INSTRUCTIONS FOR USE

INDICATIONS

<table>
<thead>
<tr>
<th>Translucency</th>
<th>High Translucency</th>
<th>Low Translucency</th>
<th>Medium Opacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UP.CAD</td>
<td>UP.PRESS</td>
<td>UP.CAD</td>
</tr>
<tr>
<td>processing technique</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Staining technique</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cut-back technique</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Layering technique</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Indications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin veneers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Veneers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Inlays</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Onlays</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Partial crowns</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Anterior crowns</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Posterior crowns</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

* Can be made but not recommended

Each individual restoration such as an inlay or onlay must be carefully chosen to match the translucency of the patient’s teeth.

Veneer thickness for milling should be around 0.6-0.7 mm, hand finishing can take this down to 0.4-0.5 mm if required.
**PROCEDURES**

1. **Preparation**

   Clinicians can collect the patient’s data using an intra-oral scanner, or create a model in milling wax form a silicone impression.

   Brush the prep with a spacer according to the restoration type.

   For partial crowns, veneers, single crowns as well as bridge reconstructions, the spacer is applied in two layers to within 0.5mm to 1.0mm of the preparation margin.

   For inlays and onlays, the spacer is applied in up to 3 layers and right to the preparation margin.

2. **Wax-up**
Using CAD/CAM technology, download the preparation data and create the design required or use a hand-carved wax crown.

For copings where the strength is needed for layering, the frame should make up at least 50% of the total thickness of the restoration.

The regular thickness of the restoration (depending on the indication) is shown in the table below.

<table>
<thead>
<tr>
<th>Overall thickness of the restoration (mm)</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
<th>1.5</th>
<th>1.8</th>
<th>2.0</th>
<th>2.5</th>
<th>3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum framework thickness (mm)</td>
<td>0.4</td>
<td>0.5</td>
<td>.06</td>
<td>.08</td>
<td>1.0</td>
<td>1.1</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Maximum layer thickness of the veneer with *** (mm)</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>.08</td>
<td>0.9</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

When designing the wax pattern for the cut-back technique, the basic shape of the restoration should be retained without extreme mamelon shapes or any points or sharp edges. Take care to retain the original thickness of the restoration. Occlusal and marginal contacts should be allowed for from the start.

### 3. Sprueing

After completing the wax-up process it can be contoured using organic waxes and then sprued onto an investment ring base.

Incorrect:
The sprue and wax-up are not in the same direction.

Incorrect:
Although the sprue and wax-up are in the same direction, they have been placed vertically.

Incorrect:
The crown should be fit surface upwards. See below.
Sprueing Schematic
Always attach the sprues in the direction of flow of the cerami and at the thickest part of the wax-up to enable a smooth flow of the viscous ceramic during pressing.

The maximum length (wax objects + sprue) of 16.0mm MUST NOT BE EXCEEDED.

The length of the sprue is approximately 4.0mm and diameter should be 2.0-3.0mm while leaving a gap between sprues.

The sprues should be angled at 45-60 degrees to the ring base.

The distance between each wax-up should be at least 3.0mm.

![Figure 1: Illustration showing correct layout](image)

### 4. Investing

<table>
<thead>
<tr>
<th>EXAMPLES OF INVESTMENT MATERIALS AND INVESTMENT METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Storage Temperature</td>
</tr>
<tr>
<td>Working Temperature</td>
</tr>
</tbody>
</table>
| Mixing Ratio                                          | 100g : 27ml
200g: 54ml                                     | 100g : 25ml
200g: 50ml                                     | 100g : 23ml
60g: 14ml                                       |
| Mixing Time                                           | Manual Mixing: 15s
Vacuum Mixing: 2.5min                             | Manual Mixing: 30s
Vacuum Mixing: 60
Vacuum Still: 30s                                 | Manual Mixing: 15s
Vacuum Mixing: 60sec                                |
| Firing Time                                           | 30-45min                            | 29-30min        | 15min                               |
| Firing Temperatures                                   | 850°C Incubated
45-60min                                              | 900°C Incubated
30min                                                | 843°C Incubated
30-60min                                              |
The Investment liquid pouring process
When investing investment materials, pour lowly around the edge of the silicone ring in order to prevent any movement of the wax-up objects.

![Figure 2: Not Recommended](image1.png)  ![Figure 3: Pour Slowly Along Ring Wall](image2.png)

NOTES:
1. Before investing, make sure the mixing pot is clean and dried to achieve reliable powder-to-liquid ratios.
2. In the summer, temperatures indoor can be higher than ideal. Keep investing liquids cool in refrigerator until needed to increase working time.
3. Strictly follow the manufacturer’s instructions when measuring powder-to-liquid ratios in order to achieve the correct expansion rates at high temperatures.
4. Vacuum mixing is recommended at a speed of approximately 350rpm and a stirring time of 30 to 60 seconds.
5. The mold should be left untouched for 35-30 minutes so that the investment material is completely set and solid. Any movement or premature removal of the silicon ring before the investment material is fully set will likely produce internal micro-cracks resulting in mold breakage during the die-casting process.
6. Always use professional dust masks and dust extractors as investment materials contain quartz and cristobalite and may be harmful to lungs and cause respiratory issues (silicosis and lung damage).

5. Preheating
After the correct setting time of the investment material has passed, remove the ring gauge and ring base with a turning movement, carefully pushing the investment ring out of the silicone ring and remove the rough areas on the bottom surface of the investment ring – *tip the investment ring with the opening facing down*.

![Figure 4: Incorrect - investment ring opening facing down](image3.png)  ![Figure 5: Correct - investment ring opening facing up](image4.png)

CAUTION:
Perform pre-heating in accordance with the user instructions provided by the manufacturer of the investment material. Failure to do so may result in distortions.
6. Pressing
Remove the investment ring from the preheating furnace immediately after completion of the
preheating cycle.
Put the Supreme.press ingot and alumina support bar into the hot investment ring and place
the ingot and alumina support bar in the center of the press furnace within 30 second.
Recommended pressing procedures are show in the table below.

<table>
<thead>
<tr>
<th>Supreme.press Product</th>
<th>Investment Ring System</th>
<th>B °C</th>
<th>t °C/min</th>
<th>T °C</th>
<th>H min</th>
<th>E µm/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT/MD</td>
<td>100g</td>
<td>700</td>
<td>60</td>
<td>913</td>
<td>15</td>
<td>250</td>
</tr>
<tr>
<td>HT</td>
<td>100g</td>
<td>700</td>
<td>60</td>
<td>910</td>
<td>15</td>
<td>250</td>
</tr>
</tbody>
</table>

*Note: If the furnace comes with a fixed die-casting process, follow the program provided.*

7. Divesting
After cooling to room temperature, mark the length of the alumina plunger on the cooled
investment ring and separate the investment ring from the pressed object.
Method 1: Rough divesting is carried out with 100-120μm alumina polishing beads at 3-
4 bar pressure until the pressed object appears, divesting can then be completed with
the polishing beads but a maximum pressure of 2bar.
Method2: Remove the main bulk of the investment around the pressed objects using
gypsum pliers. The final divesting is then carried out with polishing beads at a maximum
pressure of 2bars.