



## How to Choose a Pressure Vessel Partner

Pressure vessels are used in various industrial sectors including military and defense, oil and gas, pulp and paper, chemical, and others to store toxic and non-toxic gases, chemicals and liquids. In short, their mission is to safely store those items and distribute safely when needed. The safe performance of these tanks is the main concern.

### So how does one go about selecting a pressure vessel fabrication partner?

Deliberately. The safety of your employees and potential negative environmental impacts of pressure vessel failure certainly need to be considered. After all, these specialized tanks could potentially hold dangerous chemicals.



A completed ASME-certified pressure vessel awaits customer delivery at the Rexarc facilities in West Alexandria, Ohio

## Certification is a must

Extreme care is taken during the design, engineering and fabrication process, all of which are governed by the American Society of Mechanical Engineering (ASME). The guidelines set forth by this globally recognized professional body have their roots in history. Established in 1880, the organization today has more than 100,000 members in 140 countries. ASME currently offers more than 600 codes covering numerous technical areas and promotes mechanical engineering. Many of the ASME codes arose from early failures and lack of oversight of mechanical devices, like boilers. Though steam powered industrial technology in the 19th Century, no state in the U.S. had laws regulating the temperamental and potentially dangerous equipment. The 1905 Grover Shoe Factory explosion in Brockton, Mass., killed 58 and injured scores. That tragedy moved the state of Massachusetts to establish boiler laws in 1908. ASME organized a Boiler Code Committee in 1911 and published the Boiler and Pressure Vessel Code (BPVC) in 1915.

Today, ASME section VIII and its divisions lay out pressure vessel manufacturing requirements. Certified manufacturers must refer to these divisions during fabrication.

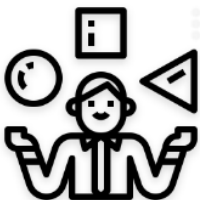
- ▶ **Division 1:** covers all specific prohibitions and mandatory requirements involved in the design and manufacturing of pressure vessels in three subsections.
  - Subsection A: describes requirements regarding materials and construction, including materials to be used, designs, openings, and reinforcements, markings and reports, overpressure protections, etc.
  - Subsection B: lists all requirements related to pressure vessel manufacturing, including fabrication techniques, such as welding, forging and braising.
  - Subsection C: refers to the classes of materials used in pressure vessel manufacturing. Pressure vessels can be manufactured using low alloy and carbon steels, high alloy steels, cast iron or non-ferrous metals.
- ▶ **Division 2:** establishes all mandatory requirements regarding design, fabrication, engineering and testing of pressure vessels, which need to withstand the internal or external pressure. This division also provides references for using the UV and U2 designations.
- ▶ **Division 3:** sets all mandatory requirements and prohibitions governing the design, fabrication, engineering, and testing of all high-pressure vessels that are required to withstand the internal and external pressures. This division also refers to the utilization of U3 and UV3 designations.

Gaining an understanding of these divisions and implementing them during design, manufacturing and engineering phases is mandatory for pressure vessel manufacturers operating in the United States and Canada. It doesn't matter whether you use the pressure vessel to store non-toxic liquid or gas, it is important to source them from an ASME-certified manufacturer. Fortunately, it is easy to check if a manufacturer is certified and maintains their certification using the ASME website.

Rexarc is a leading pressure vessel manufacturer and possesses ASME Section VIII and AS1210 certifications.

### Review Capabilities:

Once you've determined a fabricator's certification, review their manufacturing capabilities to determine whether or not they are able to manufacture a tank to your specifications. Some fabricators are limited by size or materials. This does not mean they are incapable fabricators. It could be they have legacy manufacturing that provides a focus for their work, or the size of their facility limits their production abilities. It simply could be because they focus on their core competency and do it very well.





Also check their welding capabilities. Certain tank materials require specific welding types. If a prospective fabricator does not offer the welding ability you need, they won't be able to produce a tank to your specifications.

If you need customization, such as instrumentation, piping or skidding, learn about their abilities to provide these value-added features, and to do so within the timeframe you need. Some manufacturers do not offer additional customization and so their customers must find another shop to add those abilities. Rexarc, with its four generations of excellence in steel tanks, masters these customizations and happy to work with customers to deliver on exactly the tank they need.

Knowing the capabilities of prospective fabricators could save you lots of time and energy down the road.

## Check References:

Once you've done due diligence on ASME certification, it is time to ask prospective fabricators to provide references. You should ask them to provide contacts for a current project as well as at least one completed in the past. If they have done work for someone in the same industry, that would be preferable. If possible, also try to speak with a customer who has done multiple projects with that fabricator.

Then, be sure to call the references. There are several questions that you can ask those customer contacts to understand how your prospective partner works. Here are some examples.

- Did they deliver the promised pressure vessel on time? On budget?
- Were there problems during the manufacturing process? Were those issues within the manufacturer's control? If yes, was the situation resolved satisfactorily? What was the manufacturer's communication with the customer?
- Were they satisfied with the process? With the finished product?

When talking with professional references, you want to understand how it is to work with that fabricator, to understand their communication level and their commitment to delivering products as specified on time. The customers that have done multiple projects with a fabricator are great sources of information because they can speak to consistency over time. Companies have been known to deliver as expected on the first project and then become inconsistent.

The communication piece is valuable information. Because it is not the case that there is never a problem – unforeseen challenges, like supply chain issues due to a global pandemic, do arise. You want to work with a fabricator that has a consultative approach and will work with you to best resolve the issue. You also want to work with a company that proactively addresses issues as they arise.

With a reference check, you want to be assured that a company consistently delivers a satisfactory product, on time and on budget. You want to build a relationship with a fabrication partner who communicates any issues and works with you to resolve them. After all, this is a big investment in safety and productivity.



Get to know potential fabrication partners by asking a lot of questions. Understanding how you will work together can lead to a successful project – and potentially a long-term, trusting relationship.

## Ask more questions:

With a reference check, you want to be assured that a company consistently delivers a satisfactory product, on time and on budget. You want to build a relationship with a fabrication partner who communicates any issues and works with you to resolve them. After all, this is a big investment in safety and productivity.

- What is your lead time? What is your on-time delivery rate?
- What processes do you have in place to ensure a smooth manufacturing flow?
- How do you communicate with clients when issues arise?
- What are your inspection processes, both in-line and upon completion?

Engage your contact in a healthy conversation about how the company operates. This isn't a time to be adversarial, you just want to ensure that a company you're entrusting a major custom purchase with is the right fit for the work. And don't be surprised if they have questions for you. Because most pressure vessel work is custom, potential fabricators may want to know if your project fits within their parameters. Fabricators with a long history, like Rexarc, also want to work with solid partners who will help them continuously improve their work.

## Build a Working Relationship:

A solid working relationship depends on trust. So before selecting a pressure vessel fabricator to work with, do a little homework to ensure a solid partnership. Be sure to:

- Check ASME certification
- Understand fabricator capabilities
- Check references
- Have a conversation with your potential partners

Doing some work before getting started will lead to a better understanding of expectations and result in all parties being happy with the end-product. Yes, it does require some investment of time and effort, but the safety of your team members and facilities is worth that time.