



MM500 Gallon BioDiesel Processor Plans

Simple, Bare Bones, Economical, Easy to Build, Highly Effective

SPECIFICATIONS

Batch Size: 250 - 350 Gallons (950 - 1300 Liters)
*Sealed Reactor for fumeless operation.
Capable of Multiple Batches Per Day*

Pump: Your choice or use our HVI series
(we recommend the HVI-10 for 250-350 gallon batches)

Heating: Electrical 240 volts 1 Phase (Hot Water Boiler Optional)

Floor Space: 4' Deep x 18' Long x 11' Tall

Operation: Manual Control
*(requires 2 man/hrs per batch)
(Optional 50% Automation)*

Cost To build: About \$5000 including Plans and MM500 Parts Kit.
(See the back of this page for more information)

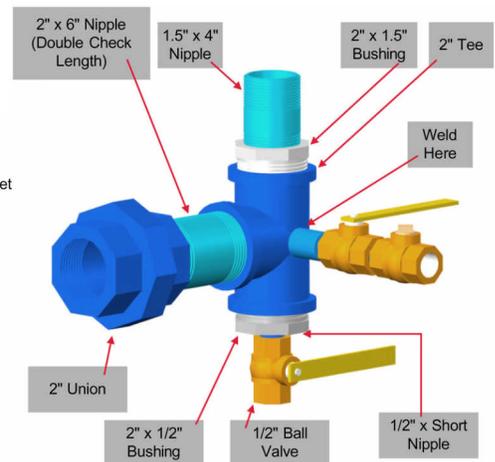
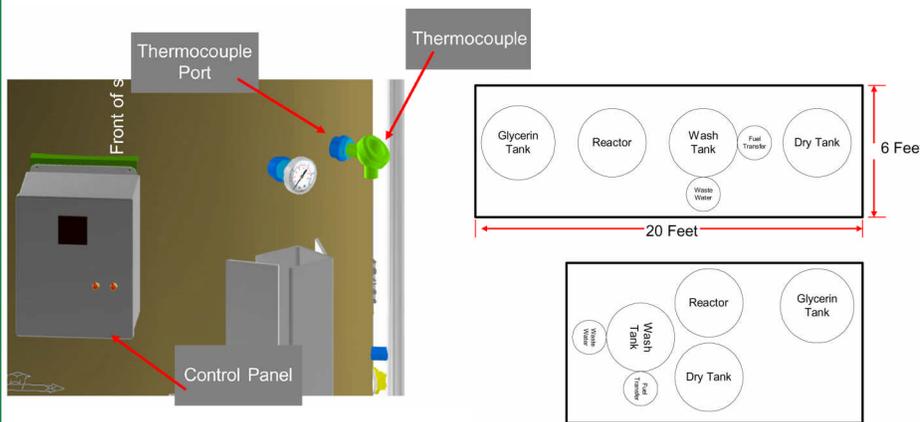
Time to Build: Varies with facilities.

Special Skills Required: Basic welding, drilling, cutting and plumbing. Basic electrical skills.

Special Tools Required: Mig or Tig welder, Farm Tractor, Fork-Lift or other way to move heavy tanks.



- **Farm / Ranch**
- **Transportation**
- **Marine**
- **Construction**
- **Landscape Companies**



The 3D computer generated graphics explaining each step of the construction process are amazing!

Technical Support is Included and provided by the author of the plans

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By Mail: **Murphy's Machines**
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Almont, MI 48003

The construction plans will guide you through the process of building your system, but the MM500 Parts Kit will save you thousands!!

MurphysMachines.com has done all the foot work. We've bargained and negotiated with our suppliers for high-volume pricing to bring you a bumper-to-bumper parts-package that includes all the hardware items you will need to build your system. Everything is there, from the Over-Sized HVI-10 High Volume Pump to the pipe fittings, hose-clamps, paint and even the Teflon Tape! We even include the insulation!

What is in the Package:

Pipe - We've included every pipe fitting, nipple, tee, bushing, ball valve and elbow you will need. For shipping reasons, the only pipes that are not included is any length larger than the pallet they ship on.

**You could easily spend \$2500 or more on just your pipe fittings!
Our High Volume Discounts make a big difference here.**

Heaters - Eight electric heating elements and thermostats to match. Enough to heat the reactor, wash tank and the dry tank for speedy processing. Reactor heating time is about 1 hour depending on ambient conditions.

That's another \$400 saved!

Reactor Pump - We include the MurphysMachines HVI-10. This monster 1.5 horsepower pump will deliver 150% of the volume required to ensure your reactions are completed in the least amount of time.

That's a \$450 Value alone!

Transfer Pumps - There are 4 other various pumps doing different things on the system and they are all included with the kit.

All motors and pumps are included in the kit.

Titration Supplies - Its all there! Everything you need to test and titrate your oil.

You could easily spend \$7500 to purchase all these parts on your own and that doesn't include your time or money to hunt them down.

The MM500 Kit will save you thousands of dollars and weeks worth of time, energy, and wasted phone calls.

What You Must Purchase (not included in the kit):

Tanks - You will need to purchase four tanks. They can be found brand new for about \$800 and commonly found used for around \$100 to \$350 each. We can help guide you!

Structural Steel -The tanks need to have legs. Legs can be made out of almost any heavy steel such as 4 inch angle iron, square tubing and even round pipe that is 4 inches or larger.

If you don't already have some structural steel to work with, you will need to purchase 60 feet of it. To be precise, you will need 12 lengths that are 5 feet long.

Pipe - When we ship the kit to you, it will come on a pallet. For this reason, it is not practical to include any long pipes which exceed the dimensions of the pallet. What does this mean? It means you will have to purchase about 20 feet of 1 Inch Black Iron Pipe.

Electrical - The kit includes heaters and temperature controllers (thermostats) but does not include any other items at this time. At a minimum, to make it run, you will need some standard 4 inch metal junction boxes and switches. (10 of each). You will also require wire and optional conduit.

Miscellaneous Items - There are a few other things you will need to build your system. The kit does not include things like Mig Wire for you welder, wire nuts, electrical tape, and things of that nature. For instance, while we include the Paint, you'll need a paint brush.

Scale - You will need a scale capable of weighing at least 20 kg. Most postage scales and even some bathroom scales will work just fine. Accuracy should be a standard 5% or less.



What other costs are associated with building the MM500 Biodiesel system?

- With the plans and the optional parts kit add-on, you'll need to run electricity and water to the unit. For the water, many farmers simply run a long garden hose. For the electricity, we recommend a minimum of a 240 volt, 100 amp service.

In addition to the above, a system of this size will usually require some kind of storage for your raw oil as well as the finished fuel.

How much does it cost to make Biodiesel?

- Generally, in most places in the USA, the current 2009 cost is around \$0.90 to \$1.10 per gallon. This would include chemicals and electricity.

Is the optional MM500 Parts Kit Add-on economical to purchase?

- That will mostly depend on where you live and what type of industry you are involved in. We make large bulk purchases of our plumbing fittings and related parts and we get rock bottom prices. We are able to mark up the parts, make our money, and still sell the kit to you at about half the cost of what you can purchase it for at your local hardware store or Home Depot or other super hardware center.

In addition to that, you get exactly what you need, and you get the correct parts for the job with our kit. You won't spend your time hunting for the right bushings or have to substitute one part for another. Our parts kit will save you money and time.

What kind of parts will I need to make myself?

- None. We show you where to make your cuts in the tanks and most of the pipe fittings have been pre-cut to length. Due to the varying nature of the different kinds of tanks available, there are a few lengths of pipe you'll be required to measure and have threaded. Most local hardware stores can thread pipe for you.

Do I have to use 500 gallon propane tanks?

- No. The instructions and parts kit will fit almost any cylindrical shaped pressure tank from 250 to 500 gallons in size.

Can the MM500 Biodiesel system incorporate a dry wash?

- Yes it can but it is not included in the plans. If you are interested in using a dry wash system, our best advice is to set up the MM500 with the wet wash, as designed, and then add the dry wash system later. We can help guide you to those who we know to be reputable suppliers of dry washing towers and we can help incorporate them into the MM500.

How hard is it to build the MM500 system?

- Not hard at all. The MM500 was designed to be built by the backyard do-it-yourself crowd. You need to be able to perform basic welding tasks and be capable of assembling threaded pipes and things of that nature. No specialized tooling required.

How long does it take to do a batch with the MM500 system?

- It generally takes about 24 to 48 hours to complete a single batch of finished fuel. With that in mind, the MM500 can have three different batches in three different stages of processing at any one time. The end result is that you'll get a finished batch of fuel every 24 hours. Remember that the MM500 system can be expanded to greatly increase that volume. Some of our customers have 5 or 6 batches in process at the same time and they get a load of fuel every 6 to 8 hours or more!

How much biodiesel can the MM500 produce?

- The basic MM500, as set up in the plans, will produce around 1500 gallons per week but can be expanded to produce up to 5000 gallons with the addition of extra processing tanks.

What about training and support services?

- We provide virtually unlimited support and training through email and telephone. Our instructions have been refined and formatted to a quality standard that reduces or eliminates most customer inquiries. That said, we are always around for that special unexpected circumstance that requires our input. We enjoy teaching and we enjoy the experience of watching a customer go through the learning curve and arrive at the other side. You would be hard pressed to find better support services anywhere and we answer our phone 7 days a week.

What maintenance is required to run the system?

- Almost none. There's a water filter and a couple of spin-on fuel filters at the end of the system that will require changing every now and then. Most customers have to change them about once every 5,000 gallons or so.

Does the MM500 system include information on collecting the waste oil?

- No. The best way to collect the oil is to build a super sucker. You can find more information on that by visiting the following link: <http://www.murphymachines.com/supersucker.html>

How long does it take to get the MM500 parts kit?

- Our parts kits are custom built per customer order. From the basic four tank parts kit, to the customized packages many clients want, we build each kit for each individual customer. Lead times usually run two to three weeks to ship.

Can the MM500 process any other oils beside vegetable oil?

- Yes! The system can make use of animal fats (tallow), chicken fat, fish oils, and new or used vegetable oils. You can not make biodiesel from Motor oil or any other petroleum type product.

Is the MM500 a heated system?

- Yes. The MM500 is heated electrically but there are provisions and pipe ports for an external boiler hookup.

Can this system be placed outdoors?

- Yes, but you'll need to take special precautions to protect the electrical systems and a few other details. There are several MM500 systems operating outdoors without problems.

How many people does it take to run the system?

- One person working part time can operate the MM500 system and all of its supporting operations. Most of the real work takes place collecting the oil as opposed to making the fuel. With the installation of our optional automation control panel kit, a single batch in the MM500 will generally require about two or three man hours of labor from start to finish.