

## Contents

Five 2-ounce containers of 90x, 180x, 280x, 400x and 600x silicon carbide particles.

## Background

Lapping is the process of rubbing two surfaces together with an abrasive and a lubricant to improve the quality of at least one of the surfaces. Lapping can be used for flattening (or truing) a surface, such as a worn sharpening stone. Lapping can also minimize the roughness of a surface (i.e., surface conditioning), such as a plane sole or blade. By minimizing the roughness in the sole of a plane, there is reduced friction between the plane and the workpiece, which in turn reduces abrasion. For blades or chisels, the cutting edge can be made sharper if both intersecting surfaces are free of scratches.

## Choosing an Abrasive

Although any grit will provide adequate results for any application, each is best suited to a particular application.

### Guidelines

	90x	180x	280x	400x	600x
Shaping Stones	●	●	○		
Truing Stones		○	●		
Flattening Soft Metals		○	●	●	
Flattening Blades and Soles			●	●	
Conditioning Plane Soles				●	○
Conditioning Blades				○	●

- - Preferred grit
- - Optional grit

**Note:** For truing stones, start by shaping with 90x or 180x and finish with 280x. Finer grits are not necessary and will imbed in the stone and contaminate it. After lapping, use a stiff brush with soap and water to clean the stone.

## Selection of a Lap

The flattening (or truing) of a water stone should only be done on a plate glass lap using water as the lubricant. Oil will ruin a water stone, as will the oxides created by lubricating a ferrous lap with water.

For the lapping of metals, there is a range of possible lap surfaces that may be used. In order of preference, these are:

- A purpose-made gray iron lap with a ground and grooved surface.
- A milled gray iron casting.
- A piece of plate glass.
- A mild steel plate.
- A piece of close-grained hardwood.

Ferrous or hardwood laps should be lubricated with oil. Plate glass may be lubricated with oil or water, depending upon the application.

## Lapping Methodology

Lapping entails moving the object around on the lap surface until you have achieved the desired condition. The exact technique used is up to whoever is lapping and what feels comfortable.

- Optimal results are achieved when the object is moved about the lap in a long, slow figure-eight pattern. This technique continuously redistributes the slurry around the lap, keeping it uniformly oiled and producing the best results.
- The stroke pattern should cover the entire lap and extend beyond the edge of the lap a few times. Not only does this help in extending the life of the lap, but it also pushes any large abrasive particles off the lap, preventing subsequent scratching.
- Avoid adding grit halfway through a lapping session. The abrasive grit becomes finer over time. Adding grit increases the time needed to lap, and does not improve the results.
- A well-lubricated surface is essential to quality lapping results. Over time, the lap will naturally lose lubricant. Allowing the lap to dry out can spoil both the lap and the object being lapped.

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