnaces of other manufacturers for the press-on technique and the substructure-free staining and layering technique
VARIO PRESS 300 (Zubler)*

Predry. °C	↗ °C/min.	Temp. approx. °C	→ min.	Pressing time min.	Pressing pressure
700	60	1000	20.00	6.00	low

Programat EP 600 (Ivoclar)*

Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	Pressing pressure	Stop speed
700	0.00	6.00	50	1000	20.00	Mech.	300µm/min

Cergo press (DeguDent)*

Predry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	Pressing pressure bar	Pressing time min.
700	0.00	6.00	50	1000	20.00	4.7	10.00

* The user should consider this information only as a reference. Should the surface quality or the degree of transparency or glaze not correspond to the result that is achieved under optimal conditions, the press parameters (temperature, pressure) must be adjusted correspondingly. The crucial factors for the pressing process are not the press parameters displayed by the device, but the appearance and the surface condition of the restoration to be pressed after the pressing process.

This information is based exclusively on random pressing tests. VITA does not have any influence on product modifications. Additional factors of influence are the volume, shape and number of the objects to be pressed. If the pressed object does not correspond to the result that is achieved under optimal conditions, it is recommended to adjust the repressing time (pressing time two) and/or the holding time.

The following products require hazard identification:		
VITA Firing Paste	**Danger** May cause cancer by inhalation. Do not use until all safety instructions have been read and understood. Wear protective gloves/protective clothing/eye and face protection. Keep locked up.	

For detailed information, please refer to the safety data sheet.

Personal protective equipment	When working with the product, wear suitable safety goggles/face protection, gloves and safety clothing. Since dust is formed when grinding sintered dental ceramic products, always wear a face mask or grind when wet. Additionally, it is recommended to work behind a safety shield and use an extraction unit.	

The corresponding safety data sheets can be downloaded at www.vita-zahnfabrik.com/sds.

General notes on handling

Note:

- Please check the packaging and the material for intact condition immediately upon receipt.
- The packaging must be sealed.
- The manufacturer's name, VITA Zahnfabrik, and the CE marking must be present on the packaging.

Please note:

- Store the VITA PM 9 pellets in the original packaging and in a dry place.
- The materials must not be contaminated with foreign substances (e.g., during the press process).

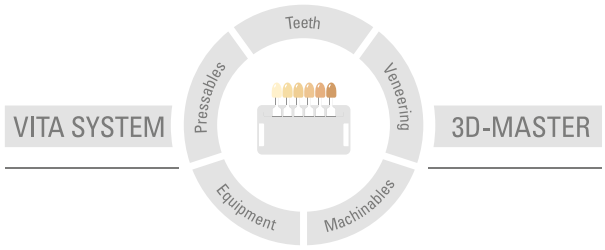
- Please read through the Working Instructions carefully before you take the press pellets out of the packaging. They contain important information on processing that is useful for your safety and the safety of your patients.
- If not all of the instructions in this brochure are followed, the VITA PM 9 press pellets must not be used to make dentures.

- Information regarding general risks of dental treatment. These risks do not relate specifically to VITA products but need to be taken into account by all users:
  - Dental treatment and the integration of dental restorations entail the general risk of iatrogenic damage to hard tooth substance, pulp and/or oral soft tissue. The use of bonding systems and the integration of dental restorations involve the general risk of postoperative hypersensitivity.
  - In the event of non-compliance with the instructions for use of the products in use, the product characteristics cannot be ensured, so that product failure and irreversible damage to the natural hard tooth substance, pulp and/or oral soft tissues may result.
  - The success of any restoration depends on its fit onto the underlying tooth structure with minimal discrepancies.
  - The ability to produce a routinely smooth, sound and well-fitting restoration requires strict adherence to certain fundamentals.
  - A deficient margin leads to new formation of plaque, resulting in gingival inflammation and marginal leakage, which can lead to secondary caries, sensitivity, gingival recession, cement dissolution and debonding of the restoration, or decrease in color match.
  - Our products must be used in accordance with the current version of the instructions for use.
  - Any incorrect use may cause damage.
  - The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of applications.
  - We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers that are not compatible or not authorized for use with our product.
  - If serious incidents have occurred in connection with the product, they must be reported to VITA Zahnfabrik H. Rauter GmbH & Co. KG and the competent authority of the Member State in which the user and/or patient is established.

Symbol explanations

Medical device	MD	Manufacturer	
For dental users only	Rx only	Date of manufacture	
Observe instructions for use		Expiration date	
Temperature limit		Product number	REF
Store in a dry location		Lot number (batch)	LOT
Do not reuse			

With the unique VITA SYSTEM 3D-MASTER, all natural tooth shades can be systematically determined and perfectly reproduced.



Please note: Our products must be used in accordance with the instructions for use. We accept no liability for any damage resulting from incorrect handling or usage. The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of applications. We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers that are not compatible or not authorized for use with our product and this results in damage. The VITA Modulbox is not necessarily a component of the product. Date of issue of this information: 06.20

After the publication of this information for use any previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com

VITA Zahnfabrik has been certified and the following products bear the CE mark
CE 0124:

VITA**VM**®**9** · VITA**PM**®**9** · **VITA YZ**® T · **VITA YZ**® HT · **VITA AKZENT**® Plus

VITA

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