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**PROUD AMERICAN
MANUFACTURER**



MACHINE MFG., INC.

SINCE 1975

**THANK YOU
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CONGRATULATIONS
ON YOUR PURCHASE OF:**

**MODEL # 10
KAYA CAST**

**Proudly Available at
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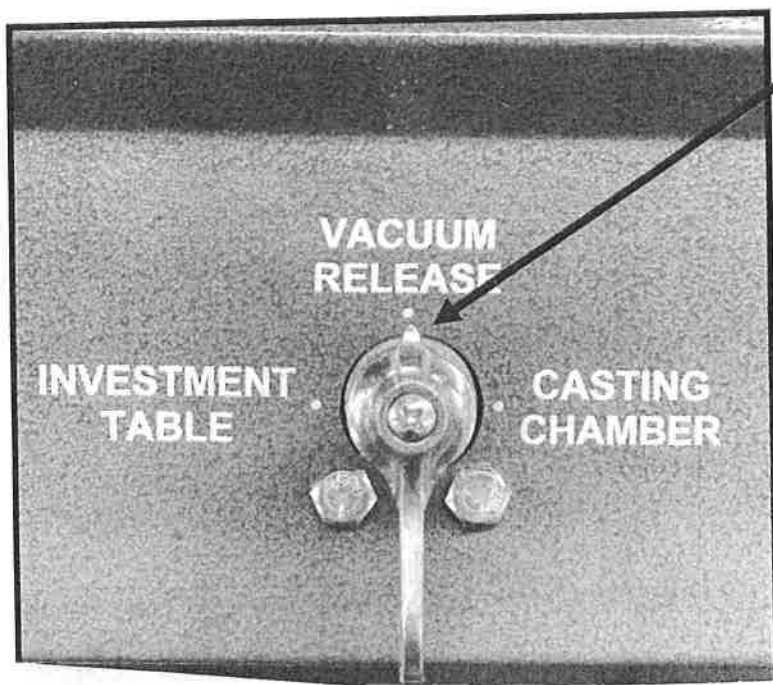


**THE PROFESSIONALS CHOICE FOR
JEWELRY CASTING & INVESTING**

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Handle Indicator

This is the tip of handle that needs to point to whichever side is in use.

QUICK START GUIDE:

For thorough instructions, please review attached instructions. However, below, you will find a simplified start-up procedure.

- 1.) Place unit on a sturdy and level surface.
- 2.) Plug unit's cord set according to voltage required.
- 3.) Unit is NOT shipped with oil. Prior to operating unit, please fill unit with oil using the vacuum oil provided. **NEVER OPERATE UNIT WITHOUT OIL.** Oil fill inlet is located directly behind the unit. Remove black rubber cap and fill oil slowly making certain that the oil level is at the maximum. Oil level can be viewed on sight glass on the right side of the unit.

OIL CHANGE PROCEDURE

In order to sustain maximum life of vacuum pump, it is recommended that the oil be changed every 10 hours of use using standard vacuum oil. In order to change oil, turn unit's power off and unplug unit from power supply. Remove black rubber oil fill cap and loosen oil drain plug located on the bottom right-hand side of the unit (please note that oil will not drain unless the oil fill inlet cover is removed). Once oil has been completely drained, re-install the oil drain plug securely into place. Refill unit with oil following step #3 above.

**PUMP OIL
CAPACITY
9 OZ**

SETUP AND OPERATION

1- Remove the corrugated shipping cover, then place unit on even surface. To operate the unit, it is necessary to fill the vacuum pump with oil.

2- FILLING THE VACUUM PUMP WITH OIL

Each bottle of Vacuum Pump Oil comes factory-sealed for protection against contamination. Unscrew the cap and remove air-tight seal. Replace cap with filter cap included, cut off spout tip, and prepare to fill oil. Remove brass oil fill cap located on back of unit. Insert spout tip into the oil fill port of the pump. Fill slowly until OIL LEVEL reaches upper fill line on sight glass. IMPORTANT: DO NOT USE ANY OIL OTHER THAN VACUUM PUMP OIL. Replace oil fill plug before operating machine.

3- OPERATING THE VACUUM PUMP

When the pump is ready for use, uncoil the electrical cord and plug into suitable outlet (120 volts or 240 volts). Place the vacuum control knob in the "VACUUM RELEASE" position. Push the toggle switch to the "ON" position and observe the oil in the sight glass to be sure it remains even with the top of the Oil Level line. It may be necessary to repeat this procedure two or three times until all the required oil has settled into the pump system. Maximum oil capacity is **9** ounces.

IMPORTANT

IF UNIT FAILS TO PULL A VACUUM OR PULLS THE VACUUM SLOWLY, CHECK THE OIL LEVEL ON THE PUMP- OIL MUST BE EVEN WITH TOP OF LINE WHEN RUNNING.

4- TESTING THE VACUUM INVESTING TABLE

Place the rubber pad on the vacuum table so that the hole in the pad aligns with the vacuum table intake. Place the Bell Jar on the rubber pad, making sure that the vacuum table intake is inside the Bell Jar. Push the toggle switch to "ON", which activates the vacuum pump. Turn the Vacuum Control Knob to the Investment Table position to check Vacuum Pump Gauge. The vacuum gauge needle should begin to rise immediately and, in less than one minute, should reach 29 inches plus at sea level. **If this does not happen, using both hands press firmly on the sides of the bell jar to assure a good seal between the bell jar and the rubber pad.**

Moistening the rubber pad may help in attaining a good seal.

CAUTION: Never push down on the top of the bell jar. Excess pressure to this point may cause plastic to break. After desired vacuum is achieved, release vacuum by turning Vacuum Control Knob to "Release" position.

5- TESTING THE VACUUM CASTING CHAMBER

Make sure the silicon rubber gasket is properly aligned on the vacuum chamber. Add the Vacuum Assist Flask Adapter and, with the vacuum pump running, place the Silicon Rubber Seal off-centered over the hole in the center of the plate so that it will form a seal. Turn the Vacuum Control Knob to the "Casting Table" setting, and observe the vacuum gauge needle to make certain 29 inches of vacuum (at sea level) is attained. This indicates that the hoses are connected tightly and that the silicon rubber pad is seated properly. If a full vacuum is not attained, check all seals for air leakage, then repeat test. If all checks are good, machine is ready for use.

CAUTION

ALWAYS RETURN THE VACUUM CONTROL KNOB TO THE "VACUUM RELEASE" POSITION BEFORE TURNING OFF THE ELECTRIC MOTOR; OTHERWISE, OIL WILL BACK UP THROUGH SYSTEM

INVESTING PROCEDURE

- 1- Following manufacturer's recommendations, measure the correct amount of water and pour into mixing bowl. Weigh correct amount of investment material and introduce investment into the water. Stir the water and investment for 2 to 3 minutes, making certain that the investment slurry is very smooth in texture and free of lumps.
- 2- Place the mixing bowl containing this slurry on the vacuum table and cover with plastic bell jar. Flip Toggle Switch to "ON" position. Turn Vacuum Control Knob so that it points to the "Investment Table" position. The reduced air pressure under the bell jar causes the entrapped air in the investment to be released and rise to the surface. As this happens, the investment slurry will also rise. If it appears that this is happening, tap the corner of the vacuum table sharply several times, and slurry level should drop. At the end of approximately 90 seconds, release the vacuum by turning the Vacuum Control Knob to the "Vacuum Release" setting, then turn pump off. **IMPORTANT:** Never turn pump off before releasing vacuum, or oil will be sucked from the pump up to the table. Also, never allow the red silicon pad to cover the hole on the casting table while the investment table is in use.
- 3- Pour investment mix into the flask. When using conventional, solid wall flask and vacuum assist, it is recommended that a flask extender made of preformed rubber be placed around the top of the flask to prevent overflow of investment during vacuuming. This allows pouring investment to the top of flask. When using perforated flask, it is necessary to cover flask perforations (or holes). It is recommended that you use flask jackets or preformed rubber for this purpose. Place filled flask under bell jar, and activate the pump. Turn the Vacuum Control Knob to the "Investing Table" setting and secure the seal between the bell jar and rubber pad. Now, vacuum the invested flask for approximately 1 1/2 minutes at full vacuum (29 inches at sea level). Care should be taken not to over vacuum investment, since this can remove too much water from the slurry. Lightly tapping the spring supported vacuum table with the hand will help to release bubbles from the flask during the vacuuming process.
- 4- Allow the invested flask to set for approximately two hours before beginning burnout procedure.

PROCEDURES FOR VACUUM CHAMBER CASTING

Casting in a vacuum chamber requires the use of specially designed perforated flasks. Select the appropriate flask adapter to match the perforated flask. (There is an adapter ring for 3 3/8" diameter flask and an adapter ring for 4" diameter flasks. The 5" diameter flask does not require an adapter). Prepare the chamber for the flask as follows:

- 1- Place the 5" Silicon Rubber Gasket on top of the recessed casting chamber.
- 2- Firmly seat the Adapter Plate (if using a 3 3/8" or 4" flask) over the seal.
- 3- Carefully align the appropriate Silicon Rubber Ring on the adapter, this will form a tight vacuum seal. Flask will be placed through the hole in the adapter ring with flange resting on the silicon seal. **NOTE:** The sprue end must face up!

The flask should be cast at a temperature between 700 F and 1000 F, depending primarily on the configuration of the object being cast. Then follow these procedures:

- 1- Turn on the vacuum pump and turn the Vacuum Control Knob to the "Casting Table" position. Within a few seconds, the vacuum gauge needle should indicate a vacuum of 20 inches (at sea level) or more, which shows a good seal between the flask and pad.
- 2- Melt metal in the handled crucible, fluxing as need. When the metal is ready to cast, pour it quickly from the crucible directly into the mold. **NOTE:** Vacuum pump must be running during this period. Do not attempt a pour unless a good seal is achieved. After pouring, allow the flame of the torch to play on the bottom of the button of the metal formed by the pour. This requires only a few seconds, and assures progressive solidification of the metal in the casting.
- 3- After completion of the cast, release the vacuum by, first, turning the Vacuum Control Knob to the "vacuum Release" position, and, second, turning off the pump. Once all the vacuum is released, allow the flask to cool approximately 2 minutes before removing it from the pad. The cast piece can then be removed by quenching (or allowing flask to cool) and knocking it out with a rawhide mallet. If you prefer to knock out the piece, care should be taken that the flask is not damaged to the point that a good seal cannot be formed on the next cast. **NOTE:** Before burnout, be sure the investment has been scraped even and level with edges of the bottom of the flask so that the flask will seat firmly on the silicon rubber pad. It is practical to hollow or cup the investment slightly to further ensure the seal.

PROCEDURES FOR VACUUM ASSIST CASTING

Casting by vacuum-assist is accomplished with the use of standard solid-wall flasks and the Vacuum- Assist Flask Adapter. It is done on a level surface above the casting chamber. Place the 5" Silicon Rubber Gasket on top of the recessed chamber, then place the Vacuum Assist Adapter Plate on top of the rubber seal. Place the 5 1/2" diameter silicon pad on top of the adapter plate, with the 1/2" hole directly over the hole in the plate. Position the flask so that its center is directly over the 1/2" hole in the plate and pad. Always use a flask which has smooth, even edges in order to achieve a good seal.

The flask should be cast at a temperature between 700 F and 1000 F, depending primarily on the configuration of the object being cast.

- 1- Turn on the vacuum pump and turn the Vacuum Control Knob to the "Casting Table" position. Within a few seconds, the vacuum gauge needle should indicate a vacuum of 20 inches (at sea level) or more, which shows a good seal between the flask and pad.
- 2- Melt metal in the handled crucible, fluxing as needed. When the metal is ready to cast, pour it quickly from the crucible directly into the mold. **NOTE:** Vacuum pump must be running during this period. Do not attempt a pour unless a good seal is achieved. After pouring, allow the flame of the torch to play on the bottom of the button of the metal formed by the pour. This requires only a few seconds, and assures progressive solidification of the metal in the casting.
- 3- After completion of the cast, release the vacuum by, first, turning the Vacuum Control Knob to the "Vacuum Release" position, and, second, turning off the pump. Once all the vacuum is released, allow the flask to cool approximately 2 minutes before removing it from the pad. This cast piece can then be removed by quenching (or allowing flask to cool) and knocking it out with a rawhide mallet. If you prefer to knock out the piece, care should be taken that the flask is not damaged to the point that a good seal cannot be formed on the next cast. **NOTE:** Before burnout, be sure that the investment has been scraped even and level with the edges of the bottom of the flask so that the flask will seat firmly on the silicon rubber pad. It is practical to hollow or cup the investment slightly to further ensure the seal.

CARE OF PUMP

The oil acts as both a filter and as a seal for the vacuum pump. It should be changed and replaced after every 10 hours of operation. The oil level should be maintained and may be checked by viewing the sight glass.

FOR PUMP TO OPERATE PROPERLY,

Oil should be even with the top of OIL LEVEL line when the pump is running.

PUMP TROUBLE- SHOOTING

With reasonable care, your Vacuum Pump will provide years of good service. Usually, failure to perform satisfactory can be corrected easily by a few simple checks.

1- PUMP WON'T START

Be sure the plug is in securely, the unit switch is ON and the receptacle is live. Make sure the motor safety switch located on the bottom left hand side of the motor is in the "ON" position. (facing up) Pump and oil must be above 30 F. Line voltage must be equal to the motor name plate +/- 10%.

The pump motor has automatic resetting thermal overload protection. If the motor will not restart the pump after running, it may have opened the thermal protection. Disconnect the pump from the system, wait about 15 minutes for the motor to cool and turn it on again.

2- PUMP OR MOTOR RUNS HOT

Normal operating temperature is approximately 160 F, which is hot to the touch. Line voltage and ambient conditions will affect this somewhat.

3- If you have checked these points and your pump still does not operate properly, follow the following instructions:

4- RETURNING A UNIT

If it is necessary to return an inoperative unit:

- (a) drain oil
- (b) pack carefully, since claims for damage during transportation are virtually impossible to prove on "used machinery".
- (c) return entire unit to your dealer.
- (d) on your return order, simply stating the unit is "defective" is not enough. **YOU MUST BE AS SPECIFIC AS POSSIBLE:**

- (1) Pump stuck, will not turn over
- (2) motor will not start
- (3) leaks oil
- (4) accidentally dropped
- (5) any other possible reasons for inoperative condition.

PUMP WARRANTY

Our Vacuum Pumps are warranted against defects in materials and workmanship for 1 year. These products are guaranteed when used in accordance with our directions and recommendations, and we limit this warranty to the repair, replacement, or credit at invoice (our option) of products which in our opinion are defective due to defects in workmanship and/or materials. In no case will we allow charges for labor, expense, or consequential damage. Repairs performed on items out of warranty will be invoiced on a normal basis.



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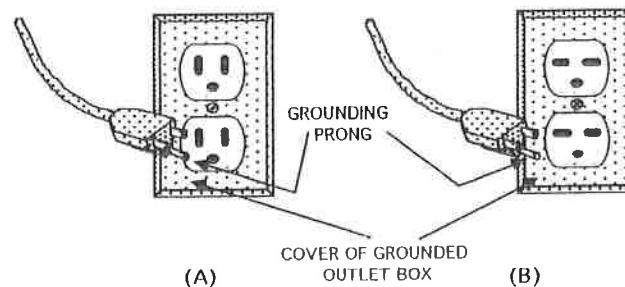
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SAFETY INSTRUCTIONS

I. GROUNDING INSTRUCTIONS

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts, it has a plug that looks like that shown in sketch (A) in Figure 1. If it is for use on 150 to 250 volts, it has a plug that looks like that shown in sketch (B). Use of an extension cords or a 2 prong adapter is not recommended.

FIGURE 1
GROUNDING METHODS



II. TOOL SAFETY INSTRUCTIONS

- 1. Keep Work Area Clean**
Cluttered areas and benches invite accidents.
- 2. Avoid Dangerous Equipment**
Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit.
- 3. Keep Children Away**
All visitors should be kept safe distance from work area and appliance.
- 4. Store Idle Tools**
When not in use, tools should be stored in dry, high, and locked location out of the reach of children.
- 5. Don't Force Tool**
It will do the job better and be safe at the rate for which it was designed.
- 6. Use Right Tool**
Don't force small tool or attachment to do the job of a heavy-duty tool.
- 7. Wear Proper Apparel**
Do not wear loose clothing or jewelry which may get caught in moving parts. Tie back long hair or use a proper hair net.
- 8. Use Safety Glasses**
Use safety glasses with all rotating tools. Also use a face or dust mask if cutting operation is dusty.
- 9. Don't Abuse Cord**
Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
- 10. Secure Work**
Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
- 11. Don't Overreach**
Keep proper footing and balance at all times.
- 12. Maintain Tools with Care**
Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 13. Disconnect Tools**
When not in use; before servicing; when changing accessories such as blades, bits, cutters, etc.
- 14. Avoid Accidental Starting**
Be sure switch is OFF when plugging in.



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WARRANTY POLICY

Arbe Machine Mfg., Inc. warrants all products furnished by it are free from defects in material and workmanship at the time of shipment for a period of eighteen (18) months from the date of shipment, or one (1) year from the date of installation, whichever occurs first. Claims must be made during that period and are limited to the replacement of parts claimed to be defective.

This warranty shall not extend to products that have been misused, neglected, altered or repaired without factory authorization during the warranty period. Operating conditions beyond our control such as improper voltage, excessive ambient temperatures, or other conditions that would affect the performance or life of the product will also cause the warranty to become void.

Permission to return parts for warranty repair must be obtained, and all returns must be prepaid factory. If, after examination, the product or part is found to be defective, it will be repaired or replaced on a no-charge basis and returned. On the other hand, if it is determined that the warranty has not been breached by Arbe Machine Mfg., Inc., then the usual charges for repair or replacement will be made. Parts or products that are obsolete or those made to special order are not returnable.

This limited warranty applies only to the above and is for the period set forth. Arbe Machine Mfg., Inc.'s maximum liability shall not, in any case, exceed the contract price for the product, part, or component claimed to be defective; and Arbe Machine Mfg., Inc. assumes no liability at all for any special, indirect, or consequential damages arising from defective equipment.

THERE ARE NO WARRANTIES IMPLIED OR EXPRESSED THAT EXTEND BEYOND THOSE CONTAINED IN THIS LIMITED WARRANTY.

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