IMAGINE h.e. Press Ceramic
Freshly pressed!

Instructions for use Valid from February 2011
www.wieland-dental.de
All-ceramic restorations in naturescent bioaesthetics

Many patients desire an aesthetic non-metal restoration, which is available in the form of the IMAGINE h.e. press ceramic component of the HITEX veneering ceramic system from WIELAND Dental+Technik.

Benefits at a glance:

- Perfect aesthetics through natural fluorescence, opalescence and opacity
- Abrasion properties similar to natural dentition
- Low plaque affinity and high biocompatibility
- Fast and reliable shade reproduction
- High strength
- Compatible with HITEX veneering ceramic
- Various assortments available
- In order to duplicate the reflective properties of natural dentine, this all-ceramic system includes not only the conventional press pellets corresponding to the Vita Lumin shade range*, but also a naturescent type of fluorescing pellets with a greater degree of opacity specially developed for the build-up technique. For the staining technique, a wide range of transparent pellets is available.
- The range further extends to the inclusion of bleaching pellets in the Vita shade groups A and B for rebuilding bleached teeth and intensive opaque dentine pellets in shade groups A, B, C, D for masking slightly discoloured tooth stumps.
- Using HITEX veneering ceramic guarantees a perfect shade match between all-ceramic restorations and PFM restorations.
- The precisely controlled CTE and high precision offered by the fast-heating IMAGINE PressX investment compound gives maximum accuracy and saves time when making the restorations.
- The option of putting together a customised assortment keeps costs down, makes handling easier and gives more economical inventories.
- The coordinated components of the IMAGINE h.e. press ceramic pellet system for making all-ceramic restorations and the HITEX veneering ceramic for PFM work together with a range of alloys to suit the indications are the user’s guarantee of efficient, cost-conscious and trouble-free everyday lab work.

Notes on the instructions for use

The clinical success of dental prosthetics made with IMAGINE h.e. press ceramic and subsequent patient satisfaction depend on a few parameters, which we would ask you to pay particular attention to from the outset:

- The dental practitioner must lay the groundwork for a successful restoration when preparing the tooth substance. With today’s technology, only preparations suitable for ceramic restorations which provide adequate space and give reduced enamel dimensions on all sides in accordance with the indications adequately fulfil the requirements for clinical reliability.
- Please observe the minimum wall thickness when making the wax-up and in particular, ensure that there are no bubbles in the work after pressing.
- When trimming off the sprues and grinding the work, please be especially careful not to damage the restoration by causing cracks or subjecting it to local overheating.
- The best aesthetic results are obtained by using the build-up technique.
- Prosthetic restorations made with IMAGINE h.e. press ceramic must be fixed by means of an adhesive. For this purpose, the surfaces facing the tooth must be etched with a standard hydrofluoric acid gel in order to create a suitably large retentive surface.
- Before fixing with an adhesive, these etched surfaces must first be silanised. This is best done at the chairside, since silanised surfaces may be susceptible to impurities over prolonged periods.

*Vita Zahndfabrik, Bad Säckingen

-0483
Technical specifications

IMAGINE h.e. press ceramic is a Type 2, Class 1 dental ceramic as per EN ISO 6872. It is suitable for fabricating the indicated all-ceramic single-tooth restorations. The coefficient of thermal expansion of IMAGINE h.e. press ceramic is $14.6 \times 10^{-6} \text{ K}^{-1}$ and is exactly matched to the HITEX veneering ceramic. IMAGINE h.e. press ceramic fulfils the requirements of EN ISO 6872 and exceeds most of the specified threshold values.

Indications

The IMAGINE h.e. press ceramic system is suitable for making

- all-ceramic single crowns in the anterior and posterior regions up to the second premolars,
- inlays with one or more surfaces
- onlays and veneers
and for producing

- PFM restorations in the anterior and posterior regions by overpressing metal frameworks in AGC® electroforming gold (crowns) or WIELAND’s Porta PressOver dental alloy (crowns and 3-4 unit bridges) using the PressOver technique.

The CTE of IMAGINE h.e. press ceramic pellets has been adjusted to exactly correspond to the CTE of the HITEC veneering ceramic. Only HITEC veneering ceramic should therefore be used for the layer or staining technique.

Contraindications

- Preparations with a feather edge/slice cut, box-type preparations with acute internal angles
- Bridge superstructures
- Patients suffering from parafunctions such as bruxism, prognathism, inadequate intra-oral space in relation to the opposing teeth.

Selecting the press pellets

For making all-ceramic restorations with IMAGINE h.e., a variety of pellets with varying degrees of transparency and different chromas are available.

The Vita Lumin shades are available as pellets A1 to D4. If intra-oral space is restricted, the naturesecent pellets N A1 to N D4 with a higher degree of opacity can be used. For extremely bright restorations, e.g. with bleached tooth stumps, we recommend the bleaching pellets which are available in both normal transparency [BL] and with a higher density [NBL].

For the staining technique, which is mainly used for inlays or veneered restorations, there is also a range of precisely matched pellets in a variety of shades and intensities and a range of brightnesses. Less bright shades of various nuances are available as pellets MT C1 to MT C5. Brightness increases via pellets MT 1 and MT 2 to pellets MT O1 and MT O2.

For special cases in which the stumps are heavily discoloured, the intensive shades of pellets ioD A to ioD D and MT white can be chosen.
Making the model

There is no difference between making a working model for the IMAGINE h.e. press technique and for the casting method. Ivory investment compounds (e.g. super hard compound) give the best reproduction of the natural stump and make it easier to duplicate the required tooth shade.

- Please block out any undercut areas before modelling.
- Us usual, apply a spacer of approx. 1 mm at the preparation margin to allow for the composite cement. The spacer should have a layer thickness of about 30 µm.
- To obtain the best possible shade reproduction, we recommend shading the die on the master model by the using a spacer in a dental shade.

Designing the wax models

- The minimum wall thickness of the press ceramic framework must be at least 1.00 mm around the tooth, at least 1.5 mm on the occlusal surface of crowns and at least 2.0 mm for inlays. Please bear this in mind when making the wax models.

- With anterior restorations made using the build-up technique, the minimum wall thickness of the IMAGINE h.e. press ceramic framework should be at least 1.0 mm around the tooth and at the incisal surface.

For isolating the working model and for modelling the wax frameworks, use only materials which burn out without trace, such as WIELAND transpa beige Creative wax by J. Peters. In order to avoid any distortion of the all-ceramic restoration during firing, the anatomical form of the restoration should be reduced in size during modelling. A recommended list of suitable materials can be found on the last page of these instructions for use.

Spruing

The wax models must be sprued with wax wire (length approx. 7 mm, Ø approx. 3.0 mm). When spruing with wax wire, be sure to avoid tapering it towards the model and avoid creating any sharply angled passages.

Do not use any form of wax tension reducing agent.

- The wax wire should always be attached to the thickest part of the wax model; in the case of anteriors, this is the incisal surface, for inlays the approximal surface.

- The sprue should be axial and not at an angle to the model.

- The wax models must be attached centrally to the sprue former and not too close to the inner wall of the muffle. The wax models should be aligned for height.

- When placing more than two wax models in a muffle, please use a 200 g muffle.

Wax conversion chart

In order to determine the exact number of IMAGINE h.e. press pellets required, please weigh the sprued wax objects.

- With a wax weight of up to 0.6 g, please use → 1 press pellet
- • With a wax weight of up to 1.4 g, please use → 2 press pellets

A maximum of 2 press pellets can be used per pressing operation.

Investing the wax models

In order to avoid failures, the models to be pressed should be invested using the muffle system recommended by us for this press ceramic system and IMAGINE PressX investment compound.
Instructions for using IMAGINE PressX investment compound

IMAGINE PressX investment compound is a quick-heating, graphite-free phosphate-bonded investment material. It is recommended exclusively for use with the pressed ceramic technique in conjunction with IMAGINE PressX and IMAGINE h.e. press pellets.

Key benefits of IMAGINE PressX investment compound include:
- Perfect fit
- Precisely controlled expansion
- Extremely accurate results
- Easy to use
- Fast heating
- High compressive strength

Mixing ratio
Powder : liquid = 100 g : 24-26 ml

Directions
- Prepare liquid
- Sprinkle in powder
- Stir vigorously by hand for 30 seconds
- Mix in a vacuum for one minute
- Hold the vacuum for a further 30 seconds

N.B.
- When using furnaces with bottom heating, ensure that there is adequate clearance (approx. 1 cm) between the muffle and the base plate. The wax model should be attached to the base of the press cylinder as usual.

Mixing the investment compound
Pour the correct amount of liquid in the appropriate concentration into a vacuum mixing jar which is not fully dried out, add the appropriate amount of investment compound and mix briefly on the vibrator with a spatula. Then agitate mechanically in a vacuum for one minute.

Choice of muffle
- 100 g = maximum of 3 wax models of the same type
- 200 g = maximum of 5 wax models of the same type

In order to determine the exact number of IMAGINE h.e. press pellets required, please weigh the sprued wax objects.
- With a wax weight of up to 0.6 g, please use → 1 press pellet
- With a wax weight of up to 1.4 g, please use → 2 press pellets

A maximum of 2 press pellets can be used per pressing operation.

Investing the press muffle
Carry out the investment procedure as usual. Allow the muffle to set in the atmosphere for at least 17 - 19 minutes for 200 g muffles. After removing the plastic base, place the muffle in the pre-heating furnace at 850 °C.

N.B.
- Any obstructions or foreign bodies in the sprue must be removed before the muffle is placed in the furnace.

Pre-heating times
- 100 g cylinder = 45 min
- 200 g cylinder = 60 min

When pre-heating is complete, start the pressing operation, e.g. in the Press-i-dent ceramic pressing furnace.

Cooling and deve-sting the muffle
After cooling, devest and blast the muffle. Blast the area of the pressed work with 50 µm glass bead agent at max. 1 bar.

N.B.
- This investment compound contains quartz and cristobalite. Avoid inhaling the dust. Do not open the pre-heating furnace during the heating-up phase, since the ensuing wax vapours could ignite in air!

The information given above is correct to the best of our knowledge and has been carefully verified. It corresponds to the current state of the art. We guarantee the impeccable quality of our products but can accept no liability for the results obtained by processing these materials, since these are as a rule beyond our control.
Pressing the pellets

After removing the muffle and the aluminium oxide plunger from the pre-heating furnace, place the required number of IMAGINE h.e. press pellets in the sprue channel of the muffle. Then place the pre-heated aluminium oxide plunger on the IMAGINE h.e. press ceramic pellets and place the muffle on the base of the press ceramic furnace. Please ensure that the same rounded side of the plunger always points toward to the pellet. Now start the pressing programme immediately. When pressing is complete, remove the muffle from the press ceramic furnace and allow it to cool slowly to room temperature. Please note that a disposable plunger can also be used for this purpose.

**Note**
- In order to prevent the muffle from cooling down unnecessarily, the muffle should be inserted into the muffle swiftly and without delay. As far as possible, avoid long distances between the pre-heat furnace and the press ceramic furnace.

**IMAGINE h.e. Press ceramic pressing programmes**

<table>
<thead>
<tr>
<th>Cergo Press / IMAGINE Press X (200 g and 100 g muffle)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Start temp.</strong></td>
</tr>
<tr>
<td>700 °C</td>
</tr>
</tbody>
</table>

**Dekema Austromat Press-i-dent 100 g and 200 g conventional muffle systems**

<table>
<thead>
<tr>
<th>Modified pressing programme</th>
<th>Dekema Press-i-dent</th>
</tr>
</thead>
<tbody>
<tr>
<td>L9 C700 V9 L90 T060.C940 T1200</td>
<td>L96 T900 C0 L9 V0 L0 T2 C700</td>
</tr>
</tbody>
</table>

The end temperatures given are intended to serve only as a guideline. The end temperatures of press ceramic furnaces can vary and must be determined individually. Please ensure that your press ceramic furnace is calibrated regularly.

Devesting and blasting

Before devesting, mark the exact depth of the pressed object with the aid of a second plunger. Then use a cutting disc to separate the work at the marking and carefully remove the investment with a plaster knife as far as the joint between the plunger and the sprue. The bulk of the investment can be removed by blasting with a glass bead agent (grain size 50 µm) at a pressure of 3 - 4 bar. As soon as the workpieces become visible, reduce the pressure to 1 - 2 bar and carefully clean the work.

**Note**
- The diameter of the jet should be 1.2 mm.
- If a smaller jet is used, this can cause local overheating in the ceramic work and result in flaking and micro cracks.
- In order to avoid damaging the edges of the crown when blasting the pressed work, refrain from using aluminium oxide and only blast at an acute angle to the edge of the crown.

Separating and removing the work

Use a diamond cutting disc to separate the IMAGINE h.e. press ceramic workpieces from the sprues. Use only fine-grain diamond burs for any subsequent finishing. In order to avoid causing local overheating in the pressed ceramic, work only with a high-speed instrument and apply only gentle pressure.

To prevent cracks from forming, wet grinding recommended. In order to ensure that no distortion occurs during the later ceramic bake, the labial wall thicknesses of the copings should be 1.0 mm, the occlusal walls should be 1.5 mm thick and the thickness of inlays should not be less than 2.0 mm.
Note on using HITEK veneering ceramic for the build-up and staining techniques

In order to evenly condition the surface and to remove any impurities, the IMAGINE h.e. press ceramic items to be veneered should be carefully blasted with an abrasive polishing agent (grain size 50 µm) at a maximum pressure of 2 bar. After blasting, the ceramic items should be cleaned with a steam cleaner.

Build-up technique

With the build-up technique, reduced-size all-ceramic copings in IMAGINE h.e. press ceramic are pressed onto the dentine core and then built up to their final anatomical shape with HITEK veneering ceramic.

- **Dentine bake:**
  - End temperature approx. 780 °C - 785 °C
  - Dwell time 2 min. in a vacuum
  - Heat rise 75 °C/ min.

- **Glaze bake with/without glaze:**
  - End temperature approx. 745 °C - 760 °C
  - Dwell time 1-2 min. without vacuum
  - Heat rise 75 °C/ min.

When using the build-up technique, the restoration should be built up in layers as described in the instructions for use supplied with HITEK veneering ceramic. In order not to detract from the naturescent, light-optical properties of the all-ceramic restoration, HITEK opaque paste should not be used.

Staining technique

With the staining technique, the work (inlay, onlay, veneer or single crown) is pressed to its final anatomical shape in IMAGINE h.e. press ceramic. The restoration is then given its individual shade nuance and characterised with HITEK and Glaze.

- **Stain bake:**
  - End temperature approx. 760 °C - 775 °C
  - Dwell time 1-2 min. without vacuum
  - Heat rise 75 °C/ min.

- **Glaze bake:**
  - End temperature approx. 745 °C - 760 °C
  - Dwell time 1-2 min. without vacuum
  - Heat rise 75 °C/ min.

Note on build-up and staining technique

- All-ceramic work should always be placed on firing pins and seated on a firing cushion. Because of the reduced thermal conductivity of all-ceramic restorations and the use of a firing cushion, the firing temperature of the HITEK veneering ceramic must be increased on an individual basis by approx. 10 -20 °C. The end temperatures given serve only as a guideline. Please ensure that your ceramic furnace is calibrated regularly. The degree of glaze in the veneered all-ceramic restorations should correspond to that of a PFM crown made using HITEK veneering ceramic.
Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muffle broken after pressing</td>
<td>The muffle or the plunger was not perpendicular to the pressing direction of the furnace. This causes the plunger to tilt and damage the muffle.</td>
<td>In order to ensure that the muffle is aligned at a right angle, use the muffle system recommended by us when investing the wax models.</td>
</tr>
<tr>
<td>Pressing flash on the work or crown margins; parts or work not fully pressed</td>
<td>Wax models incorrectly sprued; wax wire too thin</td>
<td>Ensure that wax wire and model are sprued in a line (axially); do not taper the sprue towards the model</td>
</tr>
<tr>
<td>Pressing flash on the ceramic work and on the sprues</td>
<td>Muffle cracked</td>
<td>Follow the recommendations for normal heating of the muffle</td>
</tr>
<tr>
<td>Incompletely pressed restorations</td>
<td>Press pellets insufficient for the number of items pressed</td>
<td>Determine the weight of the wax model (including wax wire)</td>
</tr>
<tr>
<td></td>
<td>Wax models not weighed correctly</td>
<td>Then determine the number of pellets required</td>
</tr>
<tr>
<td></td>
<td>Pressing temperature selected is too low; actual temperature of the pressing furnace is not the same as the required temperature</td>
<td>Increase pressing temperature</td>
</tr>
<tr>
<td></td>
<td>Pressure too low</td>
<td>Check and/or calibrate pressing furnace</td>
</tr>
<tr>
<td></td>
<td>Pressing time selected is too short</td>
<td>Increase pressure up to 5 by depending on furnace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase pressing time</td>
</tr>
<tr>
<td>Cracks occur when separating the work from the sprues; Cracks occur when finishing the restoration</td>
<td>Local overheating of the press ceramic caused by incorrect grinding tools and excessive contact pressure</td>
<td>When finishing, use only sharp, fine diamond abrasives applied with gentle pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Separate sprues in a circular fashion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cool the restoration with water whilst grinding</td>
</tr>
<tr>
<td>Crown fit is too tight / inlay too large</td>
<td>Mixing ratio is not correct</td>
<td>Observe correct mixing ratio; use more liquid</td>
</tr>
<tr>
<td>Crown fit is too loose / inlay too small</td>
<td>Mixing ratio is not correct</td>
<td>Observe correct mixing ratio; use more liquid</td>
</tr>
<tr>
<td>Porosity or whitish stains on the surface and restoration discoloured</td>
<td>Modelling wax does not burn out without trace</td>
<td>Use recommended waxes as specified in the list</td>
</tr>
<tr>
<td></td>
<td>Pressing temperature selected is too high</td>
<td>Reduce pressing temperature</td>
</tr>
<tr>
<td>Cracks form after firing</td>
<td>Incorrect firing</td>
<td>Fire without a cooling phase</td>
</tr>
<tr>
<td></td>
<td>Firing tray left on the furnace table after firing</td>
<td>Remove the firing tray from the furnace table after firing</td>
</tr>
<tr>
<td></td>
<td>Incorrect firing pin used or work fired directly on firing tray</td>
<td>Fire crowns on special firing pins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fire inlays on a small firing cushion placed on a firing pin</td>
</tr>
<tr>
<td>Restoration does not fit after firing</td>
<td>Distortion caused by too high a firing temperature</td>
<td>Reduce firing temperature</td>
</tr>
<tr>
<td></td>
<td>Ceramic material on the inner surface of the restoration</td>
<td>Inspect inner surfaces and remove ceramic material</td>
</tr>
<tr>
<td></td>
<td>Minimum wall thickness of restoration not observed</td>
<td>Observe minimum wall thickness</td>
</tr>
<tr>
<td>Cracking or flaking after devesting the work</td>
<td>Muffle cooled too slowly after pressing</td>
<td>Allow the muffle to cool slowly at room temperature</td>
</tr>
<tr>
<td></td>
<td>Excessive blasting pressure or too coarse an abrasive agent used when removing investment</td>
<td>Cut sprues in a circular fashion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cool the restoration with water whilst grinding</td>
</tr>
<tr>
<td>Parts of the ceramic restoration or crown margins are missing</td>
<td>Work blasted with aluminium oxide at too high a pressure</td>
<td>Use 50 μm glass bead abrasive; reduce blasting pressure</td>
</tr>
</tbody>
</table>

Note

When using the staining or build-up technique, please observe our detailed instructions for using HITEC veneering ceramic and the information given in our EC safety data sheets.

List of recommended materials

for working with IMAGINE h.e. Press ceramic

Investments:
- Super-hard investment / WIELAND
- Fujirock / GC

Wachse:
- Transpa beige Creative Wax
- Gecko beige / Bredent
- Finocrown grey / DT
- Finowax immersion wax, green / DT
- Crowac, blue for C+B / Renfert
- Pico, beige for C+B / Renfert
- VKS beige-transparent modelling wax / Yeti
- VKS grey-transparent modelling wax / Yeti
- Special casting wax, red by Gründler / Dentaurum

Note

It is recommended to take suitable precautions during all grinding and polishing operations.

IMAGINE h.e. press ceramic was developed exclusively for use in dental laboratories for the areas of application described and must be used in accordance with these instructions.

As a precaution, we hereby draw attention to the fact that we can accept no liability for damages arising from improper use.

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