

Troubleshooting Guide

PROBLEM	KNOWN CAUSES	SOLUTIONS
Opaque is separating off the metal substructure	Under-fired opaque	The opaque should have an eggshell sheen after firing. Increase the temperature until this is achieved. Verify the accuracy of the oven and calibrate as necessary.
	Thick layered opaque place in a hot muffle	Let oven cool to idle temperature.
Opaque is bubbling	Insufficient dry time	Use at least 6 min. for powder opaque and at least 6-8 min. for paste opaque.
	Heat rate is too high	Heat rate should be 55°C/min. (100°F/min.) If this does not work, continue to lower the rate as necessary.
Opaque is pooling at the margin area of the coping/framework	Incompatible opaque	The high temperature of the porcelain is likely to be too high and the opaque is "running." Double-check the firing schedule and what opaque was used. Verify the accuracy of the oven and calibrate as necessary.
Ring cracks before pressing	Completion of the proper set time was not observed	Follow the recommended setting times provided in the refractory investment instructions.

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	The heat rate in the burnout oven is too rapid	Use the rapid burnout method or follow the prescribed heat rate for the refractory investment instructions.
Ring cracks during pressing	The investment was not properly prepared; the dilution factor used was greater than or less than the prescribed amount	Check the refractory investment instructions to verify the proper investing ratios. <i>Note: 100% liquid = high strength & high expansion. 100% water = low strength & no expansion.</i>
	Pressing platform has debris causing an uneven surface	Clean the surface of the pressing platform so it is free of any debris.
	The plunger was not properly seated in the ring	Make sure the plunger is upright, clean and perpendicular to the pressing surface before starting the pressing cycle.
	Improper burnout process was used	Refer to the refractory investment instructions for proper burnout cycle.

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Ring cracks during pressing (cont'd)	Too many ingots were used in the ring	Determine the proper number of ingots and ring size.
	Not enough hold time	Increase hold time.
Porcelain cracks after pressing	The ring was divested too quickly	Ensure the ring is cool to the touch before divesting.
	The wax-up is too thin	Increase the thickness of the wax pattern. Wax patterns must be at least 1.0 mm for anterior and 1.3 mm thick for posterior restorations, including the coping.
	The CTE of the alloy is not compatible	Use alloy with a CTE range of 13.6 -14.8.
	Divesting with materials other than glass beads	Use only glass beads for divesting patterns. Observe the correct pressure in sandblaster.
	The pressure setting of the compressed air source is too high	Ensure the compressor is set at 120 psi and that the pressure setting on the pressing furnace is between 4.5 and 5.5 bars (68-83 psi, average 75 psi).
Incomplete pressing	Incorrect pressing and/or holding time	Verify recommended parameters, accuracy of pressing unit.

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Incomplete pressing (cont'd)	Incorrect pressure	Calibrate as necessary.
	Sprue size is too narrow and/or too long	Use sprue size no smaller than a 10-gauge.
	Proper sprue angle is not followed	Follow spruing guidelines.
	Wax-up is too thin	Follow minimum thickness guidelines.
	Too few ingots were used	Refer to the table provided on chart to determine the proper number of ingots and ring size for the restoration.
	Burnout temperature is too low	Refer to the refractory investment instructions for proper burnout cycle.
	Restorations are too close to the external wall of the investment	Adjust the sprue angle to bring the units closer to the center of the ring. Restorations should be at least 1/4" away from the sides of the ring.
Porosity in pressed porcelain	Contaminant in the wax pattern prior to pressing	Be sure wax patterns are free of debris before investing. Use ash free wax.
Cracks/fractures in porcelain	Excessive grinding speed and/or pressure	Use normal pressure and slow speeds when finishing; avoid using coarse diamonds or stones.

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Cracks/fractures in porcelain (cont'd)	Sharp edges on coping	Ensure framework design never has sharp edges or corners.
	Insufficient metal support	Try not to go beyond 3 mm of porcelain in any areas.
	CTE incompatibility between porcelain and alloy	Double-check the appropriate CTE data of the alloy using for your substructures. Use alloys that are <1.0 higher than the listed CTE value for Prismatic NetPress.
Porosity in the Add-On porcelain	The surface of pressed core not prepared or cleaned properly	Break the surface of the restoration using an appropriate grinding medium, then blast the core with ALO2 at 30 psi. Clean the restoration with steam or an ultrasonic cleaner before adding porcelain.
	Vacuum	Use vacuum.
Under-glazed or dull, rough surface	First glaze was underfired	Follow recommended firing temperatures, ensure furnace is properly calibrated.
	Glaze coat applied too thin	Increase final temperature no more than 3-5 degrees at a time.

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Under-glazed or dull, rough surface (cont'd)	Not enough glaze powder used in glaze mixture	Apply even, uniform coat of properly mixed glaze.
	Low glaze results	<p>Fine adjustments – Add 30 seconds to hold time.</p> <p>Coarse adjustments – Increase temperature</p>
Subsequent porcelain bakes do not adhere	Surface not properly prepared	Remove surface glaze and clean the restoration. Proceed with porcelain build-up.