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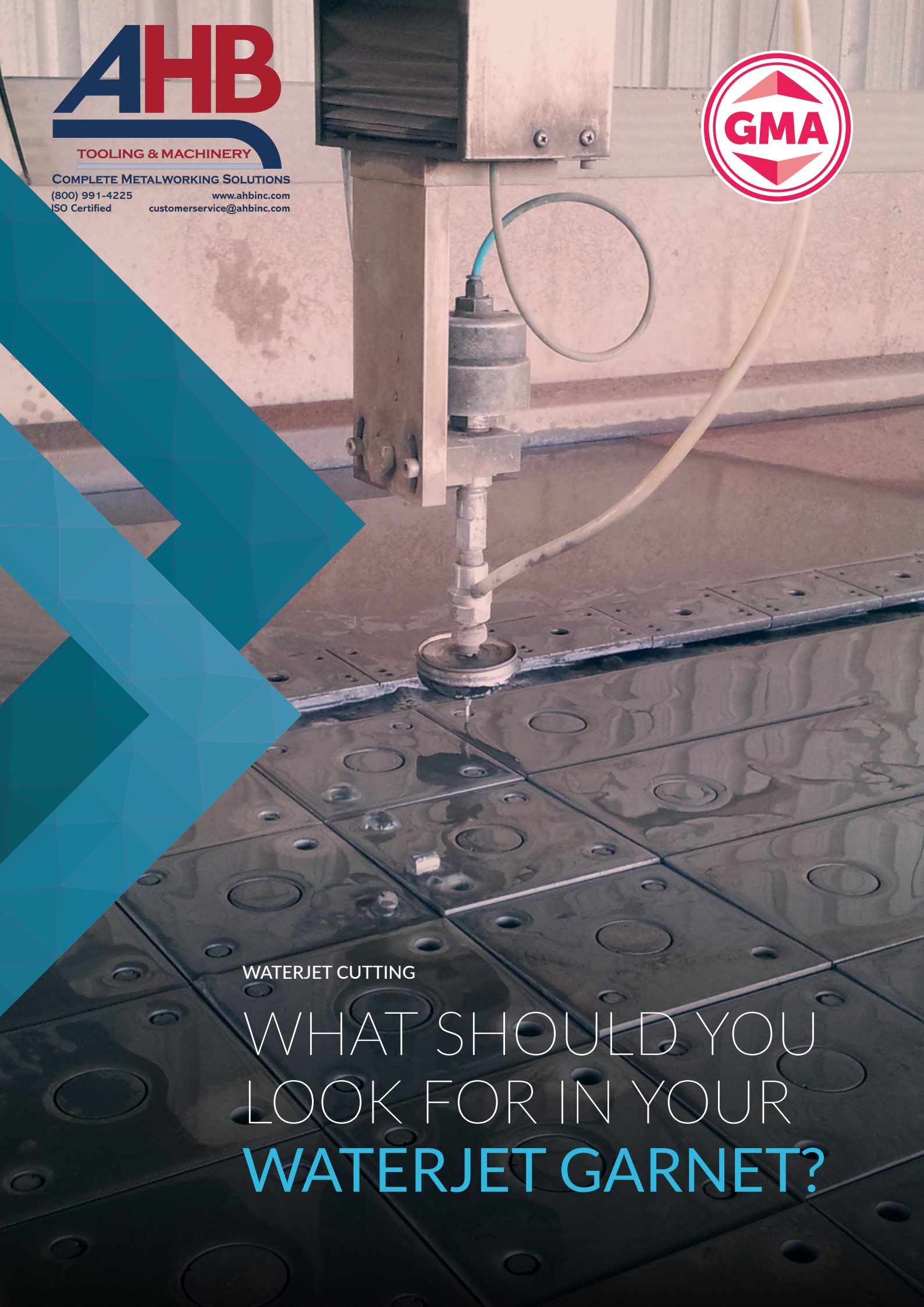
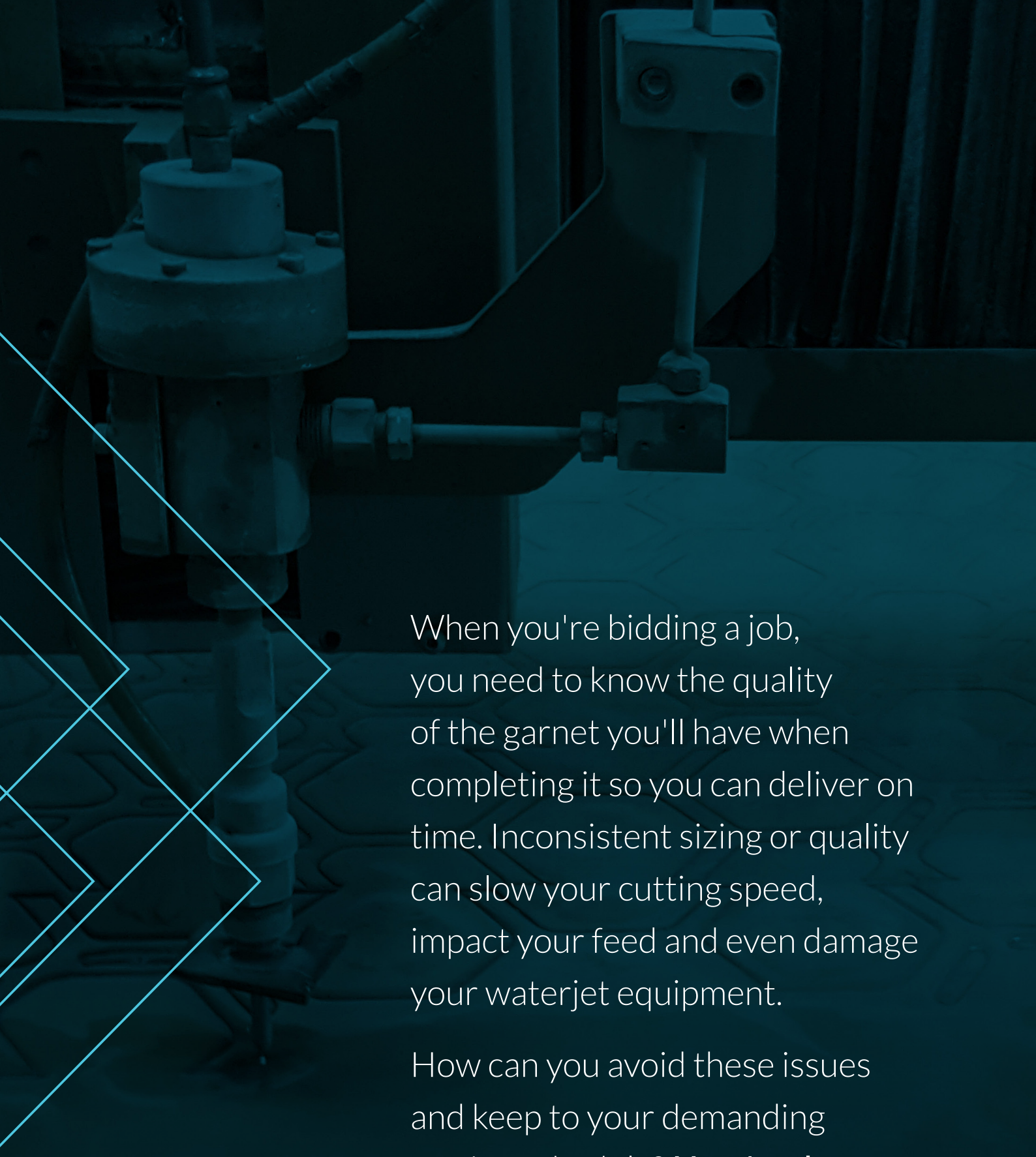


WATERJET CUTTING

# WHAT SHOULD YOU LOOK FOR IN YOUR WATERJET GARNET?



When you're bidding a job, you need to know the quality of the garnet you'll have when completing it so you can deliver on time. Inconsistent sizing or quality can slow your cutting speed, impact your feed and even damage your waterjet equipment.

How can you avoid these issues and keep to your demanding cutting schedule? **Here's what to look for when you select your next bag of garnet to ensure you can fulfill your jobs as planned.**

# What to Look for in Waterjet Cutting Garnet

Think any garnet can do the job well? Think again. For maximum cutting power, you need a bag of garnet that is

- clean,
- hard,
- consistently sized
- a high percentage of garnet and
- the right grade for your project.

# How Do These Qualities Affect Cutting Performance?

## Cleanliness: Avoid Equipment Malfunction with Clean, Pure Garnet

If a bag of garnet contains dust, the fine particles easily accumulate in the garnet feed and hopper. Over time, the dirt can slow cutting, clog the nozzles and cause unplanned downtime. It can even damage the delicate parts you're waterjet cutting.

Then there's the static. Dust can create unnecessary static electricity. Static will cause the garnet to stick to the walls of the hose and mini hopper, hindering the flow and causing uneven feed.

Dusty, dirty garnet can impact your cutting performance to the point you start wonder whether you need to purchase new equipment to resolve feed issues.

One measuring method of your garnet's cleanliness is the shake test. When you immerse garnet particles in a glass of water, does the water remain clear or become cloudy? Murky water is a sign that garnet hasn't been properly cleaned and that it could cause issues when you feed it through your waterjet cutting equipment.

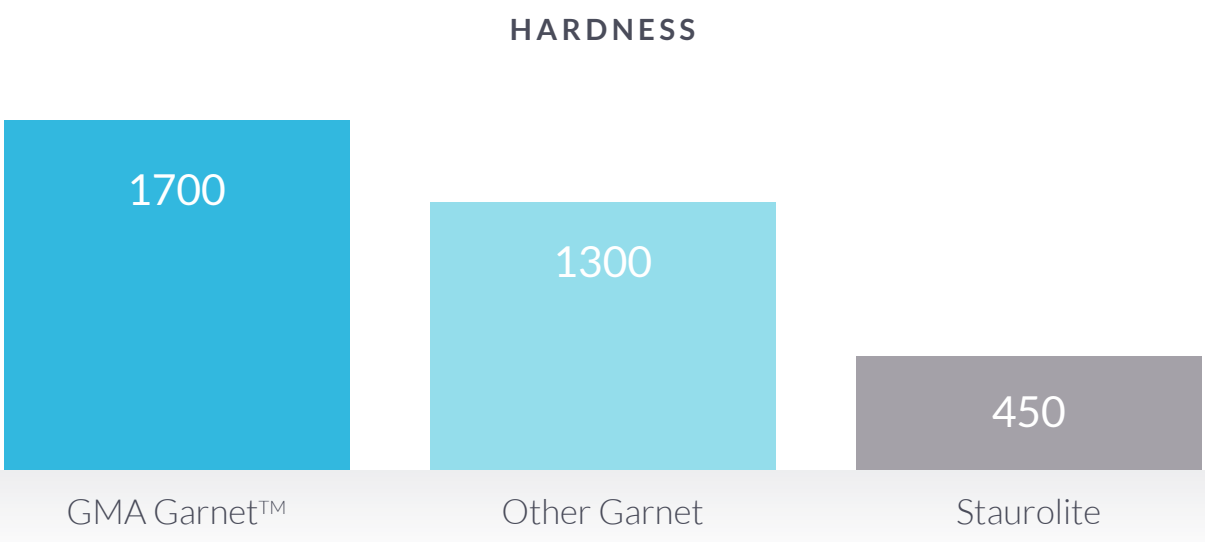
# Hardness: Not All Garnets Are Equal

Not all garnets are the same hardness – almandine garnet is the only one that professionals can use industrially. This is because softer garnets and other minerals shatter on impact and disintegrate when they hit the surface. They don't cut deeply on the first hit, so you have to hit the same surface more times. You end up using more garnet for the same cut.

In contrast, hard garnet cuts cleanly, leaving no embedment and a smooth edge. It doesn't break down in the tank, making equipment harder to clean.

Plus, the harder the garnet, the faster it will cut. This makes it easier to increase your productivity and stay on schedule.

When you purchase garnet, you want to be sure that each bag contains hard, pure almandine garnet. Other garnets just aren't as tough, which ends up driving up cutting time and costs. GMA Garnet is up to 30% harder than other garnets.




## Knoop Scale*

GMA is up to **30%** **harder than other garnets**

GMA is up to **250%** **harder than Staurolite**

**The Knoop scale is a measure of the hardness of a material.*

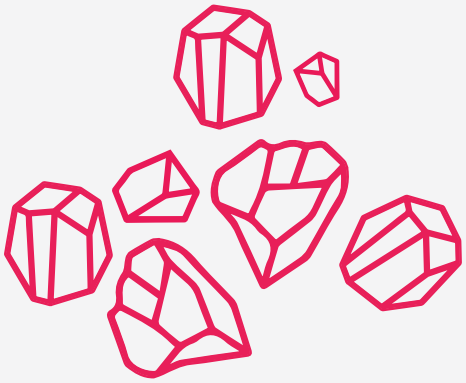
# Consistent Sizing: Cut Faster and Predictably

When you're quoting a job, you want to know exactly how much you can cut per minute so you can stay on budget and on time.

Consistently sized garnet keeps you from having to speed up or slow down the waterjet cutting machine, ensuring that you can complete your job in the time allotted.

Consistent sizing also matters because if particles are undersized, they won't cut cleanly and consistently. They also can accumulate in the feedline or cutting head, causing irregular abrasive flow. Meanwhile, oversized particles can clog a nozzle, stop machine operation and potentially damage the workpiece.

At GMA Garnet, we maintain strict parameters on sizing so you can rest assured each bag contains no oversized grains that can block a nozzle. For quality control, we conduct sieve analyses multiple times a day to ensure that each bag's particles are consistently and accurately sized for maximum cutting performance.



## High Garnet Purity

- Garnet material that does not contain other material.
- Contaminated Garnet will reduce cutting performance.
- Cross contamination with softer material will not cut clean and will be slow.

# Garnet Percentage:  Know Exactly What Each Bag Contains

The higher percentage of pure garnet in the bag, the better. Garnet that is contaminated with other, softer substances will not cut as cleanly or as quickly. Other minerals aren't as hard as garnet and will simply slow production time, or worse, can damage your equipment or the parts you're cutting.

At GMA Garnet™, we conduct in-house X-ray diffraction testing, the most reliable assessment,  to reveal the exact chemical composition of our crystals. This shows us the purity of each crystal and allows us to include only the highest quality  in each bag.

# Choosing the Right Abrasive for Your Project

Knowing what you want to achieve through your machining process will determine the choice on the ideal abrasive. Choosing a less ideal abrasive can create project delays and block or damage your waterjet equipment.

## Budget

Choosing the wrong abrasive could be costly. Types of nozzle and waterjet parts are highly dependent on the type of application being cut, amount of budget, desired cutting edge and efficiency level the customer wishes to achieve.

## Speed, Efficiency Level and Deadline

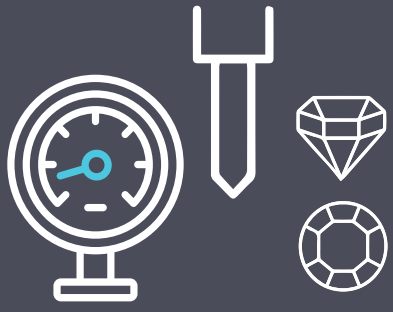
Consider your desired surface finish. When you want to avoid secondary finishing, you need to use finer abrasives. These achieve a cleaner finish. A more polished surface requires even finer abrasive size.

## Desired Surface Finish

Evaluate your speed, efficiency level and deadline. Coarser garnet abrasive (larger mesh size) usually cuts faster.

## Equipment Set-up

Determine your equipment set up. Tailor your pressure settings, nozzle and orifice type and sizing to fit your requirements for optimal cutting performance.



# What Grade of Garnet Is Right for Your Project?

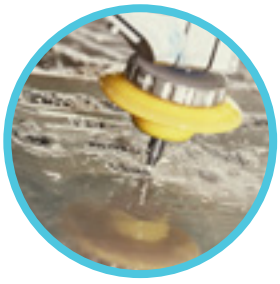
With GMA's world-class waterjet garnet abrasives, you can be confident that you'll maximize production and reduce equipment downtime.

## ExcelCut™

Our hardest, sharpest waterjet abrasive, ExcelCut™ is perfect for brittle, thick or hard materials such as titanium, steel and tungsten. It achieves precision cuts at the fastest rates for the most challenging waterjet applications.

## ProCut™

An engineered combination of crushed hard rock and alluvial almandine garnet, ProCut™ ensures cutting performance and speed. It's ideal for high-volume operations.



## ClassicCut™

A popular industry standard, ClassicCut™ is a versatile alluvial garnet abrasive perfect for general cutting of thin to thick materials. It's your all-purpose waterjet abrasive.

## MicroCut™

MicroCut™ is your high-precision abrasive for high-tolerance, soft or brittle components. The particles' size enables you to produce smooth, clean edges with maximum precision.

# How Can You Know the Quality of Your Garnet Supply?

You need to trust your source and their quality assurance and control.

At GMA Garnet, we use only the hardest almandine garnet. We know the chemical makeup of our garnet because we control the supply – from mine to machine.

While many garnet suppliers are just that – suppliers – we are garnet miners, refiners and distributors. We process and package all US-sold garnet in the US. Moreover, our facilities worldwide are ISO certified to meet (and exceed) the most stringent international standards.

Our commitment to quality doesn't stop there. We conduct X-ray diffraction testing to determine the exact composition of our garnet, and we conduct sieve analyses to make sure each bag contains consistently sized particles. We rigorously clean our garnet to minimize dust that can disrupt your cutting time.

We rigorously monitor, test and collect data on each batch of garnet to maintain the highest levels of quality and ensure your bag contains only pure, clean, hard, consistently sized garnet.

The results speak for themselves.

**Supply reliability**

Controls the supply chain from our mines to our customers.

**Superior performance**

Delivers peak performance and longer operating life.

**Higher cut quality**

Consistent and guaranteed high production rates and perfect cutting edge.

**Operational efficiency**

Minimise downtime and reduces consumption.

**Industry standards**

Recognised industry standard amongst manufacturers.

# Ready to See the GMA Difference?

When you rely on GMA Garnet, it's easy to take control of your waterjet cutting process. You can cut reliably, reduce unplanned downtime and bid your jobs with confidence with GMA waterjet garnet for every application.

Talk to our expert team to learn more about how you can increase your speed and predictability when you know exactly what you're getting with GMA – pure, clean, consistent garnet.