

A Beginners Guide to Jewellery Making Tools.



The Tools of The Trade...

When you first begin to make jewellery, the purchase of tools can be a daunting task. There is a huge selection available and many will become specific to the type of jewellery that you intend to produce. There is however a core group of tools which form the basic toolkit of most jewellers and that is the focus of this guide.

We will cover everything you might need to get started along with some useful hints and tips to help you along the way. Our aim is to equip you with all the information you need to successfully set up your workshop.

So relax, grab a cup of tea and read on...

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Workbench and Work Area Essentials.

Your choice of work area is largely dependent on the resources and space available to you. Your bench is where most of your fabrication processes will take place and there are some key safety elements that should be considered. Adequate ventilation is essential, as is decent lighting, a solid and stable work surface and a seat which is of a suitable height. Ideally you will also need a dedicated area for soldering if possible, as well as access to water or a tap. Your work bench is a crucial part of your toolkit and must be considered accordingly.

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A) Workbench: A jeweller's bench should be between 90cm and 100cm in height. It has a semi-circle cut out of the front which is your main working area as well as a railing round the edge to prevent items from falling off.

B) Seating: When seated your bench surface should be at your eye level so an adjustable seat is ideal for achieving this. Your chair should also be supportive and comfortable allowing you to work without straining as you will be sitting for extended periods.

C) Bench tray/tin or skin: A bench tray, skin or tin sits directly underneath the semi-circle cut out at the front of the bench. It is there to catch the scraps of metal and dust that are created when saw-piercing and filing. It also acts as a safety net for your work if you happen to drop it or slip.

D) Lighting: Good general lighting is required for a workshop along with more focussed spot lighting over your bench. An angle poised desk/bench lamp is ideal for adjustable positioning of light where you need it but try to ensure that no shadows are cast across your working area.

E) Bench peg: A bench peg is a wooden, tapered block which is attached to the front of the bench via a clamp. Your metal will rest on this peg while you work on it and most people like to cut out a v- section to facilitate easier accessibility for saw frames and files.

F) Peg clamp: A peg clamp attaches your peg to the bench using a simple G-clamp mechanism. Some incorporate a slot for the peg to slide into whilst others have an integrated flat anvil surface which can be extremely useful. Bench pegs and their corresponding clamps are often sold together.



Tip: It can be useful to have a slightly dimmer light whilst soldering. This allows you to easily gauge how hot your metal is by the colour.

Tip: Metal dust, dirt and scraps are known as lemel and should never be discarded. Keep it safe in a dedicated box and then return it annually to your bullion supplier to be refined.



A



Economy bench

Metal Forming.

Metal forming is one of the most fundamental processes of all jewellery making. It involves the manipulation of metal in its raw state using hammers, formers, punches and pliers in order to change it into a different shape. Formed metal pieces will create the basis for all of your work and can potentially involve numerous tools but it is important as a beginner not to buy too many inappropriate items before fully understanding what they all do. Your work will determine the specific tools you need to buy in the long run but in the initial instance, it is entirely possible to manage with just a few basic items.

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A) Nylon Headed Hammer: A nylon hammer has two identical faces and is used when you want to move metal, but not mark it. It is an essential hammer suitable for many different tasks. The heads of a nylon headed hammer screw in enabling them to be removed and replaced as they wear out.

B) Jobbing Hammer: This is a basic, lightweight hammer otherwise known as a ball-pein. It has a polished flat, round surface on one side and a domed face to the other. A 4oz/115g ball-pein is a good, general purpose weight to start off with.

C) Raising Hammer: A raising hammer has two rectangular heads and is used for stretching and shaping metal. A flat piece of metal can be beaten into a three-dimensional shape using a raising hammer. A 9oz/225g raising hammer will serve as a good multi-functional tool.

D) Anvil: An anvil is a shaped, steel former which metal is struck against to alter the contour. A former supports the metal as it is being shaped. An anvil is tapered at either end, often with a rounded taper to one and a square taper to the other. Anvils come in a range of sizes, but a bench anvil is suitable for most jewellery purposes.

E) Flat Plate: This is a flat, polished steel block which provides the perfect surface for flattening metal.

F) Ring Tribblet or Mandral: A ring tribblet is a long tapered steel former for shaping metal into rings. It has no markings on the outside and is not to be confused with a ring sizer. It needs to be secured in a sturdy vice before use.

G) Round Nose Pliers: Round nose pliers have two tapered, fully round jaws and are absolutely essential for wire work. They are used for gripping and bending and forming metal into loops and curves and come in a range of sizes. The size of your pliers should suit the scale of your work, but if selecting just one pair, go for the slightly larger size, usually 130mm.

H) Flat Nosed Pliers: Flat nosed pliers have two tapered, flat jaws and again are used for gripping, forming and bending metal. They are particularly useful for creating angular bends due to the square section of the jaws.

Tip: Steel hammers will shape, stretch and mark metal, wooden mallets will shape and stretch it slightly and rawhide and nylon hammers will shape and not mark, providing care is taken.

Tip: Before metal is shaped, it first needs to be annealed (heated) to make it more pliable. As metal is hammered it becomes work-hardened, so in order to keep it soft you must frequently anneal your work.

Tip: Any surface or tool used to form metal has the potential to also mark metal if not maintained correctly. If tools do get damaged and dented it is advisable to get them re-ground and polished to prevent flaws from being imprinted onto your work.

Tip: : It's a good idea to invest in a set of 'soft jaws' for your vice, which are simply a pair of covers or shields which can be placed over the top of the jaws. They are made out of a softer material, (often rubber) which will help prevent dents and marks from appearing on your work and tools.



I) Parallel Pliers: Parallel pliers have a pivoting mechanism which means that the jaws sit perfectly parallel to one another at all times. This is different to other pliers which generally operate with a pincer movement. They are not sprung and will stay in position as required.

J) Side Cutters: Side cutters are pliers which have a cutting edge which is perfect for snipping wire. The flat cutting edge should be positioned towards the work or main piece of metal to facilitate a neat cut which will need less finishing. The larger they are, the more power they will have.

K) Bench Vice: A good sized bench vice is an essential tool for most workshops and will firmly grip metal formers and tools with precision and strength. It will need to be safely secured to your bench using long bolts and nuts, a g-clamp or simply suction depending on the model you buy.

L) Pin Vice: A pin vice is basically a miniature vice on the end of a stem which allows it to be held or clamped securely. It has tiny jaws which are tightened using a wing nut and is ideal for more delicate work.

M) Ring Clamp: Usually made from wood with leather on the inner face of the jaws, a ring clamp is used to hold rings and other small scale objects whilst they are being sanded or filed. Some models have a wedge which sits inside the clamp that helps to hold items securely in place.

Tip: When choosing pliers check that the grips are comfortable and consider if you want them sprung (meaning that they offer some resistance when squeezed, forcing the jaws open again) or not. Sprung pliers are generally easier to use.



Cutting.

Metal cutting can be performed using a saw, shears, or a drill. All of these processes can be mechanised but are equally as efficient using hand tools. Your choice of tool will determine the type of cut you will achieve: A saw will produce a fine but slightly jagged cut depending on your skill level and size of blade used, a drill will produce a precise hole which will be accurate and clean and shears or snips will produce a rough edge which may well distort your metal. Files are used to smooth out any raw edges following cutting. It is important to mark metal clearly before starting so as not to waste material and achieve accurate results. Planning, marking out and measuring are all key stages in any cutting process.

10 Tools of the trade...

A) Metal ruler: A sturdy metal ruler is a must for any workbench and they are widely available in most hardware stores. A 30cm version will cover all bases and ensure accurate measuring and straight lines to guide you when sawing.

B) Dividers: Dividers are essentially the jeweller's version of a compass, but instead of having a pencil and a sharp point, they have two sharp points. They are used for marking out metal before cutting and are available in a range of sizes. 4" dividers are a good general starting size.

C) Scriber: A scriber is used in the same way as a pencil and is another tool for drawing on and marking out metal. It has a finely ground point which needs to be maintained to ensure consistent results.

D) Centre Punch: A centre punch is used in conjunction with a hammer to mark the position of a hole to be drilled. They are often more substantial than scribes with a shallower point to withstand the blow of a hammer. Handles are usually engine turned (textured by machine) to provide a good grip.

Fixed Saw Frame: A jewellers saw frame is u-shaped and the height of the 'u' dictates the size of the frame; (a larger frame will enable you to saw further into a sheet of metal). Saw blades are secured via screws which are tightened to create tension. A 3" frame is sufficient for a beginner.

F) Adjustable Saw Frame: An adjustable saw frame has a screw at the top of the 'u' shape which can be loosened to allow the length of arm to be changed. The biggest advantage of this is that it allows you to use broken saw blades as well as new ones which can be beneficial whilst learning to saw.

G) Saw Blades: Saw blades come in a range of sizes and are usually sold by the dozen or gross (144). The size of blade used is determined by the size of material to be cut, as well as the intricacy of the line required. They are graded as 8/0 finest (suitable for metal up to 0.4mm) right up to 4 which is the coarsest (suitable for metal 1mm – 1.3mm).

H) Shears or tin snips: Shears or snips are used primarily for cutting solder strips and thin sheet. They use a scissor action and handles can either be curved or straight. (Curved handles will provide more purchase causing less stress to the hands). When choosing shears check their suitability for light or heavy duties and remember that heavy duty tools will cope with thicker metal.

I) Flat, coarse file: A full size flat file is approximately 6" in length and has a rectangular profile featuring two, large flat cutting faces. For the most efficient removal of material a coarse file (00) is the best choice. (N.B. full size files do not generally come with



Tip: Do not be tempted to make do with a plastic ruler as you will find that both your metal and your hand tools will damage the straight edge quickly and result in inaccurate marking out and measuring.

Tip: It is best to start off using size 2/0 saw blades if you are unsure, as these are medium sized and suitable for metal 0.6mm – 0.8mm thick. Remember that finer blades are more suited to curved lines and coarser ones are better for straight lines.

Tip: : When putting a saw blade into your frame always ensure the teeth are facing the handle as your cut will be made on the downward stroke. The upward stroke simply repositions the saw.

Tip: Don't get confused with the vast array of files available. As a beginner you simply need a coarse file to remove material and a medium cut file to clean up rough edges and shape the metal. In addition to this, a set of six needle files will provide all the profiles you need to perform most basic tasks. Cuts are graded from 0-4 with 0 being the coarsest and 4 being the finest. You can always add to your collection as more specific needs arise.

Tip: To keep your files working efficiently it is a good idea to invest in a file brush which has stiff steel bristles to remove metal debris from your tools. A clogged file will work much slower than a clean one.

handles so you will need to purchase a wooden handle separately and attach it before use)

J) Half round, medium cut file: A half round file has one flat cutting face and one convex cutting face and again will be approximately 6" in length. A medium cut version (2) will serve as a useful all-purpose tool suitable for a great number of tasks.

K) Set of Needle files: Needle files are much smaller than standard files and are usually between 10cm and 20cm in length. They are ideal for intricate work and come in a great range of profiles and cuts many of which are intended for very specific jobs. As a beginner it is advisable to start off with a pre-selected set of 5 or 6 needle files in a medium cut (2) which will contain all the standard profiles you might require: Round, Pillar(flat), half round, square, 3-square (triangular) and barrette (shallow triangle with one cutting face).

Hand Drill: A drill is used to create round holes which can be both decorative and functional. Traditionally jewellers used a bow drill which can be operated with one hand leaving the other free to hold the metal steady. This is still a viable and inexpensive option today and perfect for a beginner. Another alternative is an Archimedian Hand Drill which is spring loaded.

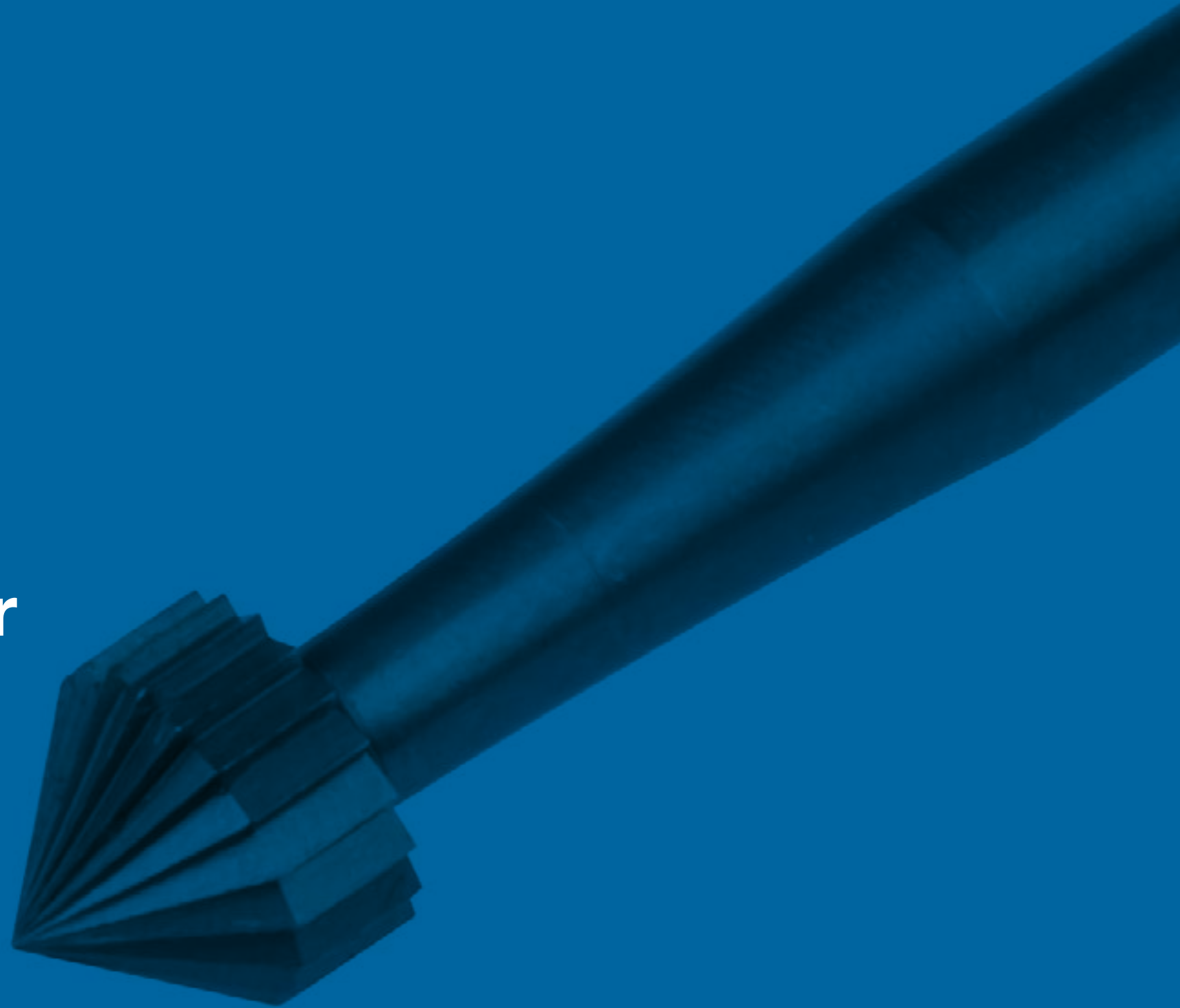
M) Rotary Drill: A rotary drill or hobby drill is a handheld mechanised multi-functional tool which will facilitate with drilling, sanding, cutting and polishing as well as a great many other tasks. Most come supplied with a selection of burs, drill bits and polishing and sanding accessories. They can either be plugged into your power supply or charged and used without cables.

N) Drill Bits: Drill bits are generally available from 0.3mm upwards and the most common type is known as a twist drill. It cuts in a clockwise direction and is secured into your chosen device via a chuck or collet which will open and close to grip the drill bit. The finer the drill bit, the more fragile it will be so be prepared for breakages.

O) Burrs: Burr is a general term used to describe any small scale cutting or finishing tool mounted on a narrow shaft which can be used in conjunction with a mechanised drill. They are available in a great variety of profiles and finishes and each removes the surface of the metal in a slightly different way. They can be used to cut, shape, trim, sand, polish, texture and grind and the nature of your work will ultimately determine which burs you are likely to need.

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Tip: The selection of burrs available is vast and you will not need all of them. Don't be tempted to rush out and buy them before fully understanding what each is for. Instead, let your work dictate the burrs you need and purchase them steadily as the need arises.



Soldering.

Soldering is the process of permanently joining two pieces of metal together via the application of heat. This heat can be provided by a soldering iron, (only suitable for base metal) or a blow torch which produces a controllable flame through a combination of oxygen and gas (normally propane, butane or natural gas). Solder is melted into the desired gap to form a strong bond which is facilitated by an initial application of flux which helps the solder to run cleanly and evenly. When metal is heated a dark oxide layer is formed on the surface, which needs to be removed before polishing can begin. Jewellers generally use some form of 'pickle' (acid solution) which is often heated, to clean the metal to a suitable finish ready for the next step.

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Blow Torch: The size of torch you require depends on the scale of your work but most torches have interchangeable tips which will alter the size of flame produced. A larger torch will need to be attached to a propane gas bottle and a gas and oxygen regulator to monitor both levels for safety. It's advisable for beginners to start off with an 'all in one' torch system which has a built in regulator. This type of system will simply connect to your propane bottle and is then ready for use.

B) Bench Torch: A small scale bench torch is a great option for those whose work doesn't require a large flame. It is a free standing torch with a push button ignition that uses butane fuel (lighter fuel). Air flow is controlled via a ring around the top of the torch and the flame can be also be adjusted to suit your requirements (a larger yellow flame exudes a gentle heat and a finer blue flame a more intense one). Bench torches are easily refillable as well as being portable and are the perfect choice for anyone not ready to tackle a larger torch.

C) Flux: Flux comes in liquid or paste form and is applied to a joint before soldering to help the solder to flow. It works by preventing oxides from building up during heating and basically keeps the metal cleaner which allows free movement of the solder. Flux is available to buy as a liquid or as a borax dish and cone which you simply grind together with water to form a paste. Flux is generally applied with a small brush.

D) Solder: Silver and gold solder is supplied in strips or panels which you cut into tiny pieces with snips or shears. It comes in Hard, Medium, Easy and Extra Easy and each has a different melting point. Hard has the highest melting temperature so you always start with hard and then move down the grades for subsequent joints.

E) Fine Tweezers: Fine stainless steel tweezers are ideal for picking up, transferring and positioning small pieces of solder onto your work.

Tip: Propane gas is supplied in large blue, red or green canisters and is available from garages, hardware stores and garden centres.

Tip: It is impossible to tell what grade your solder is once cut so it is a good idea to snip your solder pieces into labelled jars to avoid a mix up. This also saves time if done in advance.

Tip: : Small canisters of butane fuel can be purchased from any retail outlet with a tobacco counter. You simply find the inlet hole in your torch, insert the nozzle from the fuel canister and push to refill.

F) Soldering blocks: All soldering jobs need to be performed on heat resistant blocks for safety and these can be made of pumice, charcoal, ceramic or magnesia. They come in square flat sheets and thicker, chunky blocks which together can be arranged to suit the soldering space you have available.

G) Reverse Action Tweezers: Reverse action tweezers are closed 'at rest' and then open once pressure is applied so they are perfect for gripping items securely. They are ideal for holding work whilst soldering and come with insulated grips. They are available with both straight and curved tips.

H) Third Hand: A third hand is a set of reverse action tweezers mounted on a free standing base which can hold an item securely, essentially leaving both of your hands free. They can be helpful for tricky soldering jobs.

I) Pickling: Pickling is the term used to describe the process of cleaning your metal after soldering, to remove the oxide build up. This is done by immersing your work into a warm acid solution followed by a light brushing with a soft bristle brush to remove any debris(a tooth brush is perfect). Safety is paramount when handling any form of acid but there are many non-toxic, safety pickles available now, which are safe to use in all environments.

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Tip: You must never put stainless steel tools into safety pickle as this will result in metal being copper plated and consequently contaminating your pickle solution.



Finishing.

Finishing is one of the most transformative and rewarding parts of the whole jewellery making process and always brings with it a certain sense of anticipation. Finishing can take many forms and can entail mirror polishing to a high shine, texturing or colouring using chemicals. However the foundation of all finishing is polishing so this is what we will focus on in this section.

When you polish a hard surface you basically buff it until all the scratches are removed. Fine jewellery polishing is usually done with soft round polishing wheels called mops which are covered in polish and rotated at high speed to bring up a mirror finish.

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- A) Wet and dry paper and emery paper:** These are both abrasive papers which can be used with water to achieve a finer finish or without. They are used to prepare the surface of the metal before polishing and are graded from rough to smooth. The more grades you use, the finer the finish will be but as a guide try to use, (at the very least), a coarse, medium and smooth grade paper before attempting to polish.
- B) Emery Sticks (buff sticks):** Emery sticks are shaped wooden sticks covered in a layer of abrasive paper which can be used to apply more pressure than using emery paper alone. They come in a range of grades and profiles very similar to files. An assorted selection pack will make a very good basis for your toolkit.
- C) Polishing Mops:** Polishing mops come in varying densities and are normally made from felt, calico, wool, leather and swansdown amongst other things. You generally use a harder (denser) mop first made of felt or calico, followed by a softer mop for the final buffing which could be leather, wool or swansdown. Mops come in a range of sizes from 1-6" diameter.

- Polishing Motor:** All polishing mops need to be used in conjunction with some form of high speed motor and this can either be a hand held rotary drill, a pendant motor or a bench mounted motor with a tapered spindle fitting. A bench mounted motor will facilitate full size mops where as a rotary drill and pendant motor will use miniature mops or burs.
- E) Polishing Compounds:** Polishing compound is applied to your mop before you start to polish. You can either use a compound tailored to your specific metal of choice, or you can go for a general all-purpose version suitable for a range of metals. All purpose compounds are ideal for beginners and a two stage polishing process will give you great results.
- F) Tripoli (Polishing Compound):** Tripoli is used for your first stage of polishing. It is suitable for most metals and will remove scratches and marks left from emery paper. It comes in the form of a bar and is simply held against your polishing mop whilst in motion to apply.

Tip: Steel shot rusts extremely easily, so it is best stored completely submerged in water with a spoonful of your soap solution (Barrelbrite) to keep it in good condition.



Tip: Polishing creates a huge amount of dust and debris so it is vital that you have adequate ventilation for this task.



G) Rouge (Polishing Compound): Rouge is used for the final stage of polishing and will bring up a high shine on most precious metals. It comes in powder and bar form but the bar is easier to handle. It is applied in the same way as Tripoli by direct application to the mop.

H) Barrel or Tumble Polishing: Barrel polishing is suitable for detailed work which doesn't contain large, flat areas of metal. Small items are sealed in a 'barrel' containing steel shot and a soap solution which is then placed on a small motorised unit which turns, thus rotating the barrel. The unit can be left for hours without any manual input.

I) Steel Shot: Shot comes in different shapes and sizes; some is round and some is pointed and the finest of all resembles small needles which can get into every nook and cranny. A mixture of shapes and sizes will provide the most comprehensive polished finish.

J) Barrelbrite: Barrelbrite is a polishing compound which comes in powder form. It is added, along with water and steel shot to barrel polishing machines to achieve a high shine.

K) Burnisher: Burnishing is a way of polishing metal simply by rubbing firmly with polished steel tool. It is really only suitable for very small, inaccessible areas and is often used following stone setting to tidy up collets and claws.

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Tip: When using emery paper and sticks try to buff in different directions rather than sticking to just one as this will achieve a better result.



About Cooksongold...

Cooksongold is the UK's largest one-stop shop for the jewellery maker with over 17,000 products including a huge stock of silver, gold, palladium and platinum bullion cut to your requirements (sheet, wire, tube, solder, grain, settings) as well as huge ranges of findings, loose and finished chain, gemstones, ring blanks, jewellery making tools, silver clay, beading materials and much more.



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