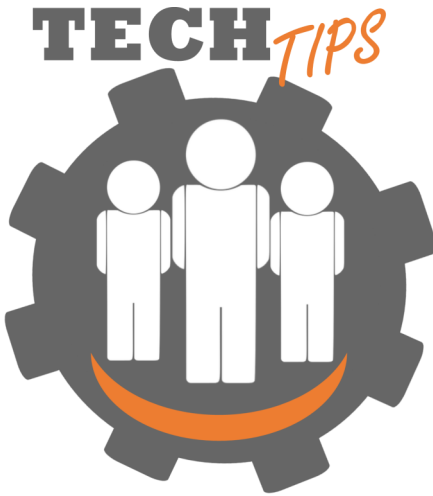


DENTAL INVESTMENT DEFECT ANALYSIS GUIDE



R&R recommends utilizing the following problems, causes and solutions to guide you through any difficulties you may encounter with dental investments.

This information is intended to help you troubleshoot these problems.

Should your issue persist, please contact our technical team at Technical@ransom-randolph.com for additional assistance.

Problem: Rough or Pitted Surface

Cause	Solution
<ul style="list-style-type: none">Liquid investment paint-on not used	<ul style="list-style-type: none">Paint <i>thin</i> coat on all patterns
<ul style="list-style-type: none">Used old or moistured investment	<ul style="list-style-type: none">Use new investment
<ul style="list-style-type: none">Improper spruing	<ul style="list-style-type: none">Sprue must be thicker than casting
<ul style="list-style-type: none">Incomplete burnout	<ul style="list-style-type: none">Raise temperature/hold time
<ul style="list-style-type: none">Overheated mold	<ul style="list-style-type: none">Don't exceed 1900 °F (1038 °C)
<ul style="list-style-type: none">Dirty and/or old alloy	<ul style="list-style-type: none">Clean sprue former upside downUse casting flux

Problem: Porosity, Shrink Spots

Cause	Solution
<ul style="list-style-type: none">Improper spruing	<ul style="list-style-type: none">Sprue must be thicker than casting
<ul style="list-style-type: none">Not enough new alloy used	<ul style="list-style-type: none">Use minimum of 66% new alloy
<ul style="list-style-type: none">Overheated ring	<ul style="list-style-type: none">Lower temperature and/or hold time
<ul style="list-style-type: none">Alloy overheated	<ul style="list-style-type: none">Check torch tip and gas pressurePlace crucible in oven with ring



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Problem: Miscast, Short

Cause	Solution
<ul style="list-style-type: none">Mold not hot enough	<ul style="list-style-type: none">Raise oven temperature/hold time
<ul style="list-style-type: none">Gases couldn't escape through top of ring	<ul style="list-style-type: none">Scrape investment from top of ring
<ul style="list-style-type: none">Not enough alloy used	<ul style="list-style-type: none">Add more alloy
<ul style="list-style-type: none">Sprue gauge too small	<ul style="list-style-type: none">Use larger gauge
<ul style="list-style-type: none">Sprue length too long	<ul style="list-style-type: none">Shorten sprue
<ul style="list-style-type: none">Used too little number of sprues	<ul style="list-style-type: none">Use more sprues and/or place sprues better
<ul style="list-style-type: none">Casting sprue under wound	<ul style="list-style-type: none">Increase turns
<ul style="list-style-type: none">Furnace calibration off	<ul style="list-style-type: none">Check with temperature pill
<ul style="list-style-type: none">Alloy not heated enough	<ul style="list-style-type: none">Raise temperature, pre-heat crucibleUse casting flux, change torch/tip

Problem: Fins/Flash

Cause	Solution
<ul style="list-style-type: none">Too much model dip coating	<ul style="list-style-type: none">Avoid pooling, shorten dip time
<ul style="list-style-type: none">Pattern coat used too thick	<ul style="list-style-type: none">Apply very thin coat
<ul style="list-style-type: none">Mold overheated, cracked	<ul style="list-style-type: none">Lower temperature/hold time
<ul style="list-style-type: none">Burnout too fast	<ul style="list-style-type: none">Check bench set time, burnout rate
<ul style="list-style-type: none">Glaze and/or fines on top of ring not removed	<ul style="list-style-type: none">Remove glaze/fines
<ul style="list-style-type: none">Investment walls-to-ring too thin	<ul style="list-style-type: none">Have more space between model and ring
<ul style="list-style-type: none">Casting arm over wound	<ul style="list-style-type: none">Use less winds
<ul style="list-style-type: none">Vibration in casting arm	<ul style="list-style-type: none">Tighten arm, check counter weight
<ul style="list-style-type: none">Mold dropped	<ul style="list-style-type: none">Have oven, casting machine closer
<ul style="list-style-type: none">Used one liquid/powder ratio for model, another ratio for mold	<ul style="list-style-type: none">Keep powder/liquid ratio mix the same



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Problem: Warped Casting

Cause	Solution
<ul style="list-style-type: none">• Heavy spruing to wrong places	<ul style="list-style-type: none">• Use thinner sprues to thinner areas
<ul style="list-style-type: none">• Tension caused by sprues	<ul style="list-style-type: none">• Relocate and distribute sprues better
<ul style="list-style-type: none">• Hammered button devesting	<ul style="list-style-type: none">• Devest using instruments
<ul style="list-style-type: none">• Plunged hot casting in cold water	<ul style="list-style-type: none">• Let casting bench cool

Problem: Tight Fit

Cause	Solution
<ul style="list-style-type: none">• Used wrong duplicating process	<ul style="list-style-type: none">• Follow instructions on duplicating pail

Problem: Loose Fit

Cause	Solution
<ul style="list-style-type: none">• Used too much liquid in mix	<ul style="list-style-type: none">• Use less liquid



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Issue Date: October 16, 2023

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