

Kaya Cast Deluxe Casting & Vacuuming System Product Manual



Meet Your Kaya Cast Deluxe Casting & Vacuuming System:

Welcome to the next level of precision casting. The Kaya Cast Deluxe Casting & Vacuuming System is the professional's choice for jewelry casting and investing — engineered for reliability, smooth operation, and flawless results. Whether you're producing delicate pieces or large-scale designs, this machine combines performance and ease of use to help you achieve perfect castings every time.

Set Up and Operation

Remove the corrugated shipping cover, then place the unit on a stable, even surface. Before operating the unit, it is necessary to fill the vacuum pump with oil.

Filling the Vacuum Pump with Oil

Each bottle of Vacuum Pump Oil comes factory sealed for protection against contamination. Unscrew the cap and remove the air-tight seal. Replace cap with the included filter, cut off the spout tip, and prepare to fill oil. Remove the brass oil fill cap located on the back of the unit. Invert the spout tip into the oil fill port of the pump. Fill slowly until the oil level reaches the upper fill line of the sight glass.

Replace oil fill plug before operating. Important: Do not use any oil other than Vacuum Pump Oil.

Operating the Vacuum Pump

Uncoil the electrical cord and plug it into a suitable 120V outlet. Place the vacuum control knob in the 'Vacuum Release' position. Push the toggle switch to the 'ON' position and check that oil in the sight glass remains even with the top of the oil level line. Repeat if necessary until all required oil has settled into the pump system. Maximum oil capacity: 26.4 ounces. If the unit fails to pull vacuum or does so slowly, check oil level—it must be even with the top line when running.

Testing the Vacuum Investing Table

Place the rubber pad on the vacuum table so that the hole aligns with the vacuum table intake. Place the Bell Jar on the pad ensuring the intake is inside the jar. Turn on the pump and switch the control knob to 'Investment Table' to check the gauge. The gauge should reach 29 inches or more at sea level in under one minute. If not, press on the sides of the Bell Jar to ensure a good seal. Caution: Never press down on the top of the Bell Jar—it may crack. Moistening the pad can improve sealing.

Testing the Vacuum Casting Chamber

Ensure the silicon gasket is aligned on the chamber. Add the Vacuum Assist Flask Adapter and, with the pump running, place the silicon rubber seal off-center over the hole to form a seal. Turn the control knob to 'Casting Table' and confirm a 29-inch vacuum (at sea level). If not achieved, check seals for air leaks and retest. Caution: Always return the control knob to 'Vacuum Release' before shutting off the motor to prevent oil backflow.

Investing Procedure

Follow manufacturer's recommendations for mixing investment and water. Mix 2–3 minutes until smooth and lump-free. Place the bowl on the vacuum table under the Bell Jar and turn the pump ON. Set knob to 'Investment Table' for 90 seconds, then release vacuum before turning pump off. Pour mix into the flask. Use an extender or rubber jacket to prevent overflow. Vacuum flask again for 1½ minutes at 29 inches. Let set for 2 hours before burnout.

Vacuum Chamber Casting Procedure

Use perforated flasks with matching adapter rings. Place the 5" silicon gasket on the chamber, seat adapter, and align silicone ring for a tight seal. Verify 20"+ vacuum at sea level before casting. Melt metal in the crucible, flux as needed, and pour quickly while the vacuum runs. Keep flame on the button for a few seconds to ensure solidification. After casting, release vacuum, then turn off pump. Cool flask for 2 minutes before removal.

Vacuum Assist Casting Procedure

Use solid wall flasks and the Vacuum Assist Adapter. Place the 5" silicon gasket and adapter plate on the chamber. Position flask over the ½" hole. Ensure flask edges are smooth for a good seal. Maintain 20"+ vacuum during pouring. Cool for 2 minutes before removing flask. Knock out or quench once cooled.

Care of Pump

Change oil every 10 hours of operation. Maintain oil at the top line of the sight glass when running. To change oil: Turn off and unplug unit. Remove fill cap and loosen drain plug. Drain oil completely, reinstall plug securely, and refill with standard vacuum oil.



We're Here Whenever You Need Us!

From setup questions to expert casting tips, our Technical Service Team is always just a call away. Whether you're a first-time caster or a seasoned professional, we'll make sure your Kaya Cast Deluxe runs flawlessly and your results shine every time.

Give us a ring at (631) 842-2400 — we love helping makers like you bring their creations to life!