DCWI
Dans Certified Welding Inc

9 Critical Questions You MUST Ask BEFORE hiring a Nadcap accredited welding company:

So You Can Avoid Wasting Your Time AND Hard-Earned Dollars

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9 Critical Questions You MUST Ask BEFORE Hiring a Nadcap accredited welding company: So You can Avoid Wasting Your Time AND Hard-Earned Dollars

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http://www.danscertifiedwelding.com/

There's a serious lack of master-level craftsmanship in the welding industry today. For this reason, it can be difficult to find a high-quality certified welder who knows what he's doing AND how to treat his customers well.

So before you hire a welding company to handle your jobs, make sure you ask them the following 9 critical questions. Cut to the chase, and find out immediately whether or not you're dealing with highly qualified, experienced professionals who are capable of handling all your welding needs.

Question 1: Are you NadCap accredited?

If the answer is "no," be wary of hiring this company!

Most primes now require their jobs be completed by a **NadCap** accredited welding processor. This requires that the welding processor follow all guidelines, procedures, and requirements set forth by **NadCap**, in concert with what the primes require.

This begins as soon you send a request for quote (RFQ) to the welding processor. The welding processor will ask you, the customer, all necessary questions to verify that they have the proper documentation, approvals, and qualifications needed to give you a quote. If you award them the job, they can begin then begin processing.

Upon receipt of a job, a receiving inspector will inspect the Purchase Order, prints, and tooling sent by you. They will verify everything by counting all parts and making sure everything received is accounted for. The receiving inspector will document this action by identifying and logging the parts and containers as they arrive. This identification process includes clearly labeling the parts, owner, purchase order, part number, quantity, and date received. The inspector will also check for **FOD** (foreign object debris) and remove them as needed, as well as making sure nothing needs any additional cleaning prior to the weld.

A "contract review" will be done to verify that all paperwork is correct, and that the job can be completed per said purchase order. If acceptable, a weld schedule/shop traveler (or similar) shall be issued with all the needed information to complete the job. A Quality Inspector must approve this paperwork prior to giving the certified welder the job.

A qualified welder will then weld the parts, unless a first article is required prior to continuing with the job. If this is the case, the welder will weld after the first article approval is received by the proper authority. The welder will visually inspect their own work. Then a qualified visual inspector – typically not the person doing the original weld – will do a 100% visual inspection on the parts and document the findings.

If the parts require any non-destructive test or special cleaning process, they will be sent out to an approved source. After each outside process is finished, the receiving inspector will visually inspect the parts for any damage or **FOD**, while documenting any of these findings. Finally, the parts will be packaged so they can be shipped to the customer without damage.

All certifications will be issued, including any outside processing done.

For a welding processor to meet **NadCap** requirements, he must also maintain all proper documentation and records for a minimum of 7 years, in case there's ever a need to follow up later on parts that have been welded.

ANYONE who comes into contact with the parts must be qualified to do so.

Dan's Certified Welding, Inc., (DCWI) is a **NadCap** accredited welding company that meets all the requirements listed above.

Question 2: Are you approved by the prime to weld to the specification called out on the print?

Even if weld shops have **NadCap** accreditation, most of the time they also need to have approval from the primes in order to weld to a specific specification.

For example, Boeing has approved sources for many welding specifications. Each specification requires Boeing approval. They have approval requirements for **BAC**, **DPS**, **MIL Standard**, **AMS Standard**, and **AWS Standards**. This also includes the approval for specific material group families such as steels, stainless steel, aluminum, nickel alloys, titanium, and others.

In some cases, the welding might not require the prime's direct approval. Verify if this is the case ***before*** sending an RFQ to the welding processor. (The issuer of the RFQ must also check with their customer to determine whether an approved source is needed, or if having the NadCap accreditation is enough.) If the welding shop is unsure of whether or not direct approval from the prime is required, they will normally ask you (the customer) to go back to the originator of the RFQ or PO to get this information.

Dan's Certified Welding, Inc., is approved by **Boeing** (and has been for over 30 years), as well a **Bombardier, Gulfstream, General Electric**, **General Dynamics** and **other primes**.

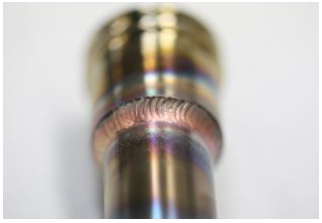
Question 3: Are you qualified to weld to the specific material and specifications? In order be considered “qualified,” welders must pass an actual welding test. The welder qualifies by welding to a material group type and a specific welder qualification specification.

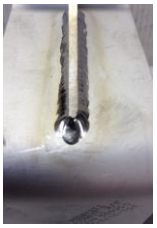
The thickness of the tested material will qualify the welder for a thickness range. Typically it is .67 to 4 times the thickness of the test sample. For example, if the welder qualification test is taken in material .050 thick, the welder would qualify for material that is minimum .027 thick to .200 thick. Therefore, to qualify for different thickness ranges, a welder must take multiple tests.

For fillet welds with material under .064, a “fillet weld qualification test” must be done. The material is then sent to a lab and is cut into sections and macro-etched by the test lab. The lab then verifies if the test sample passes the requirements of the welder qualification specification.

The different material groups are separated by number. For example:

Group 1: Steels
Group 2: Stainless Steels
Group 3: Nickel Alloys
Group 4: Aluminum
Group 6: Titanium

Groups 1, 2 and 3 are divided into Group categories of A and B. If the qualification test is of a material found in group B of the material family, the welder qualification is for both categories of A and B. However, if the welder qualification test is done only in group A of the material group, the qualification is only for group A material of the material family.

Typically, the groups are separated by non-heat treatable and heat treatable materials. For example, if the welder qualification test was taken using 1020 steel (a group 1A material), then the welder is qualified to Group 1A. If the welder qualification test was taken using 4130 steel (a group 1B material), then the welder can qualify to Group 1A and 1B.

The welding processor must then monitor the parts that are to be welded by verifying the materials, thicknesses, and types of welds their qualified welder can weld. This ensures that the welders are qualified to weld the parts their customers have sent them.

At Dan’s Certified Welding, Inc., ALL of our welders are highly-qualified.

Question 4: If the material requires pre-heat prior to the weld and post-heat afterward, do you have proper furnaces that are calibrated with charts, to reflect this process?

Some materials require pre- and post-heat to ensure the base material and welds don't crack.

For example, 4340 steel normally requires a pre-heat of 500-600 degrees F and a post-heat of 1100 to 1250 degrees F. The furnace must be calibrated to meet specification requirements. Some specifications require +/- 50 degrees F, while others require +/- 25 degrees F. Some customers ask for copies of the chart from the furnace as proof that the pre/post heat was done.

We have seen instances where parts made of 4340 steel material were not pre- or post-heated during the weld process. This was obvious just by looking at them, because the parts were discolored in the weld area only. A steel part normally changes colors when heated up: it goes from silver to gold to blue. But the parts that were NOT pre- or post-heated were welded with the bluing only in the heat-affected zone (the area near the weld which is affected by the heat) and had cracks in the weld *and* adjacent to the weld. They ended up being scrapped, because the material could not be repaired. Clearly, this was a costly mistake made by the welding processor.

This kind of mistake ends up costing the customer not only money, but time. And even though this was an error made by a source approved by the prime, it was NOT approved for pre- and post-heat of parts.

Bottom line – it's imperative you find out if the welding processor not only has the approval to do the welding, but also the approval (if required) by the prime to do the pre- and post-heat of the parts. This requires that the furnaces used are properly calibrated and have accompanying documentation as proof. This normally requires that the furnaces have a 9 point survey of the area being used for pre- and post-heat up to 3 times a year, and a monthly audit of the equipment on the furnace.

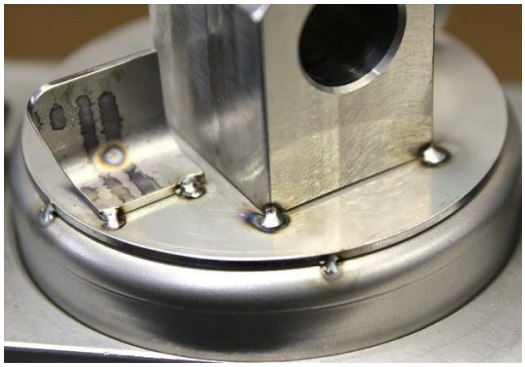
Note: Titanium may require that the post-heat and/or stress relieve is done in an atmosphere-controlled chamber. It does not have to occur immediately after the weld, but very soon after. Most welding processors do not have this type of furnace, so they should inform the customer that the post-heat of titanium would need to be done by a qualified company that has furnaces that meet the prime's requirements to post heat titanium.

(Dan's Certified Welding, Inc., has the approval and equipment to handle pre- and post-heat. We send titanium out to a NadCap customer-approved source.)

Question 5: Is tooling required for the job?

The welding processor should advise you if tooling is required in order to tack and locate the part or parts that are being welded. (A tack is a small weld that holds the parts of a weldment in proper alignment until the final weld is made.) Because there is usually a dimensional tolerance, some type of tooling is often required. In some cases, tooling may be performed in order to hold the dimensions and shape of the part while completely welding the part. This would be very important to know prior to making the parts and quoting the parts, since this will more than likely add additional costs that you may not be aware of to your bid.

We highly recommend consulting with the welding processor prior to quoting to your prime and beginning the process of making the components of the part – especially if you're not familiar with the particular part and the welding process. In the long run, this will help save you time and money.



The welding processor should also explain what is required to make the tooling and/or what they would recommend to meet the print requirements of the part. Some companies specialize in making tooling, but it may be necessary to have the tooling outsourced to a tooling specialist.

You want a welding processor who can either handle this himself, or recommend a source to you.

It's recommended that after completing a new tool, a "practice" weld should be conducted to verify that the tool works, the dimensions are correct and hold as they are supposed to, and the part meets the specification and print requirement. A first article inspection should be done prior to welding the order complete, which will save money and time in the long run. It should also be documented to ensure both customer and weld processor are on the same page. If the weld processor fails to do this, it can become an absolute nightmare for the customer. An ounce of prevention prevents a pound of cure!

The idea is to create a win-win situation that results in happy customers. As the complete parts move back up through the channels, they should be 100% ready for commercial application, with no flaws or defects. This makes it easy for customers to become repeat customers…

… which is exactly what we strive for, at Dan's Certified Welding, Inc.

Question 6: Will you advise me if there are any hidden or potential problems with the part?

Welding is done by creating a molten puddle, which can cause distortion and/or movement of the part, as well as shrinkage of dimensions – effectively taking the part out of tolerance to the print. Should something like this happen, an experienced weld shop should advise you there might be a problem.

In some cases, it may be necessary to get the approved NDT house involved prior to welding the part. This way, they are aware of how a part could "fit up" prior to doing a radiograph of the weld, and so they anticipate the "fit up" line.
Sometimes, the base material of the part can be crack-sensitive. In those cases, the skill level of the welder is very important. Having a welder who is an experienced craftsman is imperative if you want high weld quality and minimal or no problems. The weld processor should inform you, the customer, whether the material has potential for problems based on past experience. If there are problems, the weld processor would need to develop a procedure to avoid base material or weld cracking. In the long run, this can also save you time and money.

*Dan's Certified Welding, Inc., prides itself on our great communication wit*h our customers. We will ALWAYS let you know if there's ever a potential problem with your parts.

Question 7: Do the welders have the experience and proper training needed to weld the parts?

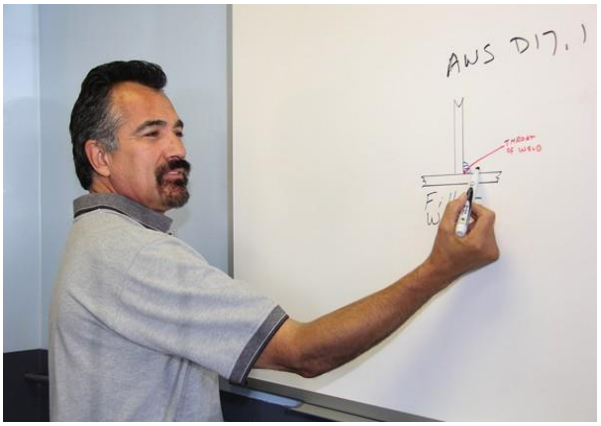
Unlike "Arc Welding" or "Shielded Metal Arc Welding" (SMAW), the "Gas Tungsten Arc Welding" (GTAW), Tungsten Inert Gas (TIG), or heliarc (as it use to be referred to many years ago) manual weld process requires tremendous skill and years of practice. It involves a high level of master craftsmanship, which is rare in the welding industry. The GTAW process is what many have referred to as a "lost art." Most welding schools no longer exist, as many people today would rather be working on the Internet than learning this type of fine craftsmanship!

Therefore, make sure your welding processor has experienced welders who can do the actual welding. Passing the welder qualification test is one thing, but consistently welding good parts requires many years of practice and proper training.

Having proper training that is documented with benchmarks, goals, and continual improvement is one of the signs that a welding processor takes their role in the industry seriously.

At Dan's Certified Welding, Inc., we continually train our welders to become better at what they do. To be hired at our company, welders must have a minimum of 5 years experience. Most of our welders each have over 10 years of experience under their belts, which earns them the title of "journeymen welders."

Question 8: Does the welding processor use customer-approved sources to handle any outside processing?



It's important that the weld processor verify that any outside processing (such as cleaning parts prior to weld, NDT, or heat treating) is done by the primes' approved sources.

To meet this requirement, the welding processor must constantly verify through the primes' websites that the processors have current approval. Also, the welding processor must do their own quality audit yearly of their outside processors.

Taking this a step further, upon receipt of the parts, the welding processor must then verify that the correct process was followed by checking the certifications issued by the processor. Also, it is required that there be a receiving inspection done each time the parts return from a process to verify that the parts have returned in good condition with no damage and that the count is correct. All these certifications must be sent with the parts as part of the paperwork package.

At Dan's Certified Welding Inc., we use customer-approved sources to handle all outside processing jobs.

Question 9: For Orbital Tube Welding, are the procedures qualified and approved?

Orbital tube welding uses the same process as Gas Tungsten Arc Welding (GTAW) or Tungsten Inert Gas (TIG), except the work is performed by a machine, rather than by hand. This means the parameters must be set on the orbital tube welding machine. Each machine must be qualified for specific parts.

This requires that a test sample assimilating the actual part is welded. The parameters of this weld are written in a "Welding Procedure Specification" (WPS), and the test sample is then sent to a laboratory for testing. This is documented on a "Procedure Qualification Record" (PQR). In some cases, the WPS and the PQR must be sent to the customer's prime for approval prior to starting production.

The approved processor will use the WPS as a guide for the actual parts and verify that the parameters are held within the actual welding specification. The welding processor must be vigilant in this respect, to ensure they are meeting the requirements of the specification and by running test samples prior to running production, if the specification requires that (as most do).

At the present time, Dan's Certified Welding, Inc., is NadCap approved for orbital tube welding to AWS D17.1.

Bonus Question: Can the welding processor provide EVERYTHING listed in questions 1 through 9?

The welding processor should not only meet NadCap requirements – it should also give you technical support as needed and be able to favorably answer all 9 questions listed above.

(Think of it this way: removing just one or two ingredients from your favorite beer will completely ruin the taste, and it will no longer be "beer"!)

When dealing with any welding job, it is imperative to keep the end result in mind: every single part of an aircraft MUST be created according to required procedures, from beginning to end. (When we fly, the last thing we want to worry about is whether or not the aircraft parts are safe and reliable!)

A qualified welder knows their name will go on the certification for such parts. That is why we put a tremendous amount of effort into each and every job, making sure it's done correctly. We're proud of what we do.

At Dan's Certified Welding Inc., we not only want to meet your expectations, but exceed them.

Conclusion

I hope you've enjoyed reading this free report, and that you are now equipped to ask the right questions *before* hiring a welding company.

Don't get stuck with a company that isn't ***truly*** qualified to handle your welding needs. Ask these questions first… and make sure you like the answers!

About Dan's Certified Welding

Dan's Certified Welding, Inc. (DCWI) is a **NadCap** accredited GTAW/TIG welding company that responds to your job requests quickly, keeps you in the loop on all project statuses, and is super-easy to work with.

Since 1976, we've provided high-quality, craftsmen-specialized welding to aircraft part manufacturers and machine shops all across the country. Our #1 priority is establishing excellent relationships with our customers and creating a sense of trust in them, while we provide them with high-quality, reliable service.

We are a family-owned business based out of Los Angeles, CA. Not only will we provide you with high-quality welding – we'll also give you **technical support** to help make sure you understand what's required to make good parts – so you don't have to make them twice.

For a free quote just fill out our Request for Quote (RFQ) form or 855-412-3818. For more information, visit www.danscertifiedwelding.com.