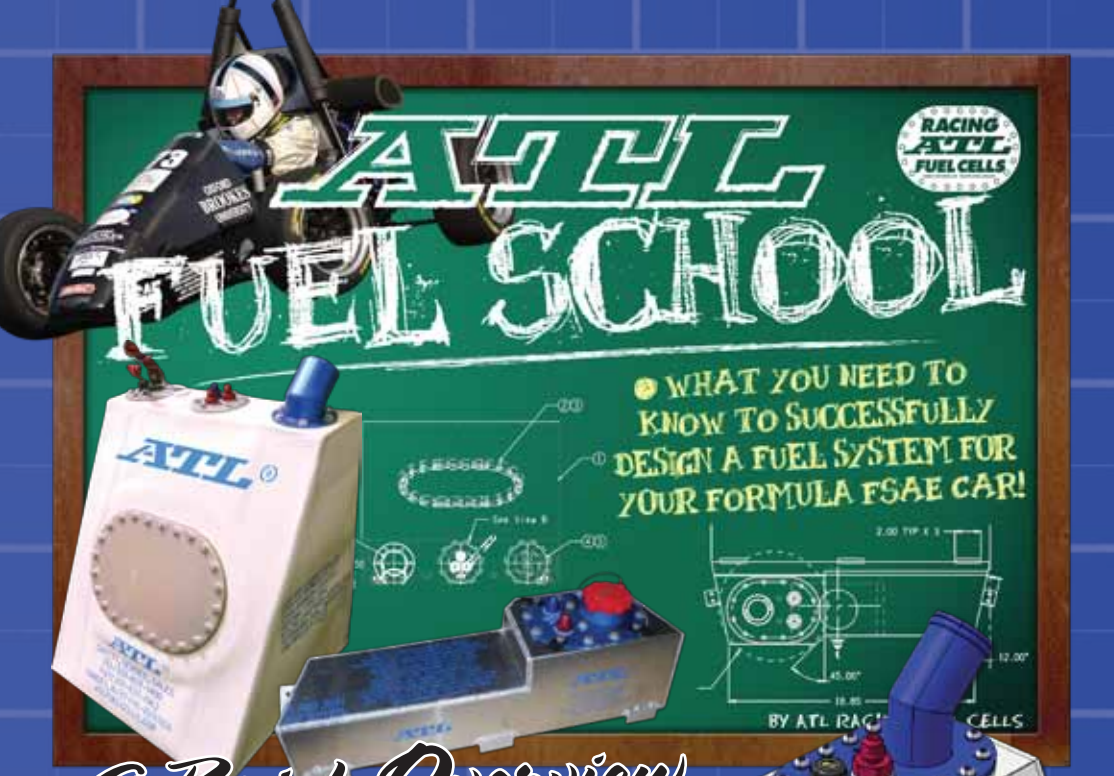
# ATL FUEL SCHOOL

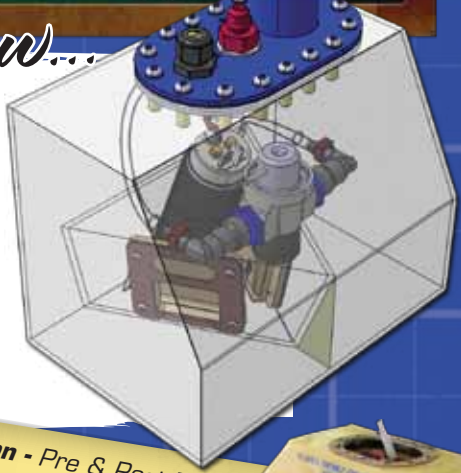
RACING ATL FUEL CELLS

- WHAT YOU NEED TO KNOW TO SUCCESSFULLY DESIGN A FUEL SYSTEM FOR YOUR FORMULA FSAE CAR!




## A Brief Overview...

*At the heart of every fuel system is the fuel bladder. ATL's lightweight, flexible "rubberised" bladders are impact resistant and fully foam baffled. The foam baffling not only prevents fuel sloshing but also acts as an explosion suppressant. In addition to unrivaled safety, ATL bladders can also be outfitted with exciting performance features such as built-in surge tanks, collector boxes, in-tank fuel pumps and lift pumps to complete the ultimate fuel system!*



### SOME THINGS TO CONSIDER:

**Filling -** Consult FSAE Rulebook

**Metering -** Not Generally Used in FSAE Competition

**Engine Feeding -** Flow & Pressure, Locations of Pumps & Regulators, Returned or Return-less System, Alternative Methods of Pressure Control.

**Filtration -** Pre & Post Pump Requirements, Typically 75 Micron Pre-Pump and 15-25 Post-Pump. Protect Your Injectors & Regulator!

**Ventilation -** Generally, a Pressure Relief Valve (PRV) or Float Type Valve is Required in FSAE Competition

**Lines & Seals -** Fuel Compatibility is Key When Choosing. Viton A is the Minimum Requirement.

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RAMSEY, NEW JERSEY, USA · MILTON KEYNES, ENGLAND

# The Fundamentals...

***Here is a list of key points to consider when packaging your fuel system:***

- *A firewall is required that would act as a barrier between fuel (in case of a spill) and any ignition source as well as the driver cockpit.*
- *You should try to locate the tank within the crash structure whenever possible.*
- *Plastic fuel lines are prohibited. ATL recommends using stainless steel braided nitrile hose & JIC fittings.*
- *All fuel bladders must be enclosed within a rigid container which must be securely attached to, or a part of, the vehicle structure.*
- *Rigid fuel tanks cannot be used to carry structural loads. ATL recommends that rigid tanks be anti-vibration (AV) mounted to prevent fatigue failures.*
- *There are no minimum or maximum capacity requirements - make it as small as you dare, but remember to baffle it well! ATL is happy to advise regarding baffling solutions.*
- *The fuel bladder must have the ability to be completely drained of fuel. The location of this drain fitting will depend on the complexity of your fuel system.*
- *A sight glass on the filler neck is required for checking the fuel level. Many teams use a clear, 1 ½" reinforced hose that acts as both the fill neck and the sight glass.*

*Once you have taken all of the aforementioned into consideration and have decided what fuel bladder is the best option for your FSAE racer, it's time to get your ideas on paper. When designing the shape of your bladder, try to avoid complex geometry as it equates to both added weight and cost. As a helpful resource, ATL can provide you with CAD models of standard flange patterns and other fittings. Make sure to indicate fill plate/filler neck, outlet & return locations and if you plan on including any internal fuel scavening devices and/or fuel pumps.*

***Contact ATL for additional advice or product information!***

www.ATLFUELCELLS.com


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