ART METALCRAFT
CASTING CATALOG
CASTING TECHNIQUES
EQUIPMENT AND SUPPLIES
1980-81
Art
Metalcraft
Casting
Catalog

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INTRODUCTION

The purpose of the Kerr Art Metalcraft Casting Catalog is to: 1) explain briefly the steps in the Lost Wax Process of art metal casting and 2) list the various Kerr equipment, tools and supplies used in art metal casting.

To assist individuals interested in learning more about art metal casting, "Lost Wax — Casting with Kerr" (Third Edition) booklet is recommended. This booklet is listed in the catalog section.

The Lost Wax Process of art metal casting is not new. It is an ancient art that today can be easily learned to provide entertainment and a sense of accomplishment to the artist, the craftsman and the hobbyist.

The Lost Wax Process is based on this basic principle: a model or pattern of the finished product is made in wax. This pattern is surrounded by a creamy investment plaster that hardens to form a mold. During the mold heating (burnout) that follows, the wax pattern melts away and is "lost." Metal is then cast into the cavity left by the "lost wax," thus duplicating the original wax pattern. The mold is then destroyed to recover the casting.

This process dates back in time beyond Egypt’s pyramids. Examples of castings from the Shang Dynasty in China, 16th Century Europe and the Aztecs of Mexico, to name a few, are monuments to the abilities of casters down through the ages.

Refinements of this process were developed by a dentist in 1907, and applied to the casting of gold inlays and dental bridge work. Today’s craftsman may apply the very same techniques to making parts for models, fishing lures, specialized machine components and endless pieces of jewelry.

Because of the wide interest in jewelry making today, the following descriptions are of this process. Once you have learned the Basic Steps in Lost Wax Casting, the possibilities of design and accomplishments are unlimited.

**Basic Steps in Lost Wax Casting**

A. MAKE YOUR PATTERN
B. SPRUE AND MOUNT YOUR PATTERN
C. INVEST YOUR PATTERN
D. BURN OUT YOUR PATTERN
E. CAST
F. FINISH AND POLISH YOUR CASTING

"Louis XIV" by Francois Girardon. Claimed to be the largest known single casting in the world when done in 1699. This casting is pictured with the metal feed lines (sprue system) attached.
MAKE YOUR PATTERN

The first step is to create your idea in wax. Special Jewelers’ Waxes for producing patterns are available in varying colors, hardnesses and shapes. They may be bent, filed and sculptured by using various tools. Metal tools, such as the dental spatula, may be heated. Melted wax can be carried on the warm spatula, added to the pattern for building up and then carved to accomplish the desired detail.

A variety of waxes is available for the artist and craftsman.

As you make your wax pattern, remember that every detail created on the surface of the finished model will ultimately be re-created in metal when your casting is complete. Therefore, special care taken with your wax pattern minimizes finishing and polishing steps later.

An electrically heated wax pen is used to add detail to a pattern as it rests on a ring mandrel.

Wax patterns can be made on ring mandrels, glass slabs, door knobs, or any firm surface which will act as a base. The work surface must be covered with a lubricant (Kerr Microfilm), so that the wax can be removed without distorting the pattern. Your pattern should be as clean as possible before casting. If washed gently in a mild soap solution, it will be free of lubricants, dust and even oil from your hands. Always rinse your pattern in room-temperature water to avoid distorting it.

SPRUING AND MOUNT YOUR PATTERN

1. Spruining Your Pattern.

When your wax pattern is finished, a sprue system must be added to it. Sprues are necessary to: a) support the pattern on a sprue base in the desired casting position, b) provide passageways for wax elimination and c) form feed lines through which molten metal enters the mold.

Dome ring pattern, sprued and mounted on a rubber sprue base.

Your pattern will be encased in investment material to make a mold. To hold this material, select the proper size flask and its corresponding sprue base. Using Jewelers’ Sprue Wax, attach sprues from the heaviest parts of your pattern to the center of the sprue base. These sprues should be as thick as the thickest part of the model, as straight as possible (so they will not restrict the flow of metal) and no longer than necessary.

2. Measuring Your Pattern For Metal Needed.

When your model is completely sprued, the combined weight of the model and its sprues must be measured to determine the amount of metal necessary to complete this casting. Metal needs may be measured by using the water displacement method or by weighing the pattern.

If measuring by water displacement, immerse the pattern in a graduate cylinder two-thirds full of water. When the raised water level is noted, remove the wax and put sufficient metal in the cylinder to bring the water up to the same level.

If weighing your pattern on a precision scale, multiply this weight by the specific gravity of the metal to be used; i.e., silver, 10.5 or 14K gold, 13.4. Your answer equals the weight of the metal necessary for this casting.

NOTE: In either method, if the wax model is measured without sprues, add approximately 40% more metal to allow for the sprue system.


With your wax cleaned, your pattern sprued and metal measured, you are now ready to mount your pattern. Using a soft brush, paint your pattern with a surface-tension reducing agent (Kerr Debubbler or Vacufilm) and allow this to dry before encasing the pattern in the investment. Utility Wax
and/or Sticky Wax is used to fasten the converging sprue to the sprue base. When placed inside the flask, the pattern should be centered so as to be a minimum of 3/8” from the sides and 1/2” from the top.

**INVEST YOUR PATTERN**

The investment material, used to make the mold around your pattern, is a special heat-resistant plaster that hardens after being mixed with water and allowed to set in the flask. The investment should be added to the water in the recommended water/powder ratio and mixed with a Laboratory Spatula in a rubber bowl. The recommended water/powder ratio for Kerr Satin Cast 20 Jewelry Investment is 40 parts water to 100 parts powder.

A vacuum unit, instead of a vibrator, can be used to remove air from investment in the bowl as well as later in the flask.

Vacuuming an investment mix is recommended as an alternative to vibrating. This is especially true when making large mixes or investing larger flasks (Kerr J4, J5, P4, P5, and P6). Investment mixes in the bowl should be vacuumed for approximately one minute, while investment filled flasks should be vacuumed for 2½ minutes.

One hour after the pattern has been encased, the sprue base may be separated from the flask. Remove any loose investment particles from the mold’s center cavity as well as from the outside flask walls.

Prior to starting burnout, allow the invested Kerr J2 and J3 flasks to set for at least 1 hour. Kerr J4 and P4 flasks for 2 - 4 hours, and Kerr J5, P5, and P6 flasks for 4 - 6 hours. The masking tape should be removed from perforated flasks.

**BURN OUT YOUR PATTERN**

The burnout process eliminates the wax from your invested flask, forming a cavity to be filled with molten metal during casting. Before burnout, allow the invested flask to set the suggested period of time, according to flask size. With tongs, place your flask in an oven preheated to 300°F / 149°C, with the sprue hole facing down. Gradually increase the oven temperatures to 1350°F / 732°C, and continue burnout for 2 - 4 hours depending on the size of the flask. Refer to page 20 for “Suggested Burnout Cycles.”

**CAST USING A CENTRIFUGAL CASTING MACHINE**

1. Mounting The Casting Machine

The centrifugal casting machine is operated by a heavy, steel spring. The casting arm revolves
The inverted flask is placed in the preheated burnout furnace.

horizontally and pushes the molten metal by centripetal force from its crucible into the mold, holding it there until it solidifies and forms a dense casting.

Always mount your machine on a level surface. It is strongly recommended that the machine be mounted in a metal basket or casting machine well and bolted to a sturdy workbench. The machine base should be fastened so that the stop rod rests to the left of the operator's casting position.

The Standard Casting Machine with Super Flux for fluxing the metal, tongs to handle the hot flask, a torch and acetylene gas tank for metal melting.


After the investment in your flask has set and you have removed the sprue base, you should balance your casting machine. It is important that the balancing be done before burnout, since there is no time to work with a heated flask between its removal from the furnace and the casting procedure itself. Because there is no fixed weight factor for your pattern, metal and invested flask, the machine should be rebalanced for each succeeding cast.

Place your invested flask in the casting cradle with the sprue end facing the crucible carriage. Push the shield tight against the flask. Into the crucible, put the amount of metal that you measured for this casting. Wedge the secondary arm in the straight position with a match stick, and loosen the retaining nut so that the arm rocks slightly on its pivot point. Adjust the counterweights on the end of the straight arm as necessary to balance both the weight of the flask and the crucible filled with metal. The machine is balanced when a slight tap on either end of the arm will cause it to tilt in that direction. Screw the weights in place to prevent their movement and tighten the retaining nut.


Just before you complete burnout, wind the casting machine arm 3 - 4 complete clockwise revolutions. Lock the arm in place against the rubber-tipped stop rod in the machine base.

With the pre-weighted metal in the casting machine crucible, melt the metal with a fluxing agent (Kerr Super Flux) occasionally. Using the inner reducing flame of your torch, the metal takes on a shiny, mirror-like surface.

The 4” Casting Machine mounted in a well with metal being melted by a torch and an acetylene gas tank.

Before the metal enters the final melting stage, use tongs to remove the flask from the furnace and place it in the casting cradle with the sprue end toward the crucible. Tighten the crucible carriage against the flask and continue to melt your metal, fluxing as needed. When the metal is ready to cast, release the casting arm from the stop rod while simultaneously raising the heat from your metal. Allow the machine to spin to a complete stop.

As an alternative to torch melting, metal can be melted in an electric metal melting furnace (Kerr 'Electro-Melt'). Place the pre-weighted metal for casting into the graphite crucible which is contained in the 'Electro-Melt' heating chamber. With the unit plugged in, set the power-control switch to the desired rate of metal melting. The furnace pyrometer records the metal temperature within the crucible. A carbon stirring rod is used to occasionally check the metal consistency as it attains a molten state.

While metal is melting in the 'Electro-Melt', it is suggested that the casting machine crucible be placed in the burnout furnace with your flask. When the metal is ready to cast, remove the flask from the furnace and place it in the casting cradle with the sprue end toward the crucible carriage. Next, move the casting crucible from the burnout furnace to the casting machine, funnel end toward the flask. Now, pour the fully molten metal from the 'Electro-Melt' into the crucible and cast immediately by releasing the casting arm from the stop rod. Again, allow the machine to spin to a complete stop by itself.
USING A VACUUM CHAMBER/ASSIST CASTING UNIT —

1. Mounting The Vacuum Casting Unit.

The vacuum casting unit is operated from a vacuum pump which creates a vacuum or suction of air around the invested and burned out flask. Molten metal is poured into the mold-containing flask and the vacuum force pulls the metal into the mold, holding it there until it solidifies and forms a dense casting. A perforated flask is recommended when vacuum chamber casting.

Mount the vacuum casting unit on a level surface and attach the rubber connecting hose securely to a vacuum pump. Be sure that the vacuum pump is filled with oil to the proper level and the unit is plugged into the correct electrical circuit.


Just before you complete burnout, place the proper size flask adaptor into the vacuum chamber of the casting unit so as to securely hold the flask to be cast.

As previously described, the pre-heated metal can be torch melted in a handled crucible or in an electric metal melting furnace (Kerr 'Electro-Melt').

Prior to the metal entering the final melting stage, use tongs to remove the perforated flask from the furnace and place it in the chamber with the sprue end facing up. Push the "On" switch to activate the vacuum pump and turn the control knob to the "Casting Table" position. The needle of the vacuum gauge should indicate 20 - 25 inches of vacuum, which shows a good seal of the flask in the casting chamber.

If torch melting in the handled crucible, continue to melt your metal and to flux as necessary. When the metal is ready to cast, pour it into the mold.

If using an electric metal melting furnace, continue to melt your metal and to check the consistancy occasionally with a carbon stirring rod. When the metal is ready to cast, pour it directly into the mold.

The vacuum is released by turning the control knob to the "Vacuum Release" position and pushing the "Off" switch.

Remove the flask either from the casting machine cradle or from the chamber of the vacuum casting unit with tongs. Immerse it 3 - 5 minutes after the cast in a pail of cold water until most of the investment breaks away from your casting. When completely cool, the casting may be retrieved from the bottom of the pail. You are now ready for the finishing and polishing of your cast piece.

FINISH AND POLISH YOUR CASTING

Some investment will adhere to your casting, especially in the areas of fine detail. Clean off this residue with a brush and water. Pickling your casting in an acid solution will remove any metal oxides and make it easier to polish. Using a fine saw or electrically powered cutting tool, remove the sprues and set them aside. When used with 50% new metal, the sprues can be remelted and cast again.

Your casting is now ready for the final polishing. This may be done, using an electric handpiece, with felt or cloth buffing discs and jeweler’s rouge. Final polishing may also be done by hand with Scotch stone, pumice paste, emery paper and chamois cloth.
Kerr Casting Kits include a complete selection of materials and equipment enabling you to create your own jewelry designs from start to finish. Economically priced, the four Casting Kits offered are:

**SUPER DELUXE CASTING KIT**

Complete casting instructions. 1 Lost Wax Booklet: For pattern making and sprueing. 1 Jewelers’ Wax Kit; 1 Flamette Alcohol Lamp and 3 wax carving tools; For investing. 1-4 oz. bottle Vacuum; 10 lbs. Satin Cast 20 Investment: 2 measuring cups; 1 graduated cylinder. 1 Stainless Steel Spatula; 2 rubber mixing bowls — 1 pint and 3 pint. 1 inlay painting brush and 1 E-Z Flo Vibrator; For burnout. 1 — ‘999’ Furnace. 9” wide. 9” deep and 9” high chamber with temperature range up to 2000°F / 1093°C. For casting: 1-6” Centrifico Casting Machine complete with accessories. Shipping Weight 115 lbs.

Item Nos. 12448 (115 volt)
12634 (230 volt)

**DELUXE CASTING KIT — ‘999’**

Complete casting instructions. 1 Lost Wax Booklet; For pattern making and sprueing. 1 Jewelers’ Wax Kit; 1 Flamette Alcohol Lamp and 3 wax carving tools. For investing. 1-4 oz. bottle Vacuum. 10 lbs. Satin Cast 20 Investment: 2 measuring cups; 1 graduated cylinder. 1 Stainless Steel Spatula; 2 rubber mixing bowls — 1 pint and 3 pint. 1 inlay painting brush and 1 E-Z Flo Vibrator; For burnout. 1 — ‘999’ Furnace 9” wide. 9” deep and 9” high chamber with temperature range up to 2000°F / 1093°C. For casting. 1-4” Centrifico Casting Machine complete with accessories. Shipping Weight 110 lbs.

Item Nos. 12448 (115 volt)
12633 (230 volt)

**CASTING ACCESSORIES (ONLY) KIT**

A Jewelers’ Casting Accessories (Only) Kit is also available. This Kit includes all illustrated products except a casting machine and furnace. Shipping Weight: 20 lbs.

Item No. 14977
CASTING KITS

Deluxe Casting Kit, Deluxe Casting Kit - '999,' Deluxe Casting Kit - '666' and Standard Casting Kit. Each Kit is identical except for the model of Furnace and Casting Machine supplied.

DELUXE CASTING KIT - '666'

Complete casting instructions, 1 Lost Wax Booklet. For pattern making and sprueing, 1 Jewelers' Wax Kit, 1 Flamette Alcohol Lamp and 3 wax carving tools. For investing, 1 - 4 oz. bottle Vaculim. 10 lbs. Satin Cast 20 Investment. 2 measuring cups, 1 graduated cylinder, 1 Stainless Steel Spatula, 2 rubber mixing bowls — 1 pint and 3 pint, 1 inlay painting brush and 1 E-Z Flo Vibrator. For burnout, 1 - '666' Furnace, 6" wide, 6" deep and 6" high chamber with temperature range up to 2000°F/1093°C. For casting, 1 - 4" Centrifico Casting Machine complete with accessories. Shipping Weight: 73 lbs.

Item Nos. 11909 (115 volt)
12632 (230 volt)

STANDARD CASTING KIT

Complete casting instructions, 1 Lost Wax Booklet. For pattern making and sprueing, 1 Jewelers' Wax Kit, 1 Flamette Alcohol Lamp and 3 wax carving tools. For investing, 1 - 4 oz. bottle Vaculim. 10 lbs. Satin Cast 20 Investment. 2 measuring cups, 1 graduated cylinder, 1 Stainless Steel Spatula, 2 rubber mixing bowls — 1 pint and 3 pint, 1 inlay painting brush and 1 E-Z Flo Vibrator. For burnout, 1 - Inlay Furnace, 3¼" wide, 3¼" deep and 3½" high chamber with temperature range of 400°F to 2000°F/204°C to 1093°C. For casting, 1 - Standard Centrifico Casting Machine complete with accessories. Shipping Weight: 48 lbs.

Item Nos. 11908 (115 volt)
12631 (230 volt)

CASTING ACCESSORIES (ONLY) KIT

A Jewelers' Casting Accessories (Only) Kit is also available. This Kit includes all illustrated products except a casting machine and furnace. Shipping Weight: 20 lbs.

Item No. 14977
WAX PATTERN MAKING ACCESSORIES

KERR JEWELERS' MINIWAX DELUXE CONSOLE

The Deluxe Console includes the Miniwax Pen with Medium Tip, Miniwax Welder with Tapered Tip and a Deluxe Console Miniwaxer Control, capable of operating both the Pen and Welder independently. Using the Deluxe Console, you can design your own wax patterns alternately using the wax build-up technique offered by the Miniwax Pen and the wax carving, smoothing, texturing techniques of the Miniwax Welder. The Miniwax Deluxe Console is supplied in 115 volt and 230 volt models.

Item Nos. 12450 (115 volt)  
12451 (230 volt)

KERR JEWELERS' MINIWAX PEN

The Miniwax Pen is a comfortable-to-hold and easy-to-operate instrument that allows you to build up wax pattern detail where desired. You can use almost all waxes whether buildup, wire, stick, and even some injection waxes. Add the wax to the wax reservoir bowl, select the heat level desired on the Miniwaxer Control, press the wax release knob and the Miniwax Pen will provide a smooth and consistent flow of wax at just the proper temperature. The Miniwax Pen is supplied in 115 volt and 230 volt models.

The Miniwax Pen Set includes the Miniwaxer Control and the Pen with Medium Tip as pictured.

Item Nos. 12033 (115 volt)  
12070 (230 volt)

The Jewelers' Miniwax Pen is available separately as follows:

- Miniwax Pen — Item No. 12073
- Miniwaxer Control — Item Nos. 12071 (115 volt)  
12072 (230 volt)
- Plus Individual Tips

KERR JEWELERS' MINIWAX PEN PIPE

The Miniwax Pen Pipe easily attaches to the Miniwax Pen to provide more precise control of the wax flow. This flow can be increased or decreased by mouth-created air pressure.

Item No. 13964

KERR JEWELERS' MINIWAX WELDER

The Miniwax Welder is a specially designed tool for carving, smoothing, creating textures, adding wax and finishing the pattern. The Welder can be operated at a wide range of heat levels from the Miniwaxer Control. The WAX Welder is supplied in 115 volt and 230 volt models.

The Miniwax Welder Set includes the Miniwaxer Control and the Welder with Tapered Point as pictured.

Item Nos. 12077 (115 volt)  
12078 (230 volt)

The Jewelers' Miniwax Welder is available separately as follows:

- Miniwax Welder — Item No. 12079
- Miniwaxer Control — Item Nos. 12071 (115 volt)  
12072 (230 volt)
- Plus Individual Tips

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WAX PATTERN MAKING ACCESSORIES

FLAMETTE ALCOHOL LAMP

The Flammentte Alcohol Lamp offers the benefits of conventional alcohol lamps PLUS the addition of a special pipette attachment. The pipette attachment permits the direction of a stream of air which results in a pinpoint flame. The pinpoint flames can be most helpful in completing patterns by removing the undesired marks of carving tools, leaving a smooth glass-like pattern finish.

Item No. 13239

Replacement wicks for the Flammentte Alcohol Lamp are available separately.

Item No. 13240

JEWELER'S RING MANDREL

A truly versatile ring mandrel offering maximum design flexibility in build-up modeling of wax patterns for rings, bracelet links and other small findings. Individually sized ring sleeves are easily placed on the mandrel, can be turned a full 360°, can even be removed from the mandrel, and hand held to add detail at those "impossible to reach" places. Each ring sleeve is clearly identified for size and made of especially hardened aluminum.

The Deluxe Ring Mandrel Set includes the Mandrel and the set of Full Size Sleeves (No. 4 - No. 13) with the Stand.

Item No. 12086

A Half Size Ring Sleeve Set (No. 5½ - No. 12½) with Stand is also available.

Item No. 12089

WAX CARVING TOOLS & WAX SPATULAS

KERR 1
Item No. 11522

KERR 2
Item No. 11523

KERR 3
Item No. 11524

KERR 4
Item No. 11525

KERR 5
Item No. 11526

KERR 6
Item No. 11527

KERR 7
Item No. 11528

KERR 8
Item No. 11529

KERR 9
Item No. 11778

KERR 10
Item No. 11777

Kerr Wax Carving Tools and Spatulas are especially selected designs and manufactured of the finest stainless steel. Each tool has an octagonal handle which is comfortable to hold and easy to control.

11
PATTERN WAXES

JEWELERS' WAX KIT

The Wax Kit provides the beginner as well as the accomplished designer with a most complete selection of waxes — round, half-round, square and rectangular Wax Wires. Casting Wax Sheets, Max-E-Wax Sheets, Carving Waxes, Ring Tubes; Utility Wax, Spruce Wax and Sticky Wax in a convenient, portable kit. Included directions describe the working characteristics of the various waxes and how to use them to obtain the desired design creations.

Item No. 11535

JEWELERS' BUILDUP WAXES

PERFECT PURPLE WAX BLOCKS

Perfect Purple Wax is a perfect buildup wax, designed to be melted at 165°-174°C and used to build up the pattern through successive additions. When built up, the wax can be carved easily to produce smooth pattern surfaces.

Item No. 11453

WAX PEN WAX

Wax Pen Wax is pink in color and is especially designed for use with the Miniwax Wax Pen (melting temperature 172°F / 78°C). The wax simplifies pattern buildup and carves without chipping or flaking. Wax Pen Wax is supplied in 8 gauge round sticks measuring 4" long and is packaged in 1/4 lb. boxes.

Item No. 09352

INLAY CASTING WAX

Blue Inlay Wax is a special wax to be used when adding onto or building up wax patterns. Once melted, Inlay Wax is a superior wax for carving without chipping or flaking. The wax melts at 163°F / 73°C and solidifies at 144°F / 62°C. Inlay Wax can be softened over flame, in hot water or with a heated carving tool.

Supplied in 12 stick, 120 stick and 1 lb. bulk packages.

The 12 stick package
Item Nos. 00474 (Regular)
00476 (Hard)

The 120 stick package
Item Nos. 00475 (Regular)
00478 (Hard)

The 1 lb. bulk package
Item Nos. 11006 (Regular)
11007 (Hard)
PATTERN WAXES

JEWELERS' WAX WIRES

WAX WIRES • Assorted Package

Wax Wires are available in round, half round, square, rectangle, bezel, uncut bezel, triangle, 3 prong, 4 prong, and 6 prong shapes. Wire diameters correspond to Brown and Sharpe wire gauges. Wax Wires are flexible but strong and may be twisted or bent to form the desired pattern. This Wax has a melting temperature of 167°F / 75°C.

ASSORTED PACKAGES
Supplied in
Assortment No. 1 — Round/Half-Round
Round 8, 10, 14 & 18 ga.
Half-Round 6, 8, 12 & 14 ga.
Item No. 09315
Assortment No. 2 — Round
Round 6, 8, 10, 12, 14, 16, 18 & 20 ga.
Item No. 10218
Assortment No. 3 — Rectangle/Square
Rectangle 2, 4, 6, 8, 10 & 12 ga.
Square 12 & 14 ga.
Item No. 10218
Assortment No. 4 — Bezel
Bezel 6, 8 & 10 ga.
Uncut Bezel 2, 4, 6, 8 & 10 ga.
Item No. 11494
Assortment No. 5 — Triangle/Prong
Triangle 6, 10 & 12 ga.
3 Prong 14 & 16 ga.
4 Prong 16 & 18 ga.
6 Prong 16 ga.
Item No. 13928
Wire Length 4”

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STANDARD PACKAGES
Supplied in
ROUND
Item Nos.
09316  6 ga.
09406  8 ga.
09407  10 ga.
09408  12 ga.
09409  14 ga.
09410  16 ga.
09473  19 ga.
09474  20 ga.

HALF-Round
Item Nos.
09475  6 ga.
09476  8 ga.
09477  10 ga.
09478  12 ga.
09479  14 ga.
09728  10 ga.
09729  12 ga.
09730  14 ga.

RECTANGLE
Item Nos.
10031  2 ga.
10032  4 ga.
10033  6 ga.
10034  8 ga.
10035  10 ga.
10036  12 ga.

WAX WIRE SPOOL S

Wax Wire Spools are convenient where varying or especially long lengths of wire are required to complement pattern designs. Spooled wax also can be economical for classroom use. The melting temperature of this wax is 167°F / 75°C.

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<th>Gauge</th>
<th>Actual Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Round: ▲</td>
</tr>
<tr>
<td>8</td>
<td>▲</td>
</tr>
<tr>
<td>10</td>
<td>▲</td>
</tr>
<tr>
<td>12</td>
<td>▲</td>
</tr>
<tr>
<td>14</td>
<td>▲</td>
</tr>
<tr>
<td>16</td>
<td>▲</td>
</tr>
<tr>
<td>18</td>
<td>▲</td>
</tr>
<tr>
<td>20</td>
<td>▲</td>
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1/4 LB. SPOOLS

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<thead>
<tr>
<th>Item Nos.</th>
<th>ROUND</th>
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<tbody>
<tr>
<td>09480</td>
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<tr>
<td>09481</td>
<td>8 ga.</td>
</tr>
<tr>
<td>09482</td>
<td>10 ga.</td>
</tr>
<tr>
<td>09483</td>
<td>12 ga.</td>
</tr>
<tr>
<td>09484</td>
<td>14 ga.</td>
</tr>
<tr>
<td>09485</td>
<td>16 ga.</td>
</tr>
<tr>
<td>09486</td>
<td>18 ga.</td>
</tr>
<tr>
<td>09487</td>
<td>20 ga.</td>
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</table>

1/2 LB. SPOOL S

<table>
<thead>
<tr>
<th>Item Nos.</th>
<th>ROUND</th>
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</thead>
<tbody>
<tr>
<td>09355</td>
<td>6 ga.</td>
</tr>
<tr>
<td>09356</td>
<td>8 ga.</td>
</tr>
<tr>
<td>09357</td>
<td>10 ga.</td>
</tr>
<tr>
<td>09358</td>
<td>12 ga.</td>
</tr>
<tr>
<td>09359</td>
<td>14 ga.</td>
</tr>
</tbody>
</table>

Available in
1/4 lb. Spools & 1/2 lb. Spools
Supplied in:
Round 6, 8, 10, 12, 14, 16, 18 & 20 ga.
Half-Round 6, 8, 10, 12 & 14 ga.
PATTERN WAXES

JEWELERS' CARVING WAXES

CARVING WAX

Carving Wax is a green wax that carves easily. Because it is not brittle, the wax resists chipping or flaking and produces very smooth pattern surfaces. The melting temperature of this wax is 200°F/94°C. A 1 lb block of Carving Wax is 3" x 7" x 1 1/2" deep.

Item No. 09333

SMOOTH-CARV WAX

Smooth-Carv Wax is a blue wax that is both carvable and tooiable. A unique formulation, it carves very smoothly and is opaque so that minute detail can be seen easily. In addition, Smooth-Carv Wax can be sawed, filed, drilled and turned on a lathe. It has a melting temperature of 203°F/95°C.

This wax is supplied in 1 lb blocks and 1 lb, sliced. The block is 3" x 7" x 1 1/2" deep. Sliced Smooth-Carv Wax is 3" wide, 1 1/2" deep in the following arrangement: 8 pcs 1/4" thick, 4 pcs 1/4" thick, and 1 pc. 2" thick.

Item Nos. 12062 (Block)
12063 (Sliced)

SOL-U-CARV WAX

Sol-U-Carv Wax is both a carvable and soluble yellow wax. It is designed for making hollow beads, hollow pendants, dome rings and other configurations where a hollowed area in the finished pattern is desired.

Using Sol-U-Carv Wax, a core can be carved using conventional wax carving tools. Also the wax can be melted (170°F/77°C) and poured or injected into a prepared mold. Sol-U-Carv cores can be immersed in water and dissolved, leaving the desired pattern that was completed in non-soluble pattern wax.

This wax is available in 1 lb blocks.

Item No. 12022
PATTERN WAXES

JEWELERS' MASTER PATTERN CARVING WAXES

MASTER PATTERN WAX INTRODUCTORY KIT

Master Pattern Wax is a specially formulated wax which can be carved, sawed, filed, drilled and even turned on a lathe without chipping or flaking. Further, the wax resists adhering to cutting tool surfaces.

The Introductory Kit includes one sample block each of Red Soft (melting temperature 203°F/95°C), Blue Medium-Hard (melting temperature 220°F/104°C), and Green Hard (melting temperature 229°F/109°C). These various waxes are toolable and vary in hardness when carving. The Master Pattern Wax Introductory Kit weight is ½ lb. Item No. 13266

MASTER PATTERN WAX 1 LB. BLOCKS AND 1 LB. SLICED

RED SOFT

1 LB. SLICED
Item No. 10117

1 LB. BLOCK
Item No. 09332

BLUE MEDIUM-HARD

1 LB. SLICED
Item No. 13263

1 LB. BLOCK
Item No. 13262

GREEN HARD

1 LB. SLICED
Item No. 13265

1 LB. BLOCK
Item No. 13264

Master Pattern Wax is available in Red Soft, Blue Medium-Hard and Green Hard. Each is supplied in 1 lb. blocks as well as 1 lb. sliced. The block is 3” x 7” x 1½” deep. Sliced Master Pattern Wax is 3” wide, 1½” thick in the following assortment: 8 pcs. ⅛” thick, 4 pcs. ⅛” thick and 1 pc. 9½” thick. The sliced wax is convenient for carving rings, brooches as well as something large like a buckle.

MASTER PATTERN WAX RING TUBES

<table>
<thead>
<tr>
<th>Description</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC-1 Round Center Hole Tube</td>
<td>10227</td>
</tr>
<tr>
<td>RC-3 Round Center Hole Tube</td>
<td>10228</td>
</tr>
<tr>
<td>RD-3 Round Off Center Hole Tube</td>
<td>10229</td>
</tr>
<tr>
<td>FS-1 Flat Side Tube</td>
<td>10230</td>
</tr>
<tr>
<td>FS-3 Flat Side Tube</td>
<td>10231</td>
</tr>
<tr>
<td>FS-5 Flat Side Tube</td>
<td>10232</td>
</tr>
<tr>
<td>FS-7 Flat Side Tube</td>
<td>10233</td>
</tr>
<tr>
<td>RS-1 Round Solid Bar</td>
<td>10234</td>
</tr>
<tr>
<td>RS-3 Round Solid Bar</td>
<td>10235</td>
</tr>
<tr>
<td>ASSORTED...</td>
<td>10240</td>
</tr>
</tbody>
</table>

Supplied in red, blue and green:

RED — A soft wax which is easy to carve and yet is toolable.

BLUE — A medium-hard wax which is carvable, toolable and provides excellent pattern definition.

GREEN — A hard wax which can be carved and offers maximum toolability.

Master Pattern Wax is supplied in Red, Blue and Green Ring Tubes as well as solid bars which are 6” long. The Red Tubes and Bars are a soft wax (melting temperature 203°F/95°C) for easy carving and toolability. The Blue Tubes and Bars are a medium hard wax (melting temperature 220°F/104°C), providing excellent carving and tooling characteristics. The Green Tubes and Bars are a harder wax (melting temperature 229°F/109°C) and are even more toolable.

An assorted box containing a selection of any tubes and solid bars (1 inch length) is also available in each color.

An assorted box containing a selection of any tubes and solid bars (1 inch length) is also available in each color.
INJECTION WAXES

**ACCU INJECTION WAX**
Supplied In:  
- AQUA GREEN  
- RUBY RED  
- TURQUOISE BLUE

Accu Wax features a low 150°F /65°C injection temperature with excellent flow even for the finest detail molds. Minimal pattern shrinkage results due to rapid wax solidification. The wax has excellent flexibility and can be removed easily from the mold. Fine memory characteristics eliminate the need to reshape the pattern. Flexibility remains even when patterns are stored. Accu Wax also has a built-in release agent so that no talc or other powders need be applied to rubber molds. Without talc, pattern surfaces are bright, shiny and clean. Supplied in convenient flake form, the wax melts quickly and easily in the injector. Accu Wax is available in 50 lb. cartons.

Item Nos. 13360 (Aqua Green)  
14079 (Ruby Red)  
14293 (Turquoise Blue)

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**SUPER INJECTION WAX**
Supplied In:  
- SUPER GREEN  
- SUPER PINK

Super Green and Super Pink Injection Wax can be injected at the low 160°F /71°C temperature range. Combined with a solidification temperature of 150°F /65°C ±3°C, the wax provides modest shrinkage even with the very large patterns. Due to superior flowability, the most precise mold details are recorded in the pattern surfaces. Super Green and Super Pink also feature excellent flexibility for easy mold removal plus memory. Good color opacity makes the wax superior in "readability." Both Super Green and Super Pink Injection Waxes are supplied in 50 lb. cartons.

Item Nos. 12137 (Super Green)  
12138 (Super Pink)

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**TUFFY INJECTION WAX**
Supplied In:  
- TUFFY GREEN

Tuffy Injection Wax is a TOUGH WAX that is formulated to produce tough patterns that other waxes can't match. This wax can be pulled, bent, hit or dropped without breaking. It also has good memory and readily returns to its original shape. Tuffy Wax injects at 155°F /68°C and solidifies at 155°F ±5°F /68°C ±3°C. This rapid solidification saves waiting time and reduces shrinkage, especially in larger patterns. With a built-in release agent, patterns are removed easily from the most complex rubber molds. Tuffy Wax flows well to produce the finest detail of the mold and remains flexible even after long storage. The wax features easy "readability." Available in convenient flake form, the wax melts quickly and easily in the injector. Tuffy Wax is supplied in 50 lb. cartons.

Item No. 16181 (Tuffy Green)
WAX INJECTION EQUIPMENT & SUPPLIES

KERR INJECTÔ-MATIC WAX INJECTOR

Containing its own manually adjustable air compressor system, the Kerr Injecto-Matic provides an optional wax injection range of 0-30 pounds for use with both rubber and metal molds. No supplemental compressors or external air lines are required. With a 2 lb (1 quart) wax capacity, the Injecto-Matic is equipped with a finger-tip thermostat control and indicator light for wax injection temperatures up to 300°F /149°C. Featuring a quick hand-opened cover for easy loading, it provides fast preheating and produces dense, accurate wax patterns in single as well as multiple cavity molds. The Kerr Injecto-Matic measures 6¾" in diameter, 10¾" high and is available in 115 volt as well as 230 volt models. Shipping Weight: 15 lbs.

Item Nos. 72454 (115 volt)
12455 (230 volt)

KERR SUPER 8 WAX INJECTOR
(With Single or Double Nozzle)

The Super 8 Wax injector has a LARGE (4 quart) wax capacity. The injector combines precision engineering and rugged construction, which means trouble-free performance.

Reinforced, insulated lock knobs provide easy lid removal and rapid wax loading, even when the injector is heated. The unit has a special built-in heat conducting cone which assures rapid wax melting and even more heat distribution.

The Super 8 has a super sensitive air pressure regulator and gauge, a very accurate thermostat control with on/off light, a positive sealing drip-guard nozzle, and a convenient drain cock.

Upon request, the unit also can be supplied with an optional second positive sealing drip-guard nozzle.

The Injector is available in 115 volt and 230 volt models. Shipping Weight: 45 lbs.

SINGLE NOZZLE
Item Nos. 15006 (115 volt)
15006 (230 volt)

DOUBLE NOZZLE
Item Nos. 15046 (115 volt)
15047 (230 volt)

WAX INJECTOR ACCESSORIES

KERR INJECTÔ-MATIC AIR REGULATOR ACCESSORY

The Air Regulator can be adapted readily to the Kerr Injecto-Matic Wax Injector. It permits the Injector to be operated automatically from an air compressor or manually from the built-in air pump.

Item No. 13954

KERR UNIVERSAL THERMOMETER

The Universal Thermometer easily can be inserted in the circular hole next to the injector lid of the Injecto-Matic or Super 8 Injector. The Thermometer measures the temperature of the heated wax.

Item No. 15008

KERR SUPER 8 THERMOMETER
(Threaded)

The Super 8 Thermometer is designed for installation in the Super 8 Injector's thermometer well. This well is located next to the nozzle, where temperatures can be accurately measured.

Item No. 15007
INVESTING EQUIPMENT

KERR-VAC
VACUUM INVESTING UNIT

The Kerr-Vac Investing Unit is compact, equipped with a quality manufactured pump, and designed to effectively remove incorporated air from investment mixes. Because of its precise manufacture, the vacuum pump will consistently produce 29 PLUS inches of vacuum (at sea level), removing air from either investment mixes or invested flasks up to 7" high. This minimizes porosity and bubbling in the flask. The Kerr-Vac is available as illustrated in 115 volt and 230 volt models. Shipping Weight: 60 lbs. Item Nos. 13241 (115 volt) 13242 (230 volt)

KERR-VAC
PLASTIC BELL JAR

The plastic bell jar is used on the vacuum table when vacuuming investment. It measures 9" diameter by 8" high. Shipping Weight: 2 lbs 12 ozs. Item No. 13296

KERR-VAC
RUBBER SEAL
(Investment Table)

A replacement black rubber pad for the investment table, measuring 10½" square. Shipping Weight: 2 lbs. Item No. 13297

KERR-VAC
VACUUM PUMP OIL

A special oil for use in the Kerr-Vac Pump. Supplied in one quart plastic containers. Item No. 13298

E-Z FLO
VIBRATOR

The E-Z Flo Vibrator is equipped with a three-speed switch to provide low, medium, or high vibration levels. It is designed to eliminate air bubbles from investment mixes during the investing process. The vibrator is compactly designed, does not creep, and is built for years of trouble-free performance. Shipping Weight: 10 lbs. Item Nos. 00068 (115 volt) 00060 (230 volt)

INVESTMENT MIXER

The Kerr Mixer is compact, sturdy and efficient. It helps eliminate air bubbles and produces a stronger investment mix than mixing by hand. Item Nos. 00337 (mixer) 03012 (rubber bowl)
BURNOUT EQUIPMENT

KERR '14X3' FURNACE

The Kerr '14X3' is designed to be a workhorse furnace with a commercial-sized burnout chamber (14" wide, 14" deep and 14" high). The furnace provides ceramic embedded heating elements, variable heat control at any level from 72°F / 22°C to 2000°F / 1093°C, built-in pyrometer and ample vent openings (top and door). Ideal for wax elimination and enameling, the 14X3 Furnace is available in a 230 volt model only.

Item No. 15045 (230 volt)

KERR '999' FURNACE

The Kerr '999' Furnace offers a large burnout capacity, having a 3" wide, 9" deep and 9" high muffle. With precise heat controls, the '999' provides accurately controlled temperatures up to 2000°F / 1093°C, which are indicated on the built-in pyrometer. The furnace is equipped with a vent opening on top and can be used for wax elimination as well as enameling. It is available in 115 volt and 230 volt models.

Item Nos. 11577 (115 volt) 11932 (230 volt)

KERR '666' FURNACE

The Kerr '666' Furnace features a spacious chamber (6" wide, 6" deep and 6" high) with embedded heating elements, producing extremely even temperatures. The operating temperature, which ranges from 2000°F / 1093°C, is indicated on the built-in pyrometer. The power switch control permits the furnace to reach and maintain any desired temperature within the operating range, making it ideal for wax elimination and enameling. It is available in 115 volt and 230 volt models.

Item Nos. 08314 (115 volt) 010245 (230 volt)

KERR INLAY FURNACE

The Kerr Inlay Furnace, with built-in pyrometer, provides variable heat control from 400°F / 204°C to 2000°F / 1093°C and can be accurately controlled at any specific heat level within this range. The furnace chamber measures 3½" wide, 2½" deep and 3½" high. The ceramic embedded heating elements provide an even diffusion of heat throughout the muffle chamber as well as operational safety. The furnace is designed for both wax elimination and enameling. It is available in 115 volt and 230 volt models.

Item Nos. 00065 (115 volt) 01078 (230 volt)

FURNACE ELECTRICAL AND STATISTICAL DATA

| FURNACE TYPE | EXTERIOR DIMENSIONS | FIRING CHAMBER SIZE |semblable | FIRING TIME TO 1200°F | MILLIAMA \| | POWER L| | AMPER| | FUEL | |
|-------------|---------------------|---------------------|------------|------------------------|-----------------------------|-------------------|-------------------|-----------------|-------------|
| '14X3'      | 21"x29¾"x12¼"      | 14"x14¾"x14"       | 2.744 cu. ft. | 189°F / 1093°C | 1 Hour and 15 Minutes | 2000°F / 1093°C | 15 Minutes | 115 volts AC | 4.4 | 18.5 |
| '999'       | 15½"x13"x9½"       | 9"x9"x9"           | 2.29 cu. ft.  | 100°F / 1093°C | 2 Hours and 15 Minutes | | | | | |
| '666'       | 11½"x10"x6½"       | 4½"x4½"x6½"       | 2.16 cu. ft.  | 100°F / 1093°C | 40 Minutes | | | | | |
| Inlay       | 6½"x5½"x4¾"        | 3½"x3½"x3½"       | 1.89 cu. ft.  | 100°F / 1093°C | 15 Minutes | | | | | |

Shipping Weight: 115 lbs. 119 lbs. 66 lbs. 70 lbs. 27 lbs. 29 lbs.
METAL MELTING EQUIPMENT & SUPPLIES

KERR STANDARD 'ELECTRO-MELT' FURNACE
The Kerr Standard 'Electro-Melt' is a compact electric furnace for melting metals. It is an ideal melting unit for casting as well as for alloying metals. The operating temperature, which ranges to 2000°F / 1093°C, is indicated on the built-in pyrometer. The power control switch permits the furnace to reach and maintain any desired temperature within the operating range. The metal is melted in a graphite crucible, having a melting capacity of 30 troy ounces gold, 25 troy ounces silver, 24 ounces brass, and 8 ounces aluminum. It is available in 115 volt and 230 volt models.

Item Nos. 13993 (115 volt)
13994 (230 volt)

KERR MAXI 'ELECTRO-MELT' FURNACE
The Kerr Maxi 'Electro-Melt' is a larger capacity, electric metal melting furnace. With a 100 troy ounce gold melting capacity, it can be used for both alloying and casting most nonferrous metals. The operating temperatures, which range up to 2000°F / 1093°C, are indicated on the built-in pyrometer. The power control switch permits the furnace to reach and maintain any desired temperature within the operating range. The metal is melted in a graphite crucible, having a melting capacity of 100 troy ounces gold, 83 troy ounces silver, 80 ounces brass and 27 ounces aluminum. It is available in 115 volt and 230 volt models.

Item Nos. 14275 (115 volt)
14276 (230 volt)

KERR 'ELECTRO-MELT' FURNACE ACCESSORIES

GRAPHITE CRUCIBLE
Having a 30 troy ounce gold capacity, the graphite crucible provides maximum resistance to oxidation while metal is being melted in the Standard 'Electro-Melt.'

Item No. 13995

CARBON STIRRING ROD
Measuring 12" long by 3/8" diameter, the Carbon Stirring Rod is used to stir gold, silver and other alloys in the crucible while melting the metal. The Carbon Stirring Rod is non-contaminating.

MAXI GRAPHITE CRUCIBLE
Having a 100 troy ounce gold capacity, the graphite crucible provides maximum resistance to oxidation while metal is being melted in the Maxi 'Electro-Melt.'

Item No. 14277

'ELECTRO-MELT' FURNACE ELECTRICAL AND STATISTICAL DATA

<table>
<thead>
<tr>
<th>Exterior Dimensions</th>
<th>Crucible Capacity</th>
<th>Temperature Attainable</th>
<th>Firing Time To 1800°F</th>
<th>Firing Speeds</th>
<th>Power Line Required</th>
<th>Kilowatt Rating</th>
<th>Average Rating</th>
<th>Weight</th>
<th>Shipping Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD ELECTRO-MELT</td>
<td>Gold 30, Silver 25, Brass 24, Aluminum 8</td>
<td>2000°F / 1093°C</td>
<td>22 Minutes</td>
<td>Infinite</td>
<td>115 Volts AC</td>
<td>.75</td>
<td>6.3</td>
<td>4 lbs</td>
<td>7 lbs</td>
</tr>
<tr>
<td>ELECTRO-MELT MAXI</td>
<td>Gold 100, Silver 83, Brass 80, Aluminum 27</td>
<td>2000°F / 1093°C</td>
<td>36 Minutes</td>
<td>Infinite</td>
<td>230 Volts AC</td>
<td>3.125</td>
<td>11.3</td>
<td>8 lbs</td>
<td>14 lbs</td>
</tr>
</tbody>
</table>

KERR JEWELERS' SUPER FLUX
Super Flux is a special compound for fluxing precious metals. It is equally effective when torch melting or furnace melting.

Supplied in 8 oz. cans
Item No. 12067

REPLACEMENT HEATING ELEMENTS
Should it ever become necessary, individual new heating elements are available and can be readily replaced in both the Standard and Maxi 'Electro-Melt' furnaces.

Item Nos. 13997 - Standard (115 volt)
13998 - Standard (230 volt)
14279 - Maxi (115 volt)
14279 - Maxi (230 volt)
**CENTRIFUGAL CASTING MACHINE ACCESSORIES**

- **J2 Flask**
  - The J2 Flask is stainless steel and measures 1" diameter by 2¾" high.
  - Item No. 09504

- **J3 Flask**
  - The J3 Flask is stainless steel and measures 2¾" diameter by 2¾" high.
  - Item No. 09506

- **J4 Flask**
  - The J4 Flask is stainless steel and measures 3½" diameter by 4" high.
  - Item No. 09606

- **J5 Flask**
  - The J5 Flask is stainless steel and measures 4½" diameter by 5¼" high.
  - Item No. 11606

- **T2 Sprue Base**
  - Rubber and designed for use with the J2 Flask.
  - Item No. 13985

- **T3 Sprue Base**
  - Rubber and designed for use with the J3 Flask.
  - Item No. 13950

- **T4 Sprue Base**
  - Rubber and designed for use with the J4 Flask.
  - Item No. 13247

- **T5 Sprue Base**
  - Rubber and designed for use with the J5 Flask.
  - Item No. 13250

- **T1 Universal Sprue Base**
  - Universal Sprue Base is rubber and designed for use with the J2, J3, and J4 Flasks.
  - Item No. 10269

- **2C Crucible Former**
  - The 2C Crucible Former is designed for use with the J2, J3, and J4 Flasks.
  - Item No. 13261

- **Clay Crucibles**
  - Small (1 oz.) and Large (2½ oz.)
  - Item Nos. 00025 (Small - 1 oz.) and 00022 (Large - 2½ oz.)

- **7 Ounce Clay Crucible**
  - Having a 7 oz. gold capacity, this crucible fits the Jeweler's 4" and 6" Machines.
  - Item No. 09508

- **12 Ounce Clay Crucible**
  - Having a 12 oz. gold capacity, this crucible fits the Jeweler's 4" and 6" Machines.
  - Item No. 15027

- **20 Ounce Clay Crucible**
  - Having a 20 oz. gold capacity, this crucible fits the Jeweler's 4" and 6" Machines.
  - Item No. 11605

- **Jeweler's 4" Casting Arm Complete**
  - The 4" Casting Arm Complete can be readily adapted to the Jeweler's Standard and 6" Machines, changing the flask capacity to 3½" diameter by 4" high. Shipping Weight 10 lbs.
  - Item No. 02577

- **Jeweler's 6" Casting Arm Complete**
  - The 6" Casting Arm Complete can be readily adapted to the Jeweler's Standard and Jeweler's 4" Machines, increasing the flask capacity to 4½" diameter by 6" high. Shipping Weight 11 lbs.
  - Item No. 11632

- **Carbon Stirring Rod**
  - Measuring 12½" long by ½" diameter, the Carbon Stirring Rod is used to stir gold, silver, and other alloys in the crucible while melting the metal. The Carbon Stirring Rod is non-contaminating.
  - Item No. 13995

- **Heavy Duty Spring**
  - The Heavy Duty Spring is supplied in the Jeweler's Standard and 4" Machines. It provides less initial thrust than the Super Heavy Duty Spring as supplied in the Jeweler's 6" Machine.
  - Item No. 00010

- **Super Heavy Duty Spring**
  - The Super Heavy Duty Spring is supplied on the Jeweler's 6" Machine and is available for addition on other Kerr Machines to provide the recommended thrust to cast large amounts of metal into 6" high fitnesses.
  - Item No. 11833

- **4½" Crucible Carriage With Baffle Plate**
  - The Standard Crucible Carriage can be adapted to the Standard and 4" Machines. It holds the Clay Crucible — Small (1 oz.) or Large (2½ oz.).
  - Item No. 02085

**Universal Tongs**
- Universal Tongs measure 15½" long and may be used with J2, J3, J4 and J5 Flasks.
- Item No. 09507
VACUUM CASTING EQUIPMENT
JEWELERS’ KERR-VAC/KERR-CAST UNITS

The Jewelers’ Kerr-Vac/Kerr-Cast is a two part casting system, composed of a vacuum unit and a casting unit. The Kerr-Vac is ideal for removing air from investment mixes during the investing cycle. In addition, the Kerr-Cast can be attached to the Kerr-Vac and used for metal casting. Rather than casting metal being cast into the mold using centrifugal force, the Kerr-Cast permits metal to be poured into the mold from a handled crucible or a Kerr ‘Electro-Melt’ Furnace.

The metal fills the mold with the assistance of vacuum, pulling the metal into place. The Kerr-Cast is designed for vacuum chamber casting, which makes the fullest utilization of the vacuum by inserting a specially designed perforated flask into a casting chamber.

Vacuum can now be pulled through the flask bottom and flask walls as the metal is poured. In addition, the Kerr-Cast can be used for the more conventional vacuum-assist technique where vacuum is pulled through the flask bottom.

JEWELERS’ KERR-VAC/KERR-CAST UNITS

The Jewelers’ Kerr-Vac/Kerr-Cast Units will cast perforated flask sizes up to 5” diameter by 7” high. The recommended Handled Crucible has a melt-capacity of 12 oz gold Kerr-Vac/Kerr-Cast Units are supplied as illustrated in 115 volt and 230 volt models. Shipping Weight: 95 lbs.

Item Nos. 13303 (115 volt)
13304 (230 volt)

JEWELERS’ KERR-VAC UNIT

The Jewelers’ Kerr-Vac Unit is equipped with a precision-built vacuum pump, which removes air from either investment mixes or invested flasks up to 7” high. The Kerr Vac is supplied with the special bell jar hanger and the accessories as illustrated in 115 and 230 volt models. Dimensions: 15½” wide, 12½” high and 12½” deep. Shipping Weight: 60 lbs.

Item Nos. 13241 (115 volt)
13242 (230 volt)

JEWELERS’ KERR-CAST UNIT

The Jewelers’ Kerr-Cast Unit, when attached to a vacuum pump, will cast perforated flasks as well as standard flasks. The Kerr-Cast is supplied with the Handled Crucible, P4 Flask, T4 Sprue Base, Regular PF Tongs, Masking Tape, and the Kerr Cast Flask Adaptors as illustrated. Dimensions: 15½” wide, 10½” high and 12” deep. Shipping Weight: 35 lbs.

Item No. 13243
VACUUM CASTING UNIT ACCESSORIES

JEWELERS' KERR-VAC ACCESSORIES

Kerr-Vac Plastic Ball Jar
The Plastic Ball Jar is used on a vacuum table when vacuuming investment. It measures 9" diameter by 6" high.
Item No. 13286 $37.00

Kerr-Vac Rubber Seal (Investing Table)
A replacement black rubber pad for the investing table measuring 10" square.
Item No. 13297 $16.05

Kerr-Vac Vacuum Pump Oil
A special oil for use in the Kerr-Vac Pump. Supplied in one quart plastic containers.
Item No. 13298 $32.50

JEWELERS' KERR-CAST ACCESSORIES

P4 Flask
The P4 Flask is perforated stainless steel and measures 3" diameter by 4" high.
Item No. 13246 $25.50

P5 Flask
The P5 Flask is perforated stainless steel and measures 4" diameter by 5" high.
Item No. 13248 $26.50

P6 Flask
The P6 Flask is perforated stainless steel and measures 5" diameter by 7" high.
Item No. 13251 $32.50

T4 Sprue Base
The T4 Sprue Base is rubber and designed for use with the P4 Flask at well as the J4 Flask.
Item No. 13247 $19.75

T5 Sprue Base
The T5 Sprue Base is rubber and designed for use with the P5 Flask as well as the J5 Flask.
Item No. 13246 $24.50

T6 Sprue Base
The T6 Sprue Base is rubber and designed for use with the P6 Flask.
Item No. 13252 $24.50

Melting Dish
The Melting Dish has a 12 oz. gold capacity and measures 3½" diameter by 1½" high.
Item No. 13248 $19.75

Carbon Stirring Rod
Measuring 12" long by ¾" diameter, the Carbon Stirring Rod is used to mix gold, silver, and other alloys in the crucible while melting the metal. The Carbon Stirring Rod is non-contaminating.
Item No. 13998 $19.95

Handled Crucible
The Handled Crucible measures 18½" long and has a 12 oz. gold capacity.
Item No. 13246 $19.95

Round Seal and "O" Ring Silicone Rubber Seals (Casting Inserts)
A replacement round seal (3½" diameter) and "O" rings for the Flask Adaptors. "O" Ring Silicone Seals are not illustrated.
Item No. 13299 $24.50

Regular Perforated Flask Tongs
The Regular Tongs measure 18½" long and may be used with the P4 and P5 Perforated Flasks.
Item No. 13246 $5.75

Large Perforated Flask Tongs
The Large Tongs measure 21½" long and may be used with the P6 Perforated Flask.
Item No. 13253 $28.50
INVESTMENT MIXING, BURNT OUT AND CASTING INFORMATION

CHART FOR DETERMINING INVESTMENT AND WATER REQUIREMENTS FOR VARIOUS SIZE FLASKS TO BE USED WITH SATIN CAST 20, SUPERVÉST 20 AND CRISTOBALITE INLAY INVESTMENTS

This chart provides a quick reference showing at a glance the correct amounts of investment and water required for flask of different dimensions. The chart was developed specifically for use with KERR SATIN CAST 20, KERR SUPERVÉST 20 AND KERR CRISTOBALITE INLAY Investments.

**TOP FIGURE - INVESTMENT**

**LOWER FIGURE - WATER**

**HEIGHT OF FLASK**

<table>
<thead>
<tr>
<th>2&quot;</th>
<th>2½&quot;</th>
<th>3&quot;</th>
<th>3½&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 oz</td>
<td>28 oz</td>
<td>37 oz</td>
<td>45 oz</td>
<td>53 oz</td>
<td>70 oz</td>
<td>94 oz</td>
</tr>
<tr>
<td>2½&quot;</td>
<td>41 oz</td>
<td>55 oz</td>
<td>68 oz</td>
<td>81 oz</td>
<td>105 oz</td>
<td></td>
</tr>
<tr>
<td>3&quot;</td>
<td>59 oz</td>
<td>75 oz</td>
<td>91 oz</td>
<td>107 oz</td>
<td>135 oz</td>
<td></td>
</tr>
<tr>
<td>3½&quot;</td>
<td>111 oz</td>
<td>143 oz</td>
<td>175 oz</td>
<td>207 oz</td>
<td>273 oz</td>
<td></td>
</tr>
<tr>
<td>4&quot;</td>
<td>162 oz</td>
<td>216 oz</td>
<td>270 oz</td>
<td>324 oz</td>
<td>423 oz</td>
<td></td>
</tr>
<tr>
<td>5&quot;</td>
<td>226 oz</td>
<td>294 oz</td>
<td>362 oz</td>
<td>430 oz</td>
<td>545 oz</td>
<td></td>
</tr>
</tbody>
</table>

SATIN CAST 20, SUPERVÉST 20 AND CRISTOBALITE INLAY investments have a water/powder ratio of 40:100.

To determine the number of pounds of investment needed for any particular flask, divide the cubic content of the flask by 20 to determine the cubic content in cu. in.

- Volume of round flask: 0.707 x Dia. x Height
- Volume of square flask: x Width x Length x Height

WAX ELIMINATION

SUGGESTED BURNT-OUT CYCLES

The following burn-out cycles are recommended:

Select proper burn-out cycle according to size of flask:

<table>
<thead>
<tr>
<th>5 Hour Cycle</th>
<th>8 Hour Cycle</th>
<th>12 Hour Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>For flasks up to</td>
<td>For flasks up to</td>
<td>For flasks up to</td>
</tr>
<tr>
<td>2&quot; x 2&quot; x 2&quot;</td>
<td>3&quot; x 3&quot; x 3&quot;</td>
<td>4&quot; x 4&quot; x 4&quot;</td>
</tr>
<tr>
<td>furnace to 300°F/149°C</td>
<td>furnace to 500°F/260°C</td>
<td>furnace to 900°F/482°C</td>
</tr>
<tr>
<td>1 hour: 300°F/149°C</td>
<td>2 hours: 500°F/260°C</td>
<td>3 hours: 900°F/482°C</td>
</tr>
<tr>
<td>1 hour: 500°F/260°C</td>
<td>2 hours: 700°F/371°C</td>
<td>3 hours: 1100°F/600°C</td>
</tr>
<tr>
<td>1 hour: 700°F/371°C</td>
<td>2 hours: 1000°F/538°C</td>
<td>3 hours: 1500°F/816°C</td>
</tr>
<tr>
<td>1 hour: See Note</td>
<td>2 hours: See Note</td>
<td>3 hours: See Note</td>
</tr>
</tbody>
</table>

Note: During last hour, the temperature must be adjusted so that flasks are at correct temperature for casting.

Example: Mold temperature for ladies ring or items of lacey or intricate design should be 900°F/538°C to 1000°F/538°C. Mold temperature for gents ring or items of relative heavier design should be 700°F, to 900°F/371°C to 482°C.

CASTING TEMPERATURE CHART

<table>
<thead>
<tr>
<th>ALLOY</th>
<th>CASTING TEMP (°F)</th>
<th>ALLOY OF METAL CAST (°F)</th>
<th>FLASK CASTING TEMP (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILVER</td>
<td>1750-1775</td>
<td>954-968</td>
<td>890-900</td>
</tr>
<tr>
<td>GOLD 10KY</td>
<td>1890</td>
<td>1030</td>
<td>994</td>
</tr>
<tr>
<td>GOLD 14KY</td>
<td>1925</td>
<td>1050</td>
<td>1000</td>
</tr>
<tr>
<td>GOLD 18K</td>
<td>2015</td>
<td>1100</td>
<td>1050</td>
</tr>
<tr>
<td>BRONZE</td>
<td>1950</td>
<td>1065</td>
<td>994</td>
</tr>
<tr>
<td>R Cu</td>
<td>1900</td>
<td>1035</td>
<td>994</td>
</tr>
<tr>
<td>PLATINUM</td>
<td>3000</td>
<td>1649</td>
<td>1400</td>
</tr>
<tr>
<td>ALUMINUM</td>
<td>1400</td>
<td>760</td>
<td>650</td>
</tr>
</tbody>
</table>

NOTE: 1. Casting temperature will vary slightly depending upon particular alloy used.
2. Flask temperature will vary depending upon size of casting.
3. Pure Silver melts at 1762°F/961°C.
4. Pure Gold melts at 1945°F/1063°C.

RECOMMENDED PROPORTIONING CHART FOR KERR INVESTMENTS

SATIN CAST 20/SUPERVÉST 20 CRISTOBALITE INLAY

<table>
<thead>
<tr>
<th>RECOMMENDED PROPORTIONING CHART FOR SATIN CAST 20</th>
<th>RECOMMENDED PROPORTIONING CHART FOR SUPERVÉST 20</th>
<th>RECOMMENDED PROPORTIONING CHART FOR CRISTOBALITE INLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>36/100</td>
<td>50/100</td>
<td>42/100</td>
</tr>
<tr>
<td>1 oz</td>
<td>5 oz</td>
<td>10 oz</td>
</tr>
<tr>
<td>10 oz</td>
<td>1 oz</td>
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NOTE: *To determine flask weight in oz. cu.:

Volume of round flask: 0.707 x Dia. x Height
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CASTING TEMPERATURE CHART

ALLOY | CASTING TEMP (°F) | ALLOY OF METAL CAST (°F) | FLASK CASTING TEMP (°C) |
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