

Materials Lists and Suppliers for Micro Systems 2010

Note: This materials list is for the standard installations; if you make any changes from the accompanying drawings, you may need more or less of certain things. Check these figures against your own estimates. The first thing you should do is call Aquatic EcoSystems at 877-347-4788 (on the Web at AquaticEco.com), and get them to send you a free catalog. The catalogs, besides having great prices, lots of choices of equipment, conversion tables and standards, also have "Tech Talks" every other page or so. These are little three and four-paragraph technical lectures that teach you all kinds of useful aquaculture information and skills. **Important:** This is the materials list for the Micro System 64, the ADDITIONAL quantities and items you need for the Micro System 128 are noted like this: "**ADD** 2 sheets more for 128", or "**CHANGE TO** two pieces 6 feet wide by 19 feet long for 128", right after the line for the amount needed for the Micro System 64.

Materials List for Micro Systems 64 and 128

Tank

1- 150-gallon Rubbermaid or Behlen PLASTIC (NOT that black rubber stuff) stock water tank. Tank is 5' long by 3' wide by 2-1/2' high. You can also use a polyethylene tank or a fiberglass tank of approximately the same volume. You could use many different things here; what you're trying to do is give your fish enough room to swim and grow, as well as 150 gallons of water minimum. Putting the fish in a 55-gallon drum will crowd them, and their growth will be stunted as a result. Stay away from shallow kid's wading pools as you want 24" minimum depth of water for your fish to feel comfortable. \$150

Trough Materials

2 sheets Treated 1/4" ACX plywood \$38

ADD 2 sheets more for 128

200 1-1/4" #8 or #10 FH hot-dip galvanized screws (galvanized drywall screws are OK here) \$12

ADD 200 more for 128

6 2x4x 8' treated construction grade lumber \$42

ADD 6 more for 128

6 1x2x 8' Untreated construction grade lumber, or equivalent in 1-1/2" wide strips of 3/4" untreated plywood \$7

ADD 6 more for 128

2 pieces 20-mil or heavier polyethylene pond liner material, or greenhouse cover material, that is 6 feet wide by 11 feet long. You can get this at places that sell greenhouses, or at places that sell catchment water tanks. \$85

ADD 2 more pieces for 128 IF YOU BUILD THE FOUR-TROUGH LAYOUT, and **CHANGE TO** two pieces 6 feet wide by 19 feet long for 128 IF YOU BUILD THE TWO-TROUGH LAYOUT

2 4' x 8' x 2" Dow Blue Board Square Edge Styrofoam sheets for rafts (Lowes and Home Depot both stock this) \$100

ADD 2 more for 128

1 gallon Bright white exterior latex semi-gloss enamel for painting rafts \$32

1 Tube good quality polyethylene or 5200 caulk (NOT SILICONE!!!) \$8

Aquatic EcoSystems Parts

(From Aquatic EcoSystems 877-347-4788, on the Web at AquaticEco.com)

1 MD2 water pump \$51 (sometimes you can find this cheaper on Ebay

2 DW9622 air pumps (you can use a 9720 air pump if they are out of the DW9622, don't buy both!)

\$150 (sometimes you can also find these cheaper on Ebay)

ADD 1 more for 128

3 103A 5/8" barb to 1/2" MNPT adaptor \$6

1 117A 5/8" barb to 1/2" FNPT adaptor \$2

1 Foot of TVR80 1/2" reinforced vinyl tubing

5 AS8S airstones (includes 1 spare) \$30

ADD 3 more for 128 (includes 2 spares)

1 pack of 10 DB10 airstone bumpers \$3

ADD 1 more pack for 128

40 feet BTP30HD 3/16" ID black vinyl air tubing \$16

ADD 20 more feet for 128

4 BK112 1-1/2" bulkhead fitting \$28

ADD 4 more fittings for 128 IF YOU BUILD THE FOUR-TROUGH LAYOUT OF THE 128, **BUT JUST ORDER 4 TOTAL** IF YOU BUILD THE TWO-TROUGH LAYOUT OF THE 128

2 Lineal feet of 1/2" plastic mesh (cat # N1020) \$10 for fish tank filter

Shipping for all this is about \$20

Total cost for everything to here (including the cost for plumbing which is shown later in this list) is \$852 for Micro System 64, and \$1,275 for the Micro System 128, in Hawaii at Hawaii prices. We have high prices here plus lots of shipping costs, so we think mainland costs could be as much as 30% less than these figures.

You can start and run a system without the following items (we do), but you will be guessing what's going on with your water and bacteria. We recommend you get these:

1 16 Oz inoculating nitrifying bacteria Catalog # 239210 \$10

4 boxes each of Pentair R442 (multi-strip) test strips, which come 25 to a box. These test pH, nitrite, nitrate, and two others you don't use. Enough for a year of tests at one test every four days or so. \$44
4 boxes each of Pentair R443 ammonia test strips, which come 25 to a box. Enough for a year of tests at one test every four days or so \$44

1 box Pentair R446 chlorine/chloramine test strips (for testing system water fills and makeup water for too much chlorine before adding to system) \$8

1 box Tetra test 16630 oxygen test strips (for testing DO level without an expensive meter) \$11

Total to here including plumbing and everything for a 64 is \$969, for a 128 is \$1,392, in Hawaii.

Optional from Aquatic EcoSystems

One- 850041 DO kit digital dissolved oxygen and temperature meter consisting of meter, cable, and probe. About \$395 with shipping. You can test your oxygen levels as often as you want with this meter, and if you are considering a commercial Aquaponics operation, this as well as the pH meters are must-haves, and will help you learn faster now.

One- VitalSine pH meter VS99 (anything cheaper is useless, we tried) about \$155 with shipping. You can test your pH levels as often as you want with this meter.

Plumbing parts

Note: Use Schedule 40 sweep 90's if they are available from your plumbing supplier. If not available, use ells instead. The sweeps will give better air and water flow and will reduce electrical cost for water pumping. If your fish tank is at a different level from your troughs, or a long distance away, you need to refigure your PVC fittings to suit your installation.

Schedule 40 2" PVC pipe and fittings

Male thread adaptor, 2" slip to 1-1/2" male thread 1

2" PVC coupling 1

2" PVC pipe cap 1

Schedule 40 1-1/2" PVC pipe and fittings

Sweeps or Ells 9

ADD 8 for the 128 **ONLY** IF YOU BUILD THE FOUR-TROUGH LAYOUT OF THE 128

Male Thread adaptors 4

ADD 4 for the 128 **ONLY** IF YOU BUILD THE FOUR-TROUGH LAYOUT OF THE 128

Pipe 1- 20' length (might even be enough for the 4-trough layout of the MS 128, check your site and how far apart you decide to put your 4 troughs)

Adaptor, 1/2" female thread to 1-1/2" slip 1

Schedule 40 3/4" PVC

Adaptors, 1/2" Female thread/3/4" male slip 2
Shutoff valve, slip 1
10' feet of 3/4" pipe OR AS NEEDED (read the following):

The list above contains the standard fittings for an easy installation where all the system pieces are near each other on flat ground. IF your system is unusual in that it has a fish tank higher than the troughs, or around a corner of the house because of space limitations, you need to look at the path the plumbing needs to take, then figure out how many and what kind of pipe fittings and so on it takes to get it there, and how much pipe. Pipe comes in 20-foot, and sometimes 10-foot lengths. You also need PVC glue, the medium or slow kind. Cost for all this is about \$65 in Hawaii.

Miscellaneous parts

Plywood or boards, screws and paint to build air pump house (it's like a little bird house with one side open to keep the air pumps cool)

4 stainless steel 7/8" diameter hose clamps for hose to and from water pump

2- 3-1/2" stainless steel hose clamps for fish tank filter

3 square feet of window screen or animal screen for fish tank filter

3/4" Driscopipe long enough to connect back to your water source from the hose bib at the fish tank. You need a 3/4" male thread bronze hose barb for each end of the Driscopipe with 2 hose clamps each end; AND fittings necessary to connect a hose bib at the fish tank end.

Conduit, wire, distribution panels, junction boxes, and fittings to wire as desired for providing electricity to your pumps and system. Or you can tempt fate and use an extension cord with the ends taped to provide "waterproofness".