



GARDEN – CALVARY CHURCH

DRIP IRRIGATION



CONTENTS

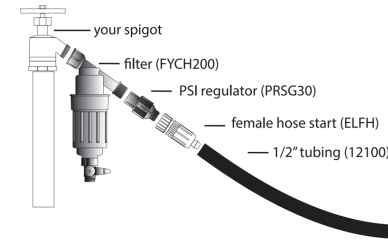
- Drip Irrigation – What is it?
- Point of Connection (POC) Components
- Main Line / Branch Line
- Main line (1/2”) Fittings
- Branch line Micro (1/4”) Fittings
- Irrigation Examples
- DripWorks Garden Bed Kit (small)
- Design Considerations
- Useful Tips
- Works cited and resource links
- Calvary Garden Planter Beds Sketch

DRIP IRRIGATION WHAT IS IT?

- Drip Irrigation is a type of micro irrigation system with the goal to place water directly into the plants root zones.
- Benefits include:
 - Efficient method of watering today
 - Minimize evaporation
 - Water saver
 - Time saver
 - Reduce nutrients runoff

POINT OF CONNECTION (POC) COMPONENTS

- **Point of Connection (POC) components** typically includes, 'Y' connector, programmable timer, hose garden filter, and pressure reducer.



Galcon Bluetooth Flip Open LCD Timer



200 Mesh (Black) (FYCH200)



30 PSI (PRSG30)



High Flow Hose Y with Shutoffs

MAIN LINE / BRANCH LINE

- **Distribution tubing:**
 - Mainline run(s): polyethylene tubing used to carry water from your POC to and throughout your drip system (typically 1/2" for our project). Branch Line run(s): polyethylene tubing that attaches to the mainline to bring water to individual plant containers or planter beds/ boxes. (Our focus will be on 1/4" tubing with internal emitters at 6 and 12" spacing.)
 - Point(s) of use typically consists of (but not limited to) planter pots, planter boxes, raised garden beds, overhead hanging plants...



1/2" Polyethylene Mainline Tubing (0.600" ID x 0.700" OD)



Soaker Dripline 6" Spacing



1/4" Polyethylene Micro Tubing

MAIN LINE (1/2") FITTINGS

- Tubing fittings – 1/2 inch:



1/2" Easy Loc Female Hose Start



1/2" Figure 8 End



1/2" Easy Loc Male Hose End



1/2" Easy Loc Male Hose Tee



1/2" Easy Loc Elbow



1/2" Easy Loc Coupler



1/2" Easy Loc Tee



1/2" Easy Loc Coupler With Valve

BRANCH LINE MICRO (1/4") FITTINGS

- Tubing fittings – 1/4 inch:



1/4" Transfer Barbs



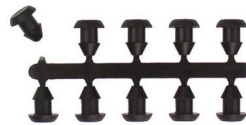
1/4" Long Transfer Barbs



1/4" Barbed Elbows



1/4" Barbed Tees



1/4" Goof Plugs for Repair (One Way)



1/4" Goof Plugs for Repair (Two Way)



Pocket Punch

IRRIGATION EXAMPLES



GARDEN BED KIT (DRIPWORKS)

Picture below is taken from DripWorks.com website. It shows the parts needed to irrigate two to three raised-beds. This is the small kit option. Note the 100' soaker dripline only has the 12" emitter tubing in the kit.



Features:

- 100' of Soaker Dripline
- Filter and PSI Regulator
- 1/4" and 1/2" Fittings
- Punch and Hold Down Stakes
- 50' of 1/2" Mainline Tubing

Parts List:

- 1 - 50' Roll 1/2" Mainline Tubing ([1250](#))
- 1 - 50' Roll 1/4" Micro Tubing ([1450](#))
- 1 - 100' Roll 1/4" Soaker Dripline, 12" Spacing ([DSD12](#))
- 20 - 1/4" Transfer Barbs - 2 x 10 packs ([14TB-10](#))
- 20 - 1/4" Elbow Fittings - 2 x 10 packs ([1490-10](#))
- 20 - 1/4" Goof Plugs - 2 x 10 packs ([14GP2-10](#))
- 1 - 1/2" Easy Loc Female Hose Start ([ELFH](#))
- 1 - 1/2" Easy Loc Tee ([ELT](#))
- 1 - 1/2" Easy Loc Coupler ([ELC](#))
- 2 - 1/2" Figure 8 Ends ([CF8](#))
- 1 - Home Garden Filter ([FYCH200](#))
- 1 - 30 PSI Pressure Regulator ([PRSG30](#))
- 1 - Key Punch ([PUKEY](#))
- 20 - 1/4" Hold Downs - 2 x 10 packs ([SS3-10](#))
- 10 - 1/2" Hold Downs - 1 x 10 pack ([SUHD-10](#))

Optional Timer:

- 1 - Galcon Bluetooth Flip Open LCD Timer ([TGNLIDBT](#))

DESIGN CONSIDERATIONS

- Sketch (include dimensions) of to be irrigated areas/ zones. This aids in determining the mainline and branch line needs.
- Note our focus will be limited to one zone.
- Determine the flow rate (GPM and GPH) by noting the amount of time it takes to fill a 5 gallon bucket from a fully throttled POC.
- Example: My POC filled a 5 gallon bucket in 30 seconds. Or 10 GPM (Gallons per minute) or 600 GPH (Gallons per hour).
- Flow rate for a soaker dripline with 6" spacing with a 30 PSI Pressure regulator (included in kit) is approximately 160 GPH per 100' roll (0.80 GPH per emitter). Note house water pressure averages 60 to 80 PSI so the 30 Pressure regulator is required.
- Another example with a lower GPH: Let's assume an available flow rate of 240 gallons per hour (GPH). This means you can use up to 240 emitters with a 1 GPH output or 480 emitters that output .5 GPH.
- Yet another example: A 6' length of 1/4" soaker hose with 11 emitters (6" spacing) delivered just over 1 gallon in 10 minutes.

USEFUL TIPS

- Before rolling out the mainline, warm the roll of tubing in the sun or inside the house to make it more pliable
- • When installing your drip lines, consider mulching over them. This will increase the tubing's lifespan and help protect it from environmental hazards.
- • Once the mainline and supply lines are installed, it is recommended that you flush your lines with clean water for a minute or two (you can collect and reuse it!) before installing emitters or bringing the system up to pressure. This will remove any debris in the lines.
- Soaker Dripline with emitters spaced at 6" is limited to run lengths of 15'. Work around is to run the supply line down the length of the bed that allows for shorter branch lines.

WORKS CITED AND RESOURCE LINKS

- DripWorks – Dripworks.com | 844.849.9573
- Simple Drip Irrigation – Cynthia Sanberg – Love Apple Farms – LoveAppleFarms.com

CALVARY GARDEN PLANTER BEDS SKETCH

