10 QUESTIONS TO ASK YOUR CASTING SUPPLIERS

These basic questions can help casting buyers decide whether to send a request for quote to a potential supplier.

CHRIS WITT, DOTSON IRON CASTINGS, MANKATO, MINNESOTA; VASKO POPOVSKI, APPLIED PROCESS INC., LIVONIA, MICHIGAN; AND TOM KAYSER, OSCO INDUSTRIES, PORTSMOUTH, OHIO.

Finding and developing a quality casting source requires an investment of time and resources, so it's something you want to get right from the beginning. As you start looking for a casting supplier, a few basic questions can help you narrow down your search and direct you to a metalcasting facility that matches your needs at the best overall cost. Before you send out blanket request for quotes to dozens of random metalcasting businesses, consider the following 10 questions:

1 Which metal do you pour?

The question isn't just asking a metalcasting facility if it pours aluminum or iron. What type of iron? Not all iron is equal. Do you need gray, ductile or malleable iron? What range of aluminum alloys? If the metalcasting facility pours more than one metal type, which type do they pour the most? If you need a special alloy that it only pours once a month, you might not want to select that facility.

A metalcasting facility's mix of alloys is selected and tailored specifically to the equipment and processes in place. Asking a plant that pours primarily ductile iron to switch to gray iron for your part is not a seamless process. You'll likely receive a no-quote or an expensive quote.

2 What is your casting size range?

Most metalcasting facilities are set up for a certain size casting. Some have equipment for small castings, in the range of 1 to 15 lbs. Others may pour up to 50 lbs., or in a range of 50 to 200 lbs. A metalcasting facility that performs floor molding can make castings in the thousands of pounds, but probably won't quote a 5-lb. casting.

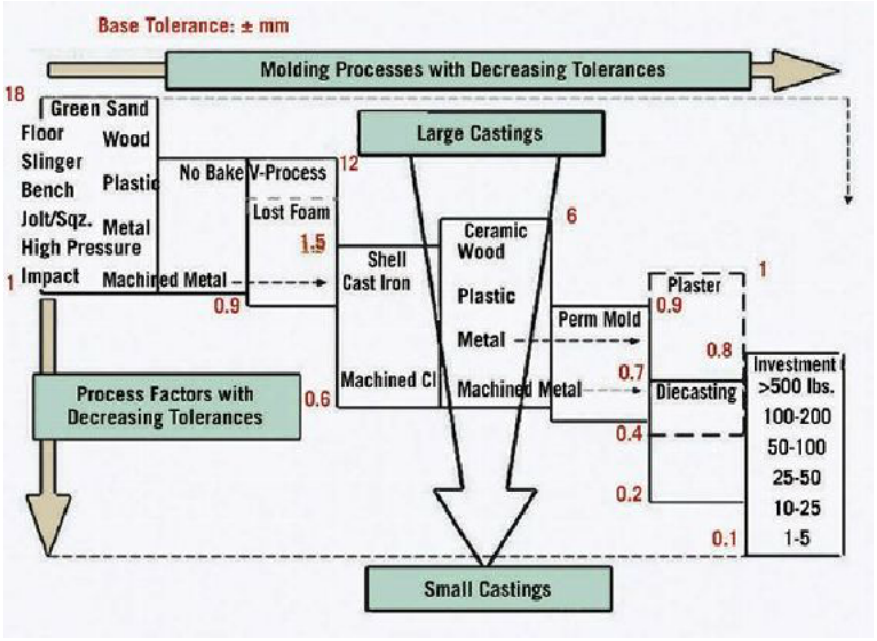
Most plants have the equipment for a specific range of sizes. For instance, on a matchplate molding line, the plant is constrained by the dimensions of the matchplate. Diecasters are constrained by their platen size. Facilities are also constrained by the size of their furnace—meaning how

much metal they can melt at a time, as well as their equipment and tools used in secondary processes, such as grinding and machining.

3 What is your minimum order quantity?

Some metalcasting facilities specialize in either low-volume or high-volume production. Some offer both. Most customers want to reduce inventory and order quantity. Awarding a lower volume part to a higher volume metalcasting facility could result in longer lead times and higher quotes.

Equipment designed to produce molds at high speeds for high-volume production are most efficient when running constantly without many pattern changes. A pattern set up and change to insert one of your low volume jobs results in lost molding time on the equipment and a cost to the metalcasting facility. This cost may be passed on to you through setup fees. It's best to select a casting facility that is designed for the volumes you have in mind.



This chart compares the various molding and casting processes with regard to tolerance and casting size. This data is provided as a guideline; the actual tolerances achieved can vary depending on each metalcasting facility's capabilities.

4 Are you capable of producing complex castings?

If your casting is complicated, does the metalcasting facility have experience with similar castings? Engineered castings are more than a lump of metal. Metalcasting is a shaping process on a specific metal that results in specific properties. The process affords you the ability to let your imagination loose for shapes and internal features, but it is important to verify the metalcasting

Seemingly simple characteristics of a plant, such as good housekeeping and investments in improved work environment, are indicators of a healthy, profitable casting supplier.

Casting facilities are constrained by the amount of metal they can pour per hour with their furnaces.

facility you plan to work with has the capabilities to achieve your specifications, such as surface finish, properties, and dimensional stability.

Also, be wary of being the experimental guinea pig for a supplier's first stab at a new service or process, unless you have the time and desire to be part of the development.

5 What is your production lead time?

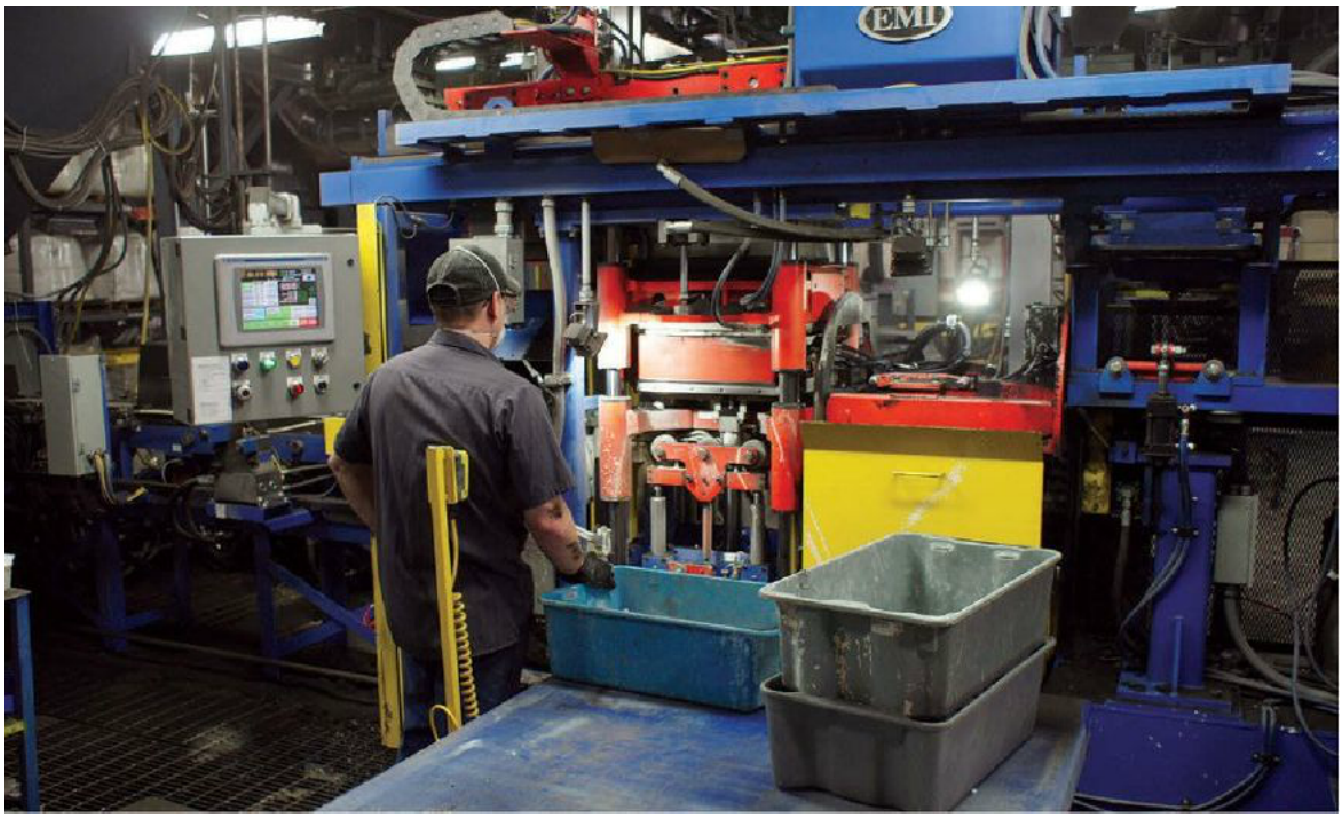
Casting buyers should ask, "If I place an order, when are you going to make my parts?" It's a fair question to ask, along with if the given lead time will be the same whether the supplier is busy or slow. You want to find a supplier that offers a lead time that matches up to the lead times you give your customers.

A buyer also might ask what the lead times are on specific molding lines or casting cells within the plant, as production rates may differ line to line, machine to machine.

Perhaps most importantly, you want to know what the communication methods are for when a delivery date will be missed. When will you find out? Two weeks before the scheduled date or only after the date has passed?

6 What value-added services can you provide?

Metalcasting facilities may offer a range of in-house services that fits their target niche of casting jobs. This can include heat treating, inspection, warehousing, painting/coating, plating, or subassembly. If your casting requires any special secondary processes, it's worth asking to see if those could be covered



Automated molding machines are designed to be most cost efficient when operated at a set number of molds produced per hour. The machine in this picture fits high volume jobs of parts in the 0.25-2-lb. range.

by the casting supplier. It will save you time and logistics management. If the metalcaster subcontracts the work to a machine shop, paint shop, etc., ask to have that information. You might not speak directly with the subcontractors, but it's good practice to know who they are.

7 How can you assure me of good quality?

When you ask about quality, remember that what you are really asking is if the casting supplier will adhere to your specifications. You want to make sure the supplier can deliver the part that meets your requirements, which will be different than those in other segments or applications. If something measurable, like a consistent casting weight, is important to you, you'll want to ask if the supplier can give data showing it can achieve the appropriate consistency part to part.

If you can, visit the plant before you start doing business and review internal documents. What's the scrap rate and scrap rate goal? What is their rate of returns from customers? What kind of controls are being used on the equipment in the shop floor? Is the plant operating within the parameters it has set up in its controls? Do those parameters fit your needs?

8 How do I know I'm getting the best overall price?

Metalcasting facilities with efficient processes that best match your part should result in a fair price. Ask what technology the plant uses to be cost competitive. Does it have any automation, such as in grinding, material handling or high speed molding? Is the part flow through the plant direct without crisscrossing the buildings? Are parts well tracked throughout the process steps?

What is the product mix the metalcasting facility is producing currently? Are they similar to yours in size, complexity, and volume? That's a good indicator you are in a plant best suited to your particular needs, which will result in a more favorable cost. If your part seems like the odd duck, you likely will incur higher costs as the metalcasting facility attempts to fit your square peg in a round hole.

Additionally, as a customer, remember to consider all the costs associated with the part when determining best overall price. Included in this calculation should be value-added services, inventory costs, surcharges, packaging, price of certification, transportation/shipping, and the risk associated with a missed shipment.

Metalcasters can offer the best price when parts fit their operation, whether it's a sand casting facility or diecasting shop (shown here).

9 I have a tool/pattern, can you use it?

In metalcasting, tooling and patterns are made for the specific equipment on which the molds or castings will be produced. If you have pattern and hope to use it at a different supplier, your best bet will be to find a supplier that uses that same molding machine as the original supplier. Sometimes a metalcasting facility can rework a die or pattern to fit a different machine, but depending on the complexity, the cost to do this can be almost as much as making a new pattern.

A metalcasting facility also may prefer to use tooling it has created because it can take responsibility for the quality of the castings. The cost estimator will have more confidence in the quality of the parts produced on the company's own die or pattern and provide a quote accordingly. With someone else's tooling, unknown variables, such as how much grinding would be needed in finishing, will result in a more expensive quote.

10 Is your business profitable?

Just as a potential casting supplier will be interested in your company's finances, you'll want to know if the metalcaster is a healthy business. Finding and changing suppliers is difficult and you want to avoid investing money and resources in a supplier that will be closing in a year. Plus, a shop that is not profitable could raise prices six months after the tooling is built to stay afloat.

Be direct. Most metalcasting facilities will be fairly open with providing some financial information when you ask. You also may want to run credit reports or check credit references.

If you want more proof, plan a site visit to check if it passes the "sniff test." Is maintenance and housekeeping kept up? Have they invested in updates to equipment recently? What investments are being planned for the next five years? Is the plant operating at least five days a week? These are all signs a metalcasting facility is profitable. ■

How does MMP answer these 10 questions?

1. Which metal do you pour?

Stainless Steel, Low Alloy Steel, Plain Carbon Steel, Ductile and Cast Irons, Ni-Hard and Ni-Resist Cast Irons, Hi-Chrome Abrasion Resistant Irons. Have a question about whether we can meet your needs?

Ask for a consultation with a Ferrous Metallurgist by emailing AskTheMetallurgist@MidwestMetalProducts.com . The consultation is free. And if we can't pour your part, we can recommend someone who can.

2. What is your casting size range?

Up to 1500 lbs in iron, 1100 lbs in steel. Contact us for specific numbers and alloys that fit your needs. Because we have an onsite metallurgist, you get the optimum material for your specific application.

Already know what alloy you want? Unlike other 'we just pour what you tell us' foundries, our resident Ferrous Metallurgist will validate your decision and make recommendations for alternate choices to consider, if needed.

See our ***Engineer's Casting Services Reference*** card available online or for download.

3. What is your minimum order quantity?

While MMP can produce very small orders, there is an additional cost associated with pattern setup. You can fax a quote to us at 507-452-7318 or email us at Quote@MidwestMetalProducts.com with some details and our team will get back to you quickly.

4. Are you capable of producing complex castings?

Simple answer- yes. Our website (www.MidwestMetalProducts.com) contains numerous examples of our work and our satisfied customers.

5. What is your production lead time?

Our production lead time varies but generally hovers between 3 and 10 weeks with a number of variables that contribute to that number. The best way to check is to email AskTheMetallurgist@MidwestMetalProducts.com for the latest and most accurate lead time.

6. What value-added services can you provide?

Heat Treating, Machining, Painting, Assembly, Blanchard Grinding, Sand Blasting, and other services. We have access to both in-house and outsourced finishing- both of which are part of our Six Way Assurance Program to reduce your risk. Didn't see what you need? Email us at: FinishingQuestion@MidwestMetalProducts.com

7. How can you assure me of good quality?

MMP is the only foundry owned and operated by a metallurgist. Our metallurgist puts his reputation and that of his company, on the line for every order. Check it out at http://midwestmetalproducts.com/why-a-metallurgist/

Our industry leading Six Way Assurance Program is the 'in writing' commitment to solving any issues that do arise, quickly, and to your company's best interest. That means On Time Delivery Guarantees, front of the line priority if there is a problem, Quality Guarantee (in writing!) and a 'Defect Free' Guarantee. You don't need a lawyer to get the best service in the industry.

8. How do I know I am getting the best overall price?

While the article focuses on price, smart buyers and engineers know the real question is ***value.*** Lowest price with questionable practices, delivery, reliability, and customer service is no bargain. (Even the government tells their buyers not to use price as the dominant reason to buy*)

There are two sides to this question also. 'Best overall price' compared to what? A foundry with a mere 5% markup sounds like a good deal to some buyers. But if the reject or scrap rate of castings is too high, the buyer pays too much. That's where being owned by a metallurgist puts MMP ahead of the herd. By doing it right the first time, we are able to keep our costs low.

As an engineer and/or buyer, you want assurances of value. This is a combination of Quality, Delivery, Service, and yes, Price. You can download the Casting Services Buyer's Quick Reference Guide which answers many of these questions.

(*US TITLE 48 FAR 9.103(c) *"…The award of a contact to a supplier based on lowest evaluated price alone can be false economy…Government…does not require an award to a supplier solely because that supplier submits the lowest offer.")*

9. I have a tool/pattern, can you use it?

This generic question is an excellent one, showing the buying organization has some understanding of the process. MMP can evaluate the condition and serviceability of any mold or pattern that you have. (MMP even has programs that will pay to have the mold/pattern shipped to our facility at no cost. If this is important, be sure to ask for the details.)

If your pattern or mold is not serviceable, we have the expertise in house and through vendors to get a new one at a reasonable cost.

10. Is your business profitable?

MMP's unique status as the only foundry owned and operated by a metallurgist gives us a distinct advantage. Like question 8, several factors lead to our profitability. An onsite metallurgist, not just a consulting engineer, means that pours go right the first time. Our scrap rate is lower because we control the processes more closely. This means savings for you, as noted earlier, but also reduced costs and better long term customers for us.

A foundry visitor once summed up his position by saying "Choosy customers choose MMP". We appreciate the compliment and work every day to ensure we meet the high customer service standards our clients deserve.