This technique is also called lost wax casting technique and is one of the oldest casting techniques, which offers unlimited freedom in design and material choices. Products ranging from a few grams to more than one hundred kilogram are possible. Typical applications can be found in the automotive, pump, food industry, architecture and general industrial engineering.

By producing wax models with water-soluble or ceramic cores, it is possible to produce complex, internal structures in castings. Due to the high precision of this technique, it is highly suited to convert conventional produced products into castings, with minimising the additional operations and by reducing the weight of the final product.

Investment casting components can be easily grinded, which makes it possible to produce excellent decorative structural components. The low investment in tooling and start-up costs makes it irrelevant whether a few pieces or hundreds of thousands of pieces are produced.

Due to the possibilities by 3D printing of wax models we can save the investment in tooling and directly start-up the casting process. This advantage is used in case of pilot series or at development stages producing prototypes.

**Benefits**

- Precise tolerances
- Thin walls are possible
- Fine surface structure
- Complex shapes can be achieved without draft angles
- Small marks can be casted very clearly, such as letters or company logos
- Suitable for a wide variety of materials

**Possible alloys**

- Stainless steel and duplex grades (such as 304 (L) or 316 (L))
- Carbon steel, tool steel, austenitic manganese steel and heat-resistant steel
- Various kinds of non-ferrous steel alloys (such as aluminium or copper)
1. Tooling production
2. Wax injection
3. Tree assembly
4. Slurry dipping
5. Ceramic strewing
6. Dewaxing
7. Shell baking
8. Melting & pouring
9. Shell breaking
10. Gates removing
11. Grinding
12. Measurement check

**Technical specifications**

- The commonly used casting tolerance table for linear dimensions is CT6 according to ISO 8062 (wall thicknesses CT7)

- Weight: 0.005 - 120 kg
- Casting surface roughness: Ra 3.2 µm
- Maximum dimensions: 1000 x 620 x 380 mm
- Casting wall thickness: ≥ 3 mm, locally 0.5 mm can be reached
- Angle tolerances: ± 1°
- Geometric tolerances that are required for the function, should be specified in the drawing

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>CT6</th>
<th>CT7</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10</td>
<td>± 0,26</td>
<td>± 0,37</td>
</tr>
<tr>
<td>&gt; 10 ≤ 16</td>
<td>± 0,27</td>
<td>± 0,39</td>
</tr>
<tr>
<td>&gt; 16 ≤ 25</td>
<td>± 0,29</td>
<td>± 0,41</td>
</tr>
<tr>
<td>&gt; 25 ≤ 40</td>
<td>± 0,32</td>
<td>± 0,45</td>
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<tr>
<td>&gt; 40 ≤ 63</td>
<td>± 0,35</td>
<td>± 0,5</td>
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<tr>
<td>&gt; 63 ≤ 100</td>
<td>± 0,39</td>
<td>± 0,55</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>In consultation</td>
<td></td>
</tr>
</tbody>
</table>

**Design, avoid abrupt transitions and use radii**

**Finishing options**

- Pickling and passivation
- Electrolytic polishing
- Vibra-polishing
- Blasting
- Electrolytic zinc plating
- Hot-dip galvanising
- Chrome plating
- Mirror polishing
- Dull polishing