

MICRO-ABRASIVE BLASTING NOZZLES AND ABRASIVE MEDIA



MARSHALL MACHINERY, INC.

We help you manufacture success™



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COMCO INC.



Comco Nozzles: Quality & Performance

Nozzles are an integral part of the micro-abrasive blasting system. They provide the focus and acceleration to the abrasive stream generated by the blaster. As dry air and abrasive powder, or media, pass through the nozzle, they are channeled into a concentrated pattern that enhances the cutting abilities of the specific media and the precision of the process itself.

Although the process seems simple, the quality and care we take in manufacturing each nozzle is a key component in the success of micro-abrasive blasting. The superior quality of our nozzles guarantees the highest level of repeatability with every blast.

Color-Coded System for Quick & Easy Nozzle Identification

Manufactured with Premium Grade Tungsten Carbide for Longer Life

Quality Control to Ensure Repeatability with Every Blast

Wide Variety of Nozzle Shapes & Sizes PLUS Custom Designs

Priced Affordably while Maintaining Quality & Precision



Our exclusive series of Hi/Performance nozzles is expertly engineered to provide better blasting characteristics and increased resistance to wear.

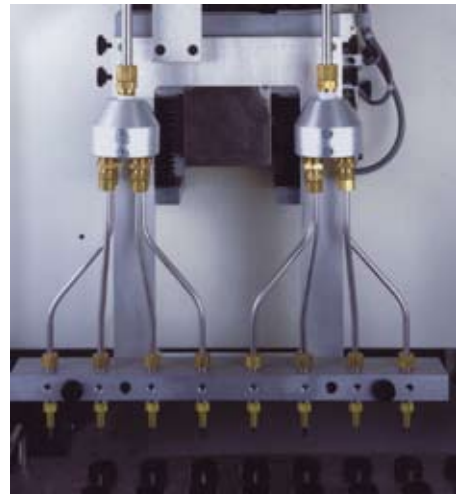
Comco's Hi/Performance nozzles deliver an accelerated abrasive flow with increased speed and a tighter focus. This results in a dramatic decrease in cutting and drilling time, as well as producing less overspray.

Whether they are used in manual or semi-automated operations, Hi/Performance nozzles reduce the blasting time required for your application.

Hi/Performance nozzles have an increased wear resistance that is 3 to 5 times that of conventional nozzles, saving you both time and money.

Perfect for Automation

Hi/Performance nozzles are ideally suited for applications that use multiple nozzles with splitters and fixtured arrays.



The Right Nozzle for Every Job

Hi/Performance Nozzles



Comco's exclusive line of Hi/Performance nozzles delivers up to 30% greater efficiency than standard nozzles, allowing you to complete more work in less time.

Straight Round Nozzles

For many applications, Comco's complete array of straight round nozzles is the solution to your micro-abrasive blasting requirements.



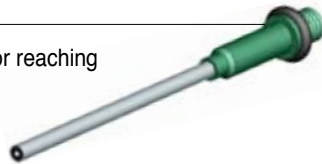
Rectangular Nozzles



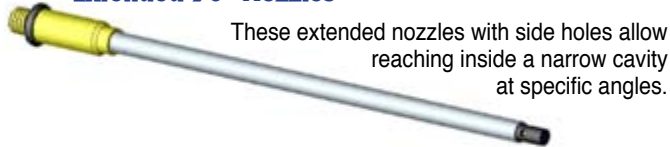
Rectangular or 'slotted' nozzles are used in a variety of applications where a wide sweep or fan of abrasive is required.

Extended Nozzles (1.5" Long) Round

Extended nozzles are ideal for reaching inside a narrow cavity that otherwise would be impossible to blast.



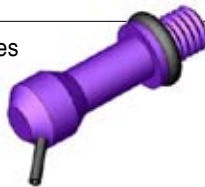
Extended 90° Nozzles



These extended nozzles with side holes allow reaching inside a narrow cavity at specific angles.

Angled Nozzles

Comco has a line of unique angled nozzles for blasting into difficult-to-reach corners of machined parts.



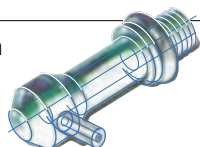
PowerFlo® & DirectFlo™ Nozzles



Designed to work in tandem with Comco's DirectFlo™ and PowerFlo® blasters, these nozzles are your choice for heavy duty micro-blasting. They are carefully engineered to withstand the pressures of high volume production use.

Custom Nozzles

Our skilled engineers can develop custom nozzles to fit your specific applications.



PART #	COLOR	NOZZLE OPENING	
		inch	mm
MB1520-24	Violet	.018"	0.46mm
MB1520-11	Green	.030"	0.76mm
MB1520-29	Yellow	.046"	1.2mm
MB1520-35	Red	.060"	1.5mm
MB1500-28	Grey	.010"	0.25mm
MB1500-10	Silver	.015"	0.38mm
MB1500-24	Violet	.018"	0.46mm
MB1500-27 (thin wall)	Black	.018"	0.46mm
MB1500-37	Orange	.025"	0.64mm
MB1500-11	Green	.030"	0.76mm
MB1500-29	Yellow	.046"	1.2mm
MB1500-26	Orange	.008" x .020"	0.2mm x 0.5mm
MB1500-12	Blue	.008" x .040"	0.2mm x 1.0mm
MB1500-19	Red	.008" x .060"	0.2mm x 1.5mm
MB1500-20	Silver	.008" x .080"	0.2mm x 2.0mm
MB1500-22	Olive	.008" x .125"	0.2mm x 3.2mm
MB1500-23	Black	.008" x .150"	0.2mm x 3.8mm
MB1500-32	Blue	.012" x .150"	0.3mm x 3.8mm
MB1503-1	Violet	.018"	0.46mm
MB1503-2	Green	.030"	0.76mm
MB1503-3	Yellow	.046"	1.2mm
MB1504-6 (1 hole)	Yellow	.046"	1.2mm
MB1504-11 (2 holes)	Yellow	.046"	1.2mm
MB1502-3	Violet	.018"	0.46mm
MB1502-5	Green	.030"	0.76mm
MB1502-6	Yellow	.046"	1.2mm
MB1501-25	Violet	.018"	0.46mm
MB1501-14	Green	.030"	0.76mm
MB1501-28	Yellow	.046"	1.2mm
PF2110-1	Red	.060"	1.5mm
PF2110-3	Blue	.080"	2.0mm
PF2110-5	Red	.125"	3.2mm
PF2110-4 (rectangular)	Red	.008" x .150"	0.2mm x 3.8mm
PF2110-6 (rectangular)	Blue	.016" x .190"	0.4mm x 4.8mm
<i>Our Technical Support Department can determine the correct nozzle for your specific application.</i>			



A Guide to Media

The effect of an abrasive material is caused by its three characteristics: shape, hardness, and particle size.

Particle Shape - Individual particles that are blocky shaped have points and edges that will cut and strip away surface material on impact. Spherical shaped particles have relatively no cutting ability and are used to pound or "peen" a surface.

Hardness - The hardness of a media is measured using the Mohs' scale. The harder the media, the more aggressive it will be in removing material from the work piece.

Particle Size - A larger particle generates a greater impact force as it strikes. Media with larger particles removes material faster. It also produces a heavier texture on the base material.



While powder from different manufacturers may look similar, there are subtle differences in manufacturing that ultimately affect the success of any application.

At Comco, we process all of our powders in humidity controlled rooms to ensure dryness. In addition, all of our powders are expertly packaged into heat-sealed bags and containers for protection from any contamination or moisture.

Comco's stringent quality control standards ensure that our media is always dry, pure, and carefully sized to deliver the finest in micro-abrasive blasting.

A Wide Range of Powders for Your Micro-Abrasive Blasting Jobs

Quality Control That Ensures Purity, Dryness, and Uniform Particle Size

Superior Performance at Competitive Prices

Conveniently Packaged in Single Bottles, Poly Bags, and Bulk Containers

Comco Abrasive Media: Quality & Performance

The three most important quality issues in selecting any media are moisture, purity and particle size distribution.

Particle Size Distribution - It is essential that a majority of the media particles are located within a narrow size range. This prevents coarse particles which can plug the orifice and nozzle.

Foreign Particles - The small size of the orifices and nozzles used in micro-abrasive blasting makes the process sensitive to contaminants. Purity is necessary for optimum performance.

Moisture - Media used in micro-abrasive blasting is very different from anything used in a larger "grit" blaster. The media must be free of impurities and dry with a moisture content of less than 1%.



The Right Media for Every Job

Aluminum Oxide



Aluminum oxide is the most commonly used cutting abrasive. The shape and hardness of the particle make it an excellent choice when working with metals or hard, brittle parts. Common uses for aluminum oxide include cutting, deburring and the preparation of surfaces. It is available in a wide range of sizes from 10 to 150 microns.

Crushed Glass

This media is manufactured by crushing glass beads. The result is a mild abrasive media. It is the hardness of glass bead, 5 to 6 on the Mohs' scale, with lots of shard-like edges. Crushed glass is used where only a light degree of abrading is desired.



Glass Bead



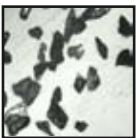
Glass bead is commonly used where the preservation of tight tolerances is critical combined with the need to relieve stresses. It is also used to perform light deburring or to apply a satin-like finish on a part. The spherical shape of the glass bead keeps it from cutting into the surface of the part, so it is commonly used to relieve stresses by "pounding" the part's surface.

Plastic Media

This media is obtained by grinding and carefully sizing recycled plastic. It has a size similar to that of walnut shell. Its size makes it an effective tool to deburr machined plastic parts without causing dimensional changes. Plastic media can also be used to remove conformal coatings.



Silicon Carbide



Silicon carbide is the most aggressive media used for micro-abrasive blasting. It has a hardness over 9 on the Mohs' scale, just under diamond. This media is typically used only where very fast material removal is a requirement. Silicon carbide is an excellent abrasive for deburring stainless steel and titanium parts.

Sodium Bicarbonate

This is one of the softest abrasives available, but the particles' needle-like or "monoclinic" shape makes it an excellent choice for abrading more pliable materials. The particles cut through soft surfaces where a blockier particle would tend to bounce off. It is commonly used to selectively remove coatings on circuit boards without damaging components.



Walnut Shell



Walnut shell is manufactured by grinding nut shells. It has a much larger size than sodium bicarbonate, approximately 200 to 250 microns. Walnut shell will quickly remove polymer coatings from circuit board surfaces and can also be used to deflash plastic parts.

PART #	PARTICLE SIZE Micron	PARTICLE SHAPE	HARDNESS (Mohs')
PD1001	10	Blocky & Sharp	9
PD1009	17.5		
PD1012	25		
PD1003	50		
PD1029	100		
PD1014	150		
PD1027	50	Blocky & Sharp	Between 5 and 6
PD1030	35	Spherical	6
PD1004	50		
PD1013	200	Blocky	Between 2 and 4
PD1005	20	Blocky & Sharp	9 +
PD1006	50		
PD1007	50	Monoclinic	Between 3 and 4
PD1008	250	Blocky	Between 3 and 4

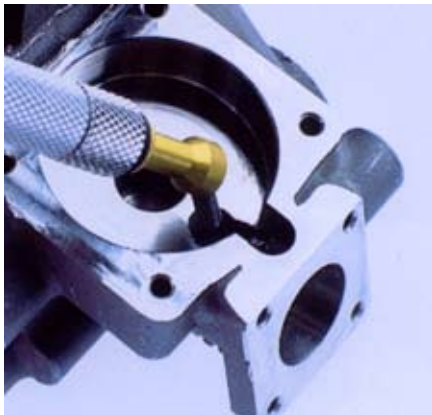
*Call us today with your specific questions
and let us assist you in providing
the correct media for your application.*

Nozzles and Abrasive Media for Every Application

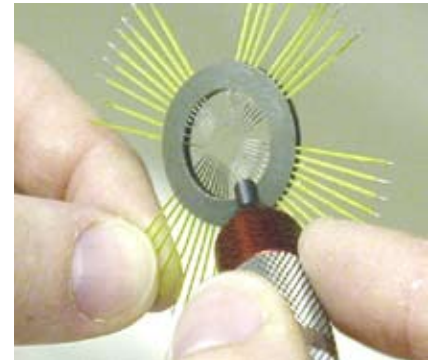
- Cutting slots in silicon wafers for ink jet printer heads
- Cleaning mold tooling and extrusion dies
- Deburring laser machined fuel injector ports



- Cleaning aircraft turbine blade orifices
- Removing vestment material from dental implants
- Abrading polyurethane tubes



- Trimming epoxy residue from probe rings
- Deburring hypodermic needles
- Removing laser slag on medical implant devices



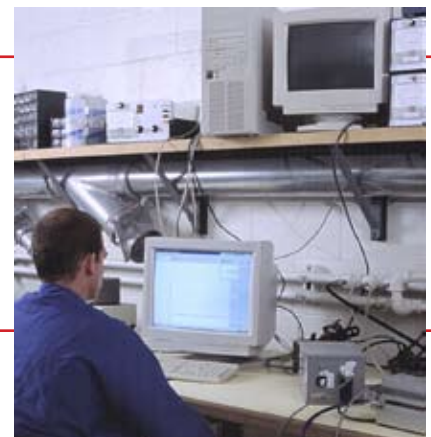
- Deburring Swiss precision parts
- Removing magnesium oxide from thermocouples
- Engraving optical lens elements



- Cleaning delicate fossils and artifacts
- Texturing flex circuitry
- Peening stainless steel instruments

Superior Service & the Highest Level of Technical Support

Our experienced team of Customer Service Representatives and Technical Specialists are well trained to handle all of your concerns.



Contact your local representative at Marshall Machinery today: 949-498-4145 or info@MarshallMachinery.net



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