



15-Point Checklist:

How to Choose the Right Nonferrous Forging & Machining Supplier

Choosing the right copper & aluminum forging & machining supplier can be a difficult task. That's why we've put together the most comprehensive "how to" guide in the market. We believe it will help you in making the best possible decision.

Selecting the right supplier may require some time up front as you determine your needs, ask the right questions, and sift through the possibilities. But choosing the wrong supplier is guaranteed to take up more time, more money, and an endless array of aggravation and frustration. Just use the 15-point checklist to evaluate your candidates. Ask plenty of questions. Because let's face it- you just can't afford a bad copper & aluminum forging & machining supplier.



15 Point Checklist:

How to Choose the Right Nonferrous Forging & Machining Supplier

1. Do they have the in-house capabilities I need?
2. Do they have sufficient experience working with the material I want?
3. How much experience do they have working in my industry?
4. Are they ISO-certified?
5. Is their non-conformance rate an acceptable risk for quality?
6. Is their quote turnaround fast enough?
7. How thorough is their order review process?
8. Will I have open access to technical experts in case I have questions or problems?
9. Do they have the flexible payment methods that I need to give me maximum options?
10. Does their delivery performance record meet my ongoing needs?
11. Do they offer fast delivery options if I need them?
12. Will there be any hindrances accessing and understanding my designs?
13. Is my intellectual property safe with them? Do they have safeguards in place?
14. What testing services are available, should I need them?
15. How protected is my product from your warehouse to mine?

1. In-house capabilities

One of the first things you should look for in a nonferrous forging & machining supplier is their capabilities. If you need forging & machining done, look for suppliers that have those capabilities in-house. Too many smaller companies outsource key processes, passing on extra costs to the customer. Keep in mind – not all outsourcing is bad. You simply don't want too many processes or key processes outsourced – otherwise you're probably looking at the wrong supplier. Outsourcing can extend lead times, increase cost, make it difficult to control quality, etc. Avoid them if you can.

Weldaloy is a vertically integrated supplier, from the raw material all the way through shipping and delivery to your dock.



2. Material-specific experience

Once you've determined if the supplier has the needed in-house capabilities, find out if they have the necessary experience working with the materials that you require. In this case, nonferrous materials. Copper & Aluminum alloys each with their own unique material properties and it is necessary that your supplier knows how to process each so you can maximize the material characteristics that you are looking for in your application. For example, many forging & machining shops won't work with copper as they don't have the experience to manipulate it effectively.

Weldaloy has over six decades of experience in the forging & machining nonferrous materials.

3. Industry experience

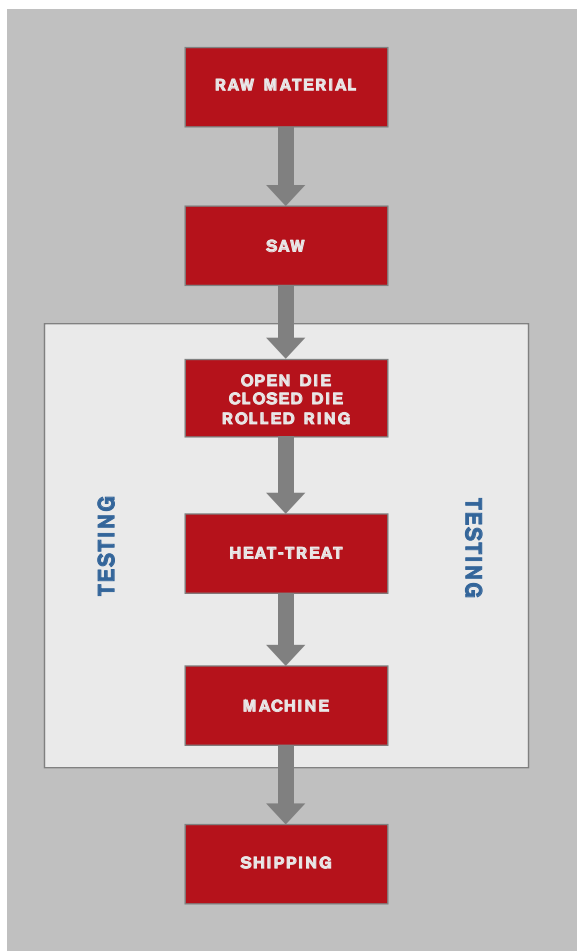
Another attribute to look for in a nonferrous forging & machining supplier is their experience in your industry. Industry experience can streamline development and manufacturing processes. A supplier's previous experience can even help save you time and money by utilizing skills learned from similar projects.

Weldaloy has over 60 years of experience and currently serves over 9 industries.

4. ISO-certification

Look for suppliers who are ISO-certified. Keep in mind that ISO certification doesn't guarantee quality products and services, but it does help ensure that the process has been carefully

Weldaloy's Vertically-Integrated Process



developed, checked, and certified, limiting the opportunities for mistakes that lead to poor quality.

Weldaloy has been ISO-certified since 1996. Check out our current [ISO Certificate](#) on our website.

5. Low non-conformance rate

As they say, “the proof is in the pudding”. Any supplier’s quality claims come down to their non-conformance rates. Quality is arguably the most important attribute in a supplier. So ask them for their non-conformance rate. How many parts are made with mistakes? How many have to get thrown out? Redeveloped? Shelved? Mistakes drag out lead times, result in missed target dates, and inevitably cost the customer more time and money.

Weldaloy has a non-conformance rate of 0.1%, which means that our products are accepted 99.9% of the time. Check out our [quality graph](#) on our website.

6. Fast response to quotes and inquiries

Nothing is more frustrating than wondering when, or IF, you will get an answer. Weldaloy can answer many of your questions immediately, and is happy to do so. But there are always a few questions that will take more time to answer.

We respond to all questions within 24 hours. You will hear from us with the answer, or with a date and/or time when we expect to have the answer. For more complicated issues, we will give you regular progress reports. This has been one very important factor contributing to Weldaloy’s growth – Keeping Our Customers Informed.

“Quality is arguably the most important attribute in a supplier.”

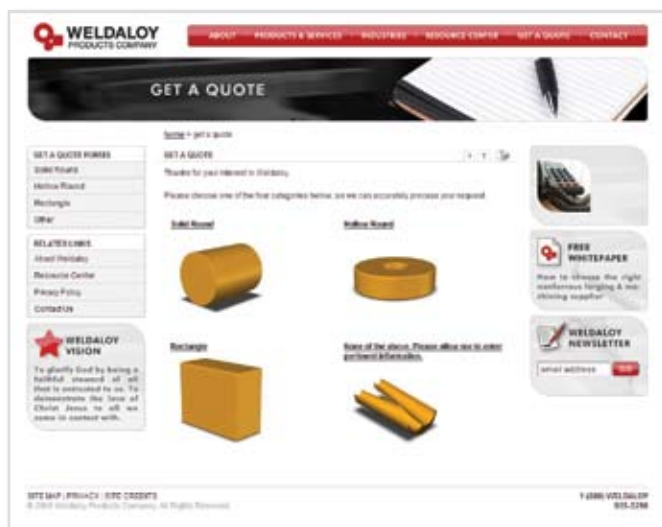
If we have reviewed a customer’s current drawing and have it on file, then a quotation is no more than 24 hours away. Many times the quotation is provided within the first 8 hours.

Visit [weldaloy.com](#) to use our [online quote configurator](#).

7. Comprehensive order review process

This process is the backbone of our extremely low non-conformance rate. There are many important details to verify on an order to be sure that the customer will get exactly what is ordered. There may have been changes in the drawing that is on file, changes between what has been quoted and what is shown on the order, or other changes that affect the relationship between what a customer thinks has been ordered and what the documentation says has been ordered. Each order is subject to the review process below before it is entered into the JobBoss manufacturing system to make sure nothing is missed (see box on page 5).

Beyond this list, we also do a few other things that can help our customers’ orders. For example, when we pull the job record for a part that we have made before, we also check the order history and any notes regarding past orders. If the pattern shows a large number of crisis orders to make up for inventory shortfalls at the customer’s plant, we may recommend scheduling orders to match usage rates that are identified in



15-point order review process

1. Verify that the Customer's Purchase Order matches the original inquiry and Weldaloy quote.
2. Double check that the quantities ordered are the same as listed in the job order.
3. Check that any additional charges match the quoted amount.
4. For orders with new drawings, check that the information on the drawing is complete.
5. Verify that all documents referenced on the order, including existing drawings, are at the same revision level.
6. When only part size is listed on the Purchase Order, check that the description correctly defines the part requirements on the job order.
7. Check that all materials have adequate inventory and that the procurement specification for the material is listed correctly and meets the customers requirements.
8. Review that the certification requirements are documented properly.
9. Check that all listed specifications are documented properly.
10. Confirm that all work routing operations have appropriate files and instruction called out.
11. Verify that all prints required are stamped with approval and attached to the job order.
12. Check that any and all global customer requirements have been addressed.
13. Confirm that any outsourced services have valid delivery dates.
14. For new parts, confirm that engineering process review has been completed.
15. Check that all shipping data, including "Ship via", the shipping address, freight terms and delivery date are accurate.

the review, or other strategies that can improve availability and reduce expediting costs.

8. Open access to technical experts

We believe in clear communications channels with customers and suppliers. We put you in direct contact with the person or persons in our company most knowledgeable about your subject. We eliminate communication middlemen because that can slow down information or confuse the message. You will be pleased to find out how easy it is to reach our experts.

With over 60 years of experience in the copper & aluminum alloy business, we have in-depth expertise throughout the company. Our employees have an average of 14.3 years at Weldaloy. Through the practice of cross-training, Weldaloy has ensured that this knowledge is as widespread in the company as it is comprehensive.

9. Flexible payment methods

The more the better. Flexible payment methods give the customer options. Most forging & machining operations invoice customers for their work. Look for a supplier that has flexibility for you, as the customer to pay in a variety of ways and times for maximum flexibility, because you just don't know when you'll need it.

Weldaloy offers a variety of payment methods from invoice to credit cards, and payment term options for specific circumstances.

10. Delivery performance record

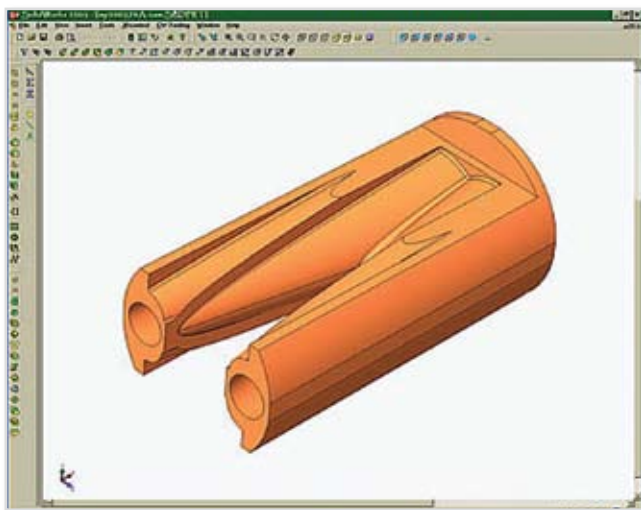
You don't ever want to have to guess when it comes to your delivery. When it comes to forging & machining, suppliers are notorious for poor delivery performance records. Make sure you ask prospective suppliers for their delivery performance records for the past six months to a year to determine whether or not they're up to the task.

Check out Weldaloy's delivery performance on our website.

11. Available delivery options

Fast delivery is a result of solid preparation. Such preparation begins with a complete drawing review well in advance of the need. The technical intricacies of forged & machined alloys are many. It takes some time to evaluate the specifications and discuss with the customer the options available, before finalizing the manufacturing steps that create the part. Developing the manufacturing plan for a part, particularly a complicated or technically difficult one, takes more time than any other step in the process, and is well worth devoting attention to it long before an urgent need arises.

A second element to fast delivery is the availability of raw materials to make the part. Many times, these copper & aluminum alloys are items specially ordered from the mills, which generally prefer to produce other, more popular alloys. Weldaloy orders enough of these materials to interest the mills in supplying them to us. Most machine shops and many forging companies have no history with the mills, and would find it difficult to obtain these specialty materials. If the material is in stock at Weldaloy, there is no delay ordering it, and we keep raw materials valued at over \$2 million in our inventory.



A third element to fast delivery is the ability to convert raw materials through various forge operations. This enables us to develop material characteristics that are not achievable in the as-cast state. We have 6 categories of forging techniques at our disposal. They are: hot forge, cold work, warm work, upset forge, cross-grain forge, and upset & cross-grain forge. These can be applied in infinite combinations to

“Fast delivery is a result of solid preparation”

create the necessary characteristics in the part shape desired.

The fourth and final element to fast delivery is a plan to bring it all together. We recommend to customers the ideal combination of events to ensure fast delivery. Most often, the customer's preparation is as important as Weldaloy's. One plan could be establishing an inventory of specialty material, if the material is not one normally carried in Weldaloy inventory. Another plan could be creation of a forged blank inventory to eliminate the time necessary for all but the last few steps. Another plan could be a blanket order with scheduled releases to match product demand and eliminate the need for customer inventory.

With our Lean Manufacturing capabilities we have the analytical tools to evaluate the customer's situation and recommend a plan that will speed delivery and reduce unnecessary inventory.

12. Universal interface (157 formats) to speed design prototypes

Look forward to a smooth transition from your design system to Weldaloy's. Because we accept over 157 formats used in the design world, the interface is almost seamless. This makes us the ideal partner for development work. No longer do you need to worry about whether the design software is compatible.

Send us your designs, knowing that we have the tools to rapidly convert your specifications into forging and machining instructions.

13. Customer Intellectual Property (IP) Protection

Your edge in the market is your Intellectual Property. So is ours. The best way to safeguard IP while insuring clear dialog between customer and supplier is a mutual non-disclosure agreement. Shown in Appendix A is our recommended wording. Or if you prefer, we can review your company's mutual NDA. Let's protect each other.

14. Comprehensive testing services

Every machine operator at Weldaloy is also trained in quality procedures. All of the operators have the authority to call for additional testing on parts if for any reason they are unsure that a part meets quality standards established by the specifications. Even if a customer's specification does not require such testing, Weldaloy may perform the tests to



be sure there is no question of the quality. Of course, these additional tests would not be charged to the customer. The tests become part of the job record, and we may recommend them to the customer for future orders. In a recent example, we performed ultrasonic testing over and above other tests that were part of the specification, at no cost to the customer.

In addition to our two fully computerized numerically controlled (CNC)- CMMs and full

range of dimensional inspection equipment, we can also provide you with testing for chemical composition, mechanical properties (tensile-yield-elongation), grain size, hardness, and conductivity. We can also provide non-destructive test (NDT) services such as dye penetrant, ultrasonic, and radiographic inspection. All of our partner test labs are A2LA certified, so you know your parts will meet your requirements.

15. Protects product adequately for shipping

Many of the alloy materials we work with are quite soft. In order to make sure that they are not damaged during manufacturing, we protect each piece as it proceeds through the line. The shipping environment can be very rough on soft materials. If unprotected, perfect parts could leave our dock and arrive at the customer's dock damaged. To avoid this problem, Weldaloy has developed containers and procedures that cushion soft materials, isolate parts from each other, and facilitate proper handling throughout the shipping process. We also have a number of techniques that do all of the above and allow recycling of the shipping containers, thereby reducing adverse environmental impact.

Even with this kind of protection, it is possible that parts could be damaged in shipment. We see our job as making it much more difficult for such damage to occur.

No matter whom you choose to use as your nonferrous forging and machining supplier, make sure you look at each of these points carefully. Research shows that once you choose a supplier, it's unlikely that you'll change any time soon, regardless of their quality or delivery times. So do your research ahead of time. Ask questions. Demand real answers to determine if your needs match up with the supplier's capabilities.

Questions? Give us a call at 1 (888) WELDALOY (935-3256) to learn more about how Weldaloy stacks up. Or, visit our website for more information at www.wedaloy.com.

Appendix A

Weldaloy Bilateral Non-Disclosure Agreement

BILATERAL NON-DISCLOSURE AGREEMENT

This Agreement dated as shown below is made by Weldaloy Products Company ("Weldaloy") whose principal place of business is 11551 Stephens Road, Warren, MI 48089 and CUSTOMER ("CUSTOMER") whose principal place of business is:

Address	City	State	Zip code
---------	------	-------	----------

RECITALS

- A. Weldaloy and CUSTOMER desire to engage in discussions and possibly a business relationship, which may, from time to time, require the disclosure and exchange of proprietary information and material of each party to the other regarding the following subject matter:
Weldaloy or CUSTOMER's future products, marketing plans and other proprietary information related to either's operations.
Other such business issues which the parties may from time to time choose to discuss.
- B. The parties desire to define their mutual rights and obligations with respect to the proprietary information of the other party.

AGREEMENT

NOW, THEREFORE, in consideration of such mutual disclosures, the parties agree as follows:

1. Each party, with regard to the information or material relating to the Subject Matter obtained from the other party, which is marked or clearly indicated to be confidential (the "Confidential Information"), shall:
 - (a) use the Confidential Information of the other party solely for purposes of evaluating or performing the business relationship with that party regarding the Subject Matter;
 - (b) not make any copies of the Confidential Information of the other party without that party's prior written approval;
 - (c) take suitable precautions and measures to maintain the confidentiality of the Confidential Information of the other party;
 - (d) not disclose or furnish the Confidential Information of the other party to any person or entity except to employees of the receiving party who have a need to know the information in order to evaluate or perform the business relationship with the other party, and who have an obligation to maintain the confidentiality of the information; and
 - (e) return the Confidential Information of the other party, including all copies and drawings and other items containing any Confidential Information, upon request of that party.
2. Each party acknowledges that no license or other right under any patent, copyright, trade secret, trademark or other proprietary right of the other party is granted or implied by that party's disclosure of its Confidential Information.
3. Each party acknowledges that unauthorized disclosure or use of the Confidential Information of the other party could cause irreparable harm to the disclosing party for which monetary damages may be difficult to ascertain. Accordingly, each party agrees that the disclosing party shall have the right, in addition to its other rights and remedies, to seek and obtain injunctive relief from breaches of this Agreement by the receiving party.
4. Notwithstanding the foregoing, neither party shall have any obligation to maintain the confidentiality of any Confidential Information of the other party which (a) was known to the receiving party before the disclosure by the disclosing party; (b) was received by the receiving party from a third party who was legally entitled to make an unrestricted disclosure; (c) was independently developed by the receiving party without use of the Confidential Information of the other party; or (d) is required to be disclosed by applicable law, providing the receiving party gives the disclosing party advance notice of the disclosure, if reasonably possible, and cooperates with the disclosing party in any attempt to limit the scope of the required disclosure.
5. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan without reference to its choice of law principles. Each party irrevocably consents to the jurisdiction and venue of the State Courts for the County of Oakland, Michigan or the United States District Court for the Eastern District of Michigan with regard to any action concerning this Agreement. The prevailing party in any action to enforce this Agreement shall be entitled to recover its reasonable attorneys' fees, court costs and expenses incurred in such action.

Weldaloy Products Company:

Name:
Richard Warren

Title:
President

Date:

Customer:

Name:

Title:

Date: