

Stone Carving - The 9 Basic Hand Tools

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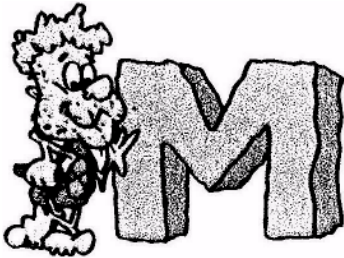
An outline of the basic tools needed to carve stone.

Stone Carving- The 9 Basic Hand Tools

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- The steel hammer is the best all purpose stone carving hammer. Select the weight best for you.
- Sandbags protect your stone and provides stability.
- For best results use chisels at the proper angle.
- Gloves help protect your hands from sharp edges.
- Quality files and rasps last longer and do the job right.
- Change out your water completely between each grit during sanding and finishing.
- Completely dry you stone sculpture prior to polishing.
- Always wear safety gear.

The basic art and craft of stone carving has changed very little since Greek times. There have been advances in the field with the introduction of pneumatics and electric tools, with Carbide steel and diamond technologies, but the basic tools have remained the same for centuries. You need the right tools to do the job right. The right tools save time and will help get you started in this noble and ancient art. There are nine basic tools needed to get started in carving stone by hand.

1. A HAMMER- Whether you are carving on the softest stones for sculpture (soapstone- see Technical Bulletin 2, "Stone Hardness- What is Hard") or marble and granite you need a hammer. There are two hammers used for stone carving. There is the rectangular hammer and the bell hammer. Both of these come in different weights and the hammer weight should be selected based on your own physical attributes and how long you think you may be carving during a regular carving session. The bell hammer is recommended for more experienced carvers because it requires a more direct and tuned strike. The rectangular hammer comes in two types of metal. The tempered steel hammer in 1 lb, 1.5lb and 2lbs is good for roughing out and general use. The soft iron hammer in lib and 1.5lb is recommended for finishing work. Both are long lasting tools and it's probably best for the beginner to choose the steel hammer for it's all around flexibility.
2. CHISELS- there are many chisel designs and uses. Chisels are either carbide tipped chisels for marble and harder stone or hand forged tempered steel chisels for soapstone and alabaster (soft stones). The three most important chisels are the point, tooth and flat:
 - POINT- A single point chisel used primarily to block-out the form and remove stone. Used in all directions it should leave a crosshatched pattern on the stone. The point is used at about a 45-degree angle to the stone.
 - TOOTH- A tooth chisel available it two to nine points. A four or five point is recommended and it is used to further shape the stone. Used in all

Is it possible to be TOO safe?

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directions in the shaping process it will leave a combed texture on the stone. This chisel is used at less than 45 degrees and follows the shape created by the point chisel. There are tooth chisels that have flat teeth and are called flat tooth finishing chisels used to further refine the shape and remove the combed texture of the tooth chisel.

—FLAT- A flat chisel is used to remove the marks left by the tooth chisels and further refine the shape and details. The flat chisels range in width from 3/8 inch to 1 inch wide and is used at about a 20-degree angle to the stone. I recommend a 3/4 inch wide flat as the basic flat chisel.

3. VIXEN FILE- used for shaping and finishing. While there are other shapes and styles available this one is one of the most versatile and productive. It removes stone quickly and leaves a very smooth finish. It comes in several lengths with one side flat and the other side rounded. For comfort you may attach a wood handle on the tang end. Files and rasps are most efficient when pushed in an "away " direction, as this allows you to put our weight into it and the teeth or bite of the tool is cut so as to work best in one direction.
4. RASPS- for refining and detailed shaping. Rasps come in several lengths and include a different shape on each end. The best quality (shape, durability and tooth density) rasps and rifflers are made in Italy. These are very versatile hand tools and you will probably end up with many over time. Select your first one based on your current project. I recommend one that has an end with a wide (1/2" or 5/8") flat surface, with serating on the side (like a knife end) and the other end shaped like a pencil or rat-tail.
5. SANDING AND FINISHING PAPERS- come in a verity of grits and are used to sand down the surface of the stone, gradually removing the face to reveal a smooth polish-ready surface. The roughest of the "papers" starts at 80 and goes to 120, and are actually open screen back. This open screen back helps reduce clogging. Just pat it against the edge of your carving stand to remove the built up dust. These can wear fast as they are doing a lot of work removing the tooth marks left from the chisels. Screen back is very effective on soapstone and alabaster. Once the entire surface has been worked with the 80 and 120 grit screen backs begin with the 150 grit silicon carbide wet/dry paper. The higher the number the more and finer the grits, or particles, per square inch. So a 220-grit paper would theoretically, have 220 grits per square inch. These papers can be used dry but are best used wet. I recommend having plenty of water to either sit your sculpture in or to spray onto the sculpture. Rub the piece of sand paper (say 3"x3" square) in a circular motion and work the water and dust into slurry. Continue sanding work to insure proper coverage. I usually leave the slurry on so I know where I have been and to insure adequate overlap. As you move through each successively higher grit, be sure to completely change the water out and flush all the old slurry off. It is essential to use clean water for each grit you use. You do not want to be rubbing those larger particles as you are trying to create an even smoother surface. Soapstone usually provides a smooth finish at 600 grit, alabaster at 1200 or 1500 grit and marble can be taken up to 3500 grit with diamond pads (there are other options with marble but we're sticking to the basics). In the basic sanding and finishing papers (9"x11") expect to have the 80 and 120 grit screen back and 150, 220, 320, 400, 600 and 1200 grit wet/dry papers.
6. POLISH- for that final touch. Once you have sanded your sculpture to the desired finish let it dry over night prior to polishing it. Apply the polish with a clean soft cloth in circular motion and rub it off with a clean dry cloth. While not essential, I was taught to seal the stone first, and then polish it. I think this

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works best but like I said it's not essential.

—In case some clarification is helpful, the proper sequence for the above mentioned tools is:

Point chisel- for blocking out (removing unwanted stone) and shaping.

Tooth or Claw chisel- shaping.

Flat chisel- refining the surface.

Rasps and files- removing the chisel marks and refining.

Sanding and finishing papers- smoothing and finishing.

Polishing- shining and protecting.

7. CANVAS SANDBAG- used for positioning and cushioning. Usually filled with sand or kitty litter this bag helps to position your sculpture stone while you are working on it. It also serves to cushion the stone from blows of the chisel and hammer.
 8. SAFETY GLASSES- or goggles to protect your eyes from stone chips. This is an important habit to get into for obvious reasons. If you wear prescription glasses they will probably provide adequate protection, unless you also have someone close by carving away. When you decide to clean the dust off of your safety glasses or prescription glasses please rinse them off first with clean water to remove stone and dust particles. This will reduce the possibility of scratching your lenses.
 9. DUST MASK OR RESPIRATOR- Generally beginning stone carvers using the tools described in the article will not generate a lot of stone dust so a mask or respirator is not essential. Continuous and long-term inhalation of stone, wood or clay dust and particles is not healthy. The decision to wear a mask or respirator should be based on sensitivity to dust, proximity to other carvers, prevailing wind and types of tools used. Please read Technical Bulletin 6, "Safety for the Stone Carver" for important safety related information for eyes, ears, hands, and lungs.
- OPTIONAL TOOLS

—FILE CLEANER wire brush for cleaning out the teeth of rifflers and files

—SOFT BRUSH for dusting off stone chips and dust from your working surface, canvas bag and working table/stand.

—BUSH HAMMER for creating light to heavy frosting and texture on your stone. Please read Technical Bulletin 4, "Texture on Stone-Creating Interest" for more information on this handy stone carver's tool and on exploring textures.

—GREASE PENCIL OR CRAYON for sketching on your stone and marking areas for removal as you work into the stone.

—DIAMOND PADS up to 3500 grit. Long lasting compared to the papers and well worth the cost if you plan on creating nice finishes. These come singularly and in sets in rather stiff sponges or as flexible 2"x4" Velcro pads with an optional handle.

—GLOVES for protecting your hands. Look for leather and consider cutting off the fingers of the glove to allow you to feel the stone but protect you palms

—TOOL HOLDER made of canvas for storing chisels and rasps. Individual slots that roll up and ties for protecting and transporting tools. /—""""^•SsS

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See our other informative Technical Bulletins on-line or give us a call.

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—CAPE AND RONDEL CHISEL- The cape chisel is a narrow flat chisels used particularly for narrow areas. Rondels are curved flats, almost like a fingernail, designed for concave areas.

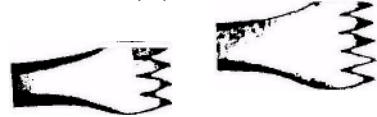
Stone carving books available at Montoya Sculpture & Supply with introductions to stone carving and stone carving tool use: *Direct Stone Sculpture* by Milt Liebson and *Sculpture in Stone* by Josepmaria Teixido I Cami

The basic stone carving tools mentioned in this technical bulletin are listed below with their SKU number for easy reference on our on-line catalog and our 40 page paper catalog: Steel Hammer- 1lb 08001, 1.5lb 08002, 2lb 08003



Chisels- Point 10002, Tooth (4 tooth 10006) (5 tooth 10020 or 10021

tooth 10008), Flat



Vixen File-8 inch 15025, 12 inch 15019

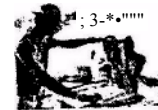
Rasps- Milani rasp 8 inch 14008, 10 inch 14016

Sanding & Finishing Papers- While available separately, get one of the entire range with SKU 3411

Polish- 49033



Canvas Sandbag- empty 13x12 inch 06005, 17x16 inch 06007



Safety Glasses- 05001, or safety goggles with strap 05003



J/ Dust Mask or Respirator-

Disposable dust mask four pack SKU 05019, Respirator SKU 05011 ask about size.



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