



# Guide to Mass-Finishing Basics

Are you thinking about adding mass-finishing to your operation? Or, if you already use mass-finishing, are you looking for a way to increase the efficiency of your process? In this guide, we offer a review of the mass-finishing process, including types of equipment, media and solutions available here at Rio. In this guide, you'll gain an understanding of the process, and just give us a call if you have any questions; we're here to help.

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## ARE YOU WORKING WITH CAST OR FABRICATED WORKPIECES?

When building the ideal mass-finishing process for your shop, the first thing you will want to consider is how you produce your jewelry and your desired result for each workpiece.

### CAST



Jewelry pieces will need to be clipped and ground. Then, a cycle of pin finishing to remove casting scale and any residual investment. Cast pieces usually require medium and fine cut-down steps before a final finish.

### FABRICATED



Most fabricated pieces may only require the burnishing cycle to smooth out the slight imperfections and rough edges left after sawing or punching.

## WHAT LEVEL OF FINISH DO YOU WANT?

Mass-finishing is a step-by-step process, and your desired result may be reached at varying stages.

### Smooth

Some cast pieces, like ring shanks or bracelet blanks, are designed to be used as bases for other designs. They may only need deburring and a rough cut-down to achieve a smooth surface, and will be further hand finished after assembly.

### Bright Finish

The end result of a thorough mass-finishing process should produce a nice bright finish that is usually good enough to go right into the display case. High-polish or mirrored finishes will take additional hand polishing.

## WHAT EQUIPMENT WORKS BEST FOR YOUR OPERATION?

The size and quantity of pieces you will finish, as well as the time you need to finish them in, are key factors in determining the appropriate type of equipment for your operation.

### ROTARY/BARREL



- Longest processing time.
- Works with wet or dry media.
- Ability to run stainless steel shot.
- Inspection occurs while the cycle is stopped and the barrel is open.
- Solution requires periodic changing.

### MAGNETIC PIN FINISHER



- Fast processing time.
- Ideal for surface prep and achieving a high-shine finish.
- Pin media optimal for burnishing hard-to-reach details.
- Works with magnetic pin media and burnishing solution.
- Inspection occurs while the cycle is running.

### VIBRATORY



- Faster processing time.
- Works with wet or dry media.
- An optional flow-through kit is recommended for effective and efficient wet finishing.
- Inspection occurs while the cycle is running.

### CENTRIFUGAL



- Fastest processing time.
- Wet or dry machines sold separately.
- Inspection occurs while the cycle is running.
- Great for aggressive cut-down through final polish.

You may determine that your operation requires more than one machine to process different sizes or types of jewelry. Larger mass-finishing operations can dramatically decrease processing time by incorporating a bank of machines, where each machine is assigned to a specific cycle or type of media.



**Too many pieces in the media will cause part-on-part damage and surface impingement. The machine must be large enough for your workpiece to move around freely in the media.**

## THE BASIC STEPS OF MASS-FINISHING

Below is a brief description of the basic steps of mass-finishing. Since conditions vary, you may need to experiment to determine which steps are required for the desired finish on your various types of pieces.

✔ **SURFACE PREPARATION**  
✔ **OXIDATION**

✔ **CUT-DOWN STAGES**  
✔ **BURNISHING**

✔ **POLISHING**

### ✔ **SURFACE PREPARATION**

All cast (and some fabricated) workpieces must undergo a thorough surface preparation step to remove any investment debris, oils, dirt and residue. The quickest and most efficient method of surface preparation is a magnetic pin finisher with Sunsheen™ burnishing compound.



### ✔ **OXIDATION**

Oxidizing is a great way to highlight design details. If you choose to oxidize your pieces, use Midas Black Max Oxidizer or liver of sulfur before pieces enter the first cut-down cycle.

### ✔ **CUT-DOWN**

The main purpose of the cut-down phase is to smooth out rough surfaces on workpieces. Depending on the condition of the workpieces, this is usually completed in 2-3 stages using abrasive media (see below) in a series of grits from coarse to fine. This will remove any rough edges and burs and create a uniform surface. For improved efficiency, use a flow-through system during the cut-down stages to filter out any residue that is suspended in the deburring solution.



## COMMON TYPES OF CUT-DOWN MEDIA?

The size, shape and amount of detail on your pieces will help you determine what type of media to use. Two common types of media are plastic pyramid and plastic cone.



### **PLASTIC**

The points on plastic pyramid media are ideal for workpieces that have a lot of detail and the smooth edges on plastic cone media are ideal for workpieces with little or no detail.



### **CERAMIC**

Ceramic media provides an aggressive cut-down and is a mixture of cylinders and spheres that quickly remove surface roughness from detailed or smooth pieces.

The right size of media depends on the size of the pieces you are finishing. Larger sized media works best with larger workpieces such as bracelets and belt buckles, while smaller items like findings and charms should be processed with smaller media. Choose a deburring compound like Super Sunsheen™ to lubricate the cutting action, and help suspend the sludge materials generated during mass-finishing cycles.



**You can use a mix of cones and pyramids with the same abrasive type in one machine. This will allow you to run detailed and non-detailed pieces at the same time.**

## THE BASIC STEPS OF MASS-FINISHING (CONTINUED)

### ✓ BURNISHING

Burnishing smooths an area by “rubbing” the surface area of the metal pieces into a smooth, polished surface. Non-abrasive media is used in this step and a vibratory or rotary barrel is recommended.

### ✓ POLISHING

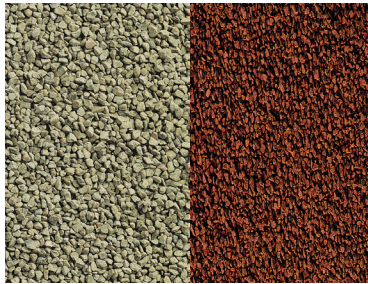
Dry media such as walnut and other shell is ideal for the polishing stage. This media is available with or without pre-applied polishing additives.

#### COMMONLY USED POLISHING MEDIA



##### WALNUT

Commonly used with all metals. Available pretreated or choose your option of compound based on your metal type; chrome oxide, iron oxide or metal gloss.



##### GREEN/RED SHELL SHINE

Available in green for silver, nickel and whites metals and red for gold, brass, copper and bronze.



##### GREEN/RED BUFF

Super soft final finish ready to use when other shell medias are too coarse. Available in green for silver, nickel and whites metals and red for gold, brass, copper and bronze.

#### QUESTIONS?

Please visit us at [riogrande.com](http://riogrande.com) to learn more about the mass-finishing equipment and supplies that we carry, and call us at **1.800.545.6566** to speak with one of our experts about any questions you may have about your own mass-finishing process.

