



7/27/2015

## General Request For Quote Guidelines & Requirements

DOCUMENT # EDU-001  
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REVISION: 01

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Thank You for considering us to complete your fuel tank project. This document will help guide you in providing us with the information we require to offer accurate pricing, lead times and ultimately get us moving towards fabrication.

Everyone knows that with enough time, money and resources anything is possible however, we have also identified where we fit best in the market regarding the products that we build or limitations we are bound by.

Please review the below list and ensure that your request for quote does not match one of these "NO QUOTE" factors.

- **We do not build Steel or Stainless Steel Tanks of any type. We strictly specialize in the fabrication of aluminum tanks.**
- **We do not build Round, Oval or D-Style Tanks.**
- **We do not build Aircraft fuel tanks of any kind (Experimental or Not).**
- **We do not build Primary or "tear drop" style motorcycle tanks.**
- **We do not build Pressure Vessels or vaccum tanks.**
- **We do not build potable water tanks**
- **We do not build tanks for LP or CNG.**
- **We do not offer installation as a service**

Drawings that are submitted for quote that match any of the above descriptions will be automatically rejected and classified as "NO QUOTE".

All information found within this document is provided as a convenience is purely educational. It is your responsibility to ensure that your tank design performs as expected and meets all applicable laws and safety regulations.



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### Drawing Requirements:

**1. When completing your drawing and preparing it for submission the following information must be clearly detailed on your drawing.**

- a. All outside tank dimensions including details of notches, chamfers and recesses. Can be in either Metric or Imperial \*
- b. Material Thickness
- c. Fuel Fill
- d. Vent
- e. Fuel Draw
- f. Mounting Tabs if needed
- g. Additional tank options if necessary.

Keep in mind that if you do not specify the additional options and include dimensional locations the tank will only be built to what is drawn so it is important to include everything detailed on the drawing. Verbal instructions or old tanks are not acceptable.

### Requirements of a fuel tank:

**1. Main Components:**

- a. **Fuel Fill** – You must have a way to fill the tank with fuel. This can be done using a Filler Cap & Neck a (RFH) Ribbed For Hose Pipe or in some cases a Threaded Male or Female fitting.
- b. **Air Vent** – You must have an air vent that allows air (vacuum) into the tank as the fuel is drawn out and to allow air (pressure) out as the tank is filled or the fuel expands. In its simplest way this can be accomplished via a vented cap or a separate fitting with a hose routed to a safe location. (see “Vented vs Non Vented” section for additional info on this subject)
- c. **Fuel Draw** – You must have a way to get the fuel out of the tank to the pump to run your engine. This can be accomplished by a fitting on the top of the tank with a tube that runs inside to the bottom of the tank, simply called “Pickup Tube”. Another way is to place a fitting on the underside or bottom side of the tank referred to as “ Gravity Feed”  
*TIP: It is only DOT legal to gravity feed diesel fuel. If your tank is for gasoline then all fittings must be above the fullest level of the tank. Smaller tanks for gasoline that use sumps or gravity feed gasoline are for OFF ROAD USE ONLY. Under most circumstances Boyd Welding does not build Gravity feed Gasoline tanks above 25 gallons for safety reasons.*



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## 2. Optional components:

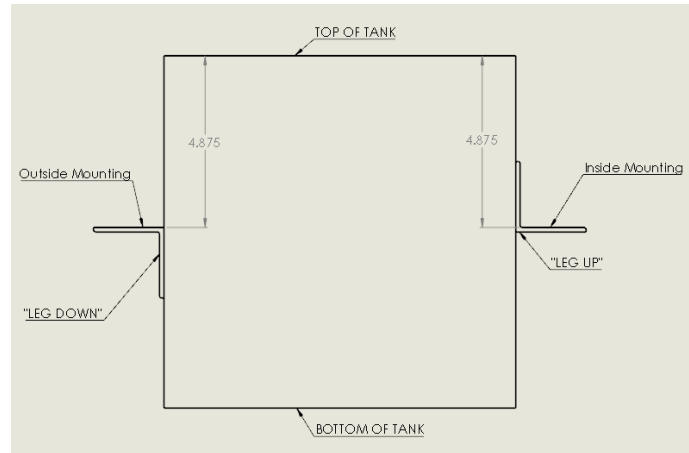
- d. **Fuel Return** – An additional fitting to allow unused fuel back to the tank. Fuel returns are primarily used in Diesel applications but can be found in EFI & High Performance applications as well. A fuel return can simply be a fitting somewhere on the tank away from the fuel outlet, it may also have a tube inside to route the fuel to a specific location within the tank. The tanks usage, IE: Off-Road, Drag Racing, Road Racing and the amount of fuel to be returned will dictate how the return should be routed. *TIP: if you are unsure if the return should have a tube then let's place one anyways and route it to another area of the tank.*
- e. **Fuel Level Sending Unit Flange** – An Industry standard flange most commonly found in a 5 bolt pattern. The sending unit flange is welded to the outside of the tank and is drilled and tapped to accept all aftermarket 5 bolt fuel level sending units. Some British car manufacturers IE: Triumph & Morgan Motors use a 6 bolt flange that we also have available. When using the 5 bolt pattern flange with a Float arm Style sender it is extremely critical to be aware of the bolt orientation in relation to the float arm as the bolt pattern is ONE WAY ONLY and cannot be clocked failure to ensure the proper orientation could result in the float arm hitting a baffle or side wall of the tank. *Rest assured knowing if you purchase a sending unit from us when we fabricate your tank you will not need to worry about this detail as we will handle it automatically you simply need to show us on your drawing where you would like the sender located.*
- f. **Tank Drain** – A Threaded Port found on the bottom of a tank when opened will permit the complete drainage of the tank. We suggest a drain on all Diesel tanks
- g. **Baffles** – Internal plates used to control fuel slosh, provide structural support and at times contain fuel in a specified area. Boyd Welding will always baffle when needed for structural support regardless of the application.



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**h. Mounting Tabs** – L-Shaped Extruded Aluminum used to secure the tank in place using fasteners. When using mounting tabs you should always try to secure the tank with 4 points of mounting preferably on opposite corners. When specifying mounting tabs other than tabs that are flush with the bottom of the tank it is important to account for the Orientation and thickness of the angle you plan to use. We use the terms “Leg Up” or “Leg Down” to specify the orientation of the angle and “Inside



Mounting” or “Outside Mounting” to specify the mounting surface of the angle. *TIP: When using leg up /inside mounting or leg down/inside mounting you must beware of the angle material thickness in relation to the tank dimensions. You need to make sure you leave enough clearance for the thickness of the angle X2 (EXAMPLE: Tank width = 10” and Angle thickness is .190” total tank width would Equal 10.375”)* .....continued on next page.....

It is always good practice to use a standard size structural angle when specifying your mounting tabs. We Keep many different sized of angle In-stock to be used. Below is a list of the most common sizes guaranteed to be in stock.

3/4" x 3/4" x 1/8"	1-1/2" x 1-1/2" x 1/8"	2" x 2" x 1/4"
1" x 1" x 1/8"	1-1/2" x 1-1/2" x 3/16"	3" x 3" x 3/16"
1" x 1" x 3/16"	2" x 2" x 1/8"	3" x 5" x 3/8"
1-1/2" x 2" x 1/8"	2" x 2" x 3/16"	

- i. Tank Clean Out** - A Bolt on flange with gasket usually big enough in diameter to allow your hand inside to clean out or visually inspect the inside of the tank.
- j. Internal EFI Pump** – An Internal submersible high pressure pump mounted to a bolt in assembly that supplies fuel for an Electronic Fuel Injected Engine. All of our EFI systems utilize the Aeromotive Stealth 340 internal pump mounted to our own fabricated bracket. This assembly can be used in almost any tank ranging between 6” and 24” depth. We can also fabricate your tank using pretty much any type of internal pump assembly you will need to simply send it to us and we will take care of the rest.



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**k. Material** – Our standard material is .125” 5052-H32 Mill Finish Aluminum. Alternate material thicknesses can be requested however, Boyd Welding does have specific standards regarding size of tanks and what materials can be used. Here are some basic “rules of thumb” that we follow.

- **.065”** Our thinnest material we offer. We usually do not build tanks larger than 10 gallons from .065.
- **.090”** A good lighter weight option to .125” that usually does not exceed 25 Gallons
- **.125”** Our Standard and most common material thickness used for almost all tanks ranging from 1 gallon to 100 gallons. With the proper baffling and support this thickness has been proven to produce a Quality long lasting tank.
- **.190”** Our Second most common material thickness. This becomes standard on tanks over 100 gallons or on tanks that are used in extreme conditions.

Hopefully you find that this document was helpful in explaining the basics regarding the different parts of a fuel tank. Good luck and we look forward to receiving your drawing.