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THE EVOLUTION OF HYDROPONICS

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BLACK DOG
Horticulture Technologies & Consulting

SET UP INSTRUCTIONS 

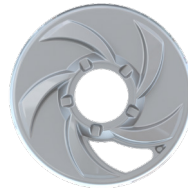
PART DESCRIPTIONS



Net Pot



Lid cover



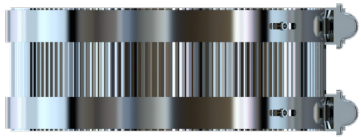
Lid



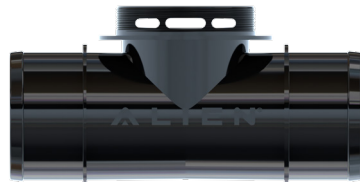
V-POT



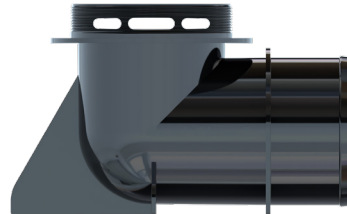
Base



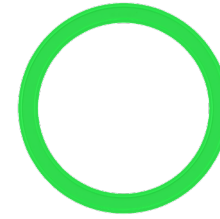
5 Inch Clamp



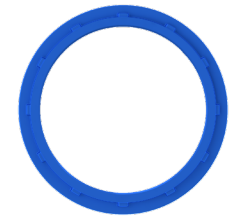
Dual-Flow Tee



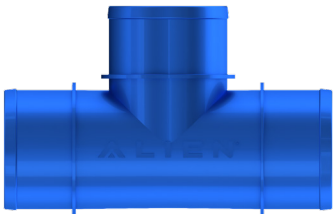
Dual-Flow Elbow



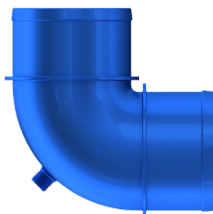
5'' Silicone Washer



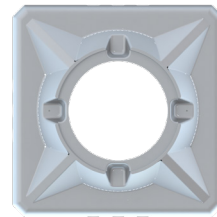
5'' Nut



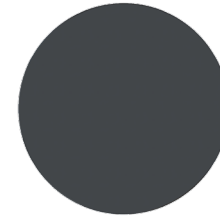
5'' Tee



5'' Elbow



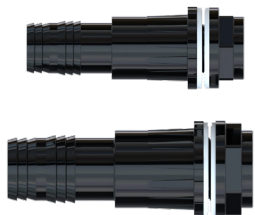
Header Lid



Header Blank



Header Pot



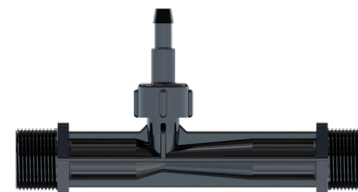
32mm and 40mm Tank connectors



Chiller Fittings



Float Valve



Venturi Valve



Pot Clip



Inlet Tube, Wing Nut, Washer



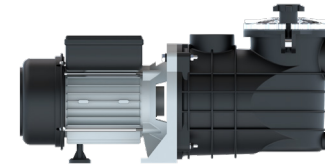
Air Filter



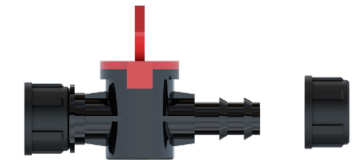
Silencer



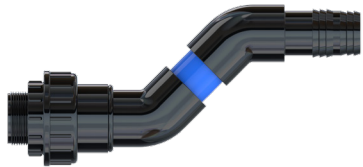
Push-Fit Connectors, Elbow, Reducing Elbow, Tee



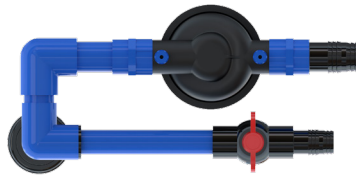
Vortex Pump



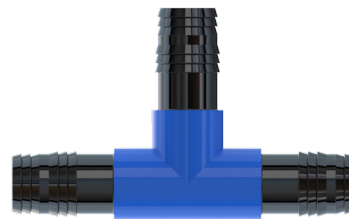
Drain Tap & Cap



Inlet Manifold



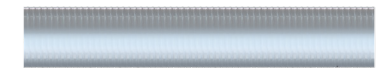
Filter Manifold



Distribution Tee



Pipe Clamps



5" Return Tube



40mm Tube



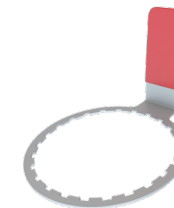
32mm Tube



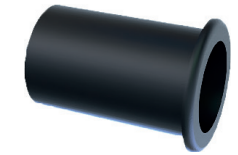
22mm Rigid Pipe



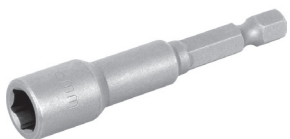
6mm Blue Pipe



5" Nut Wrench



Insert



8mm socket



8mm Screwdriver



Wrench



Silicone Grease



Left Terminal



Center Terminal



Right Terminal

INSTRUCTION MANUAL

Before you begin the installation of the ALIEN® V-SYSTEM, consider the plant spacings which best suit your grow room layout.

The V-SYSTEM uses spiral tubing which gives the grower some versatility on the layout and header pot position. The standard configuration is shown in **Figure 1** with the header pot outside of the footprint. **Figure 2** shows how the system can be configured with the header inside and requires 39-inch / 100cm pot centers to allow the header pot to fit between the rows. 26" / 65cm plant centers are possible with a configuration as shown in **Figure 3**. The maximum centers are 39" / 100 cm with the standard kit-supplied pipe. Wider plant spacings are possible- contact us for details.

Figure 1

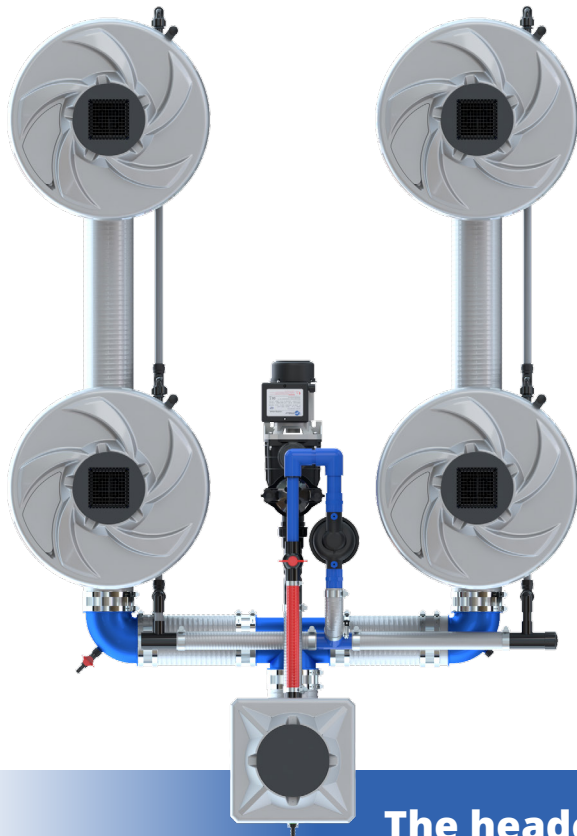


Figure 2

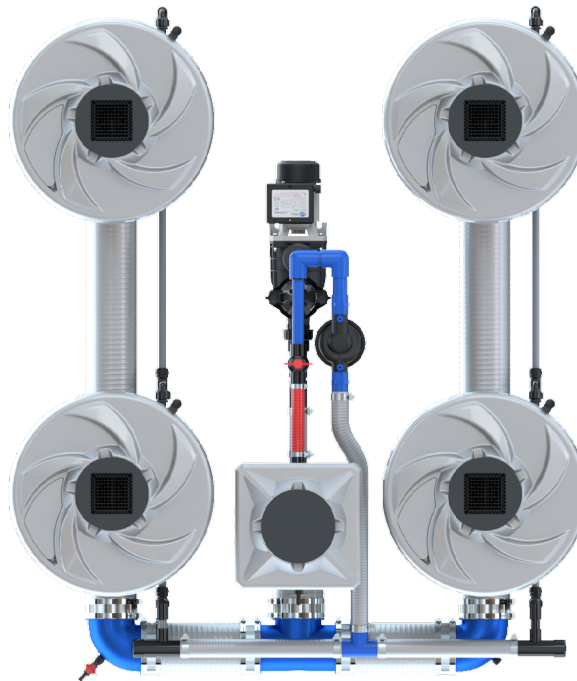
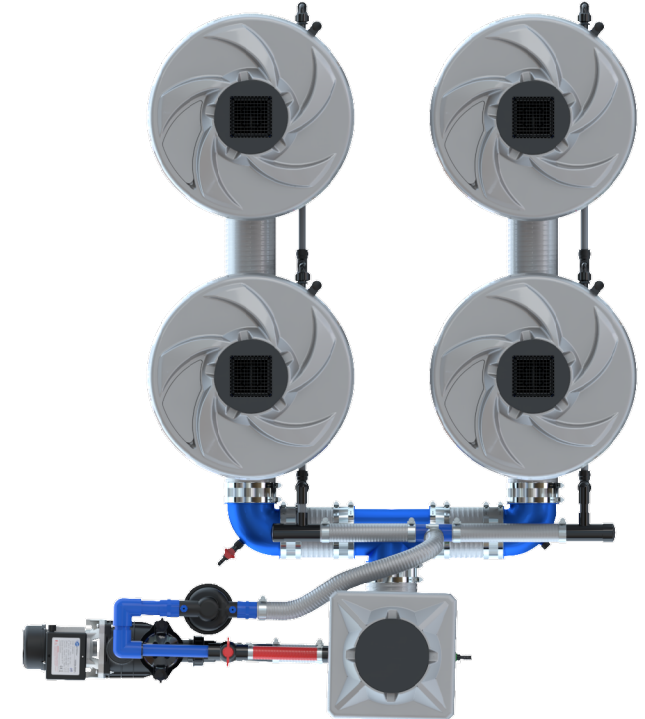
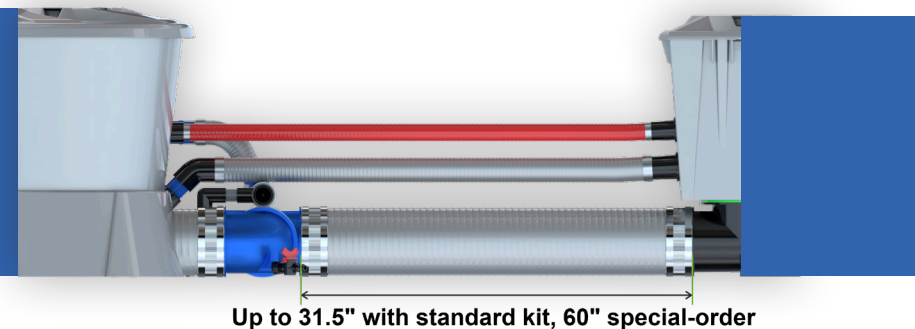


Figure 3

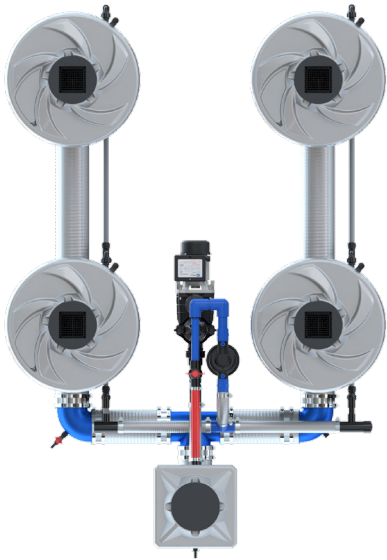


The header pot can also be extended away from the system, for example to put it outside a grow tent. Contact us for options.

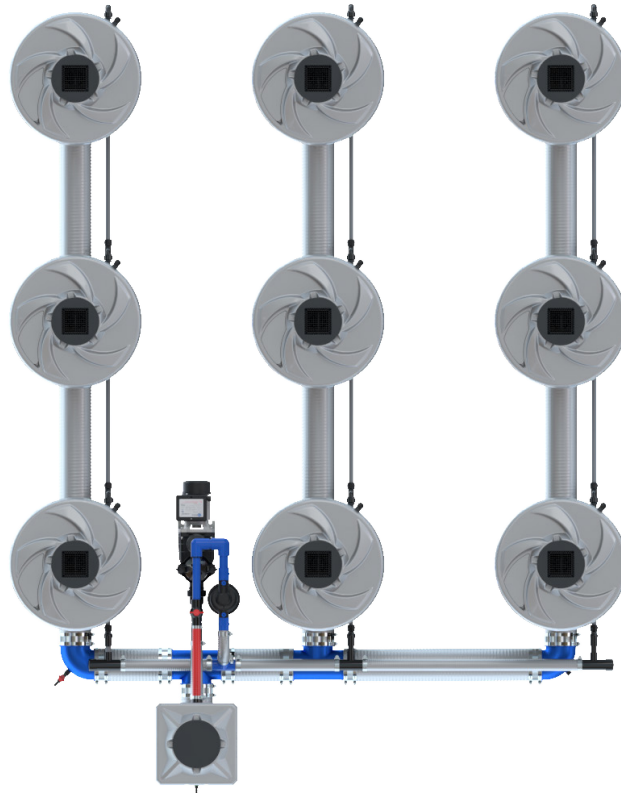




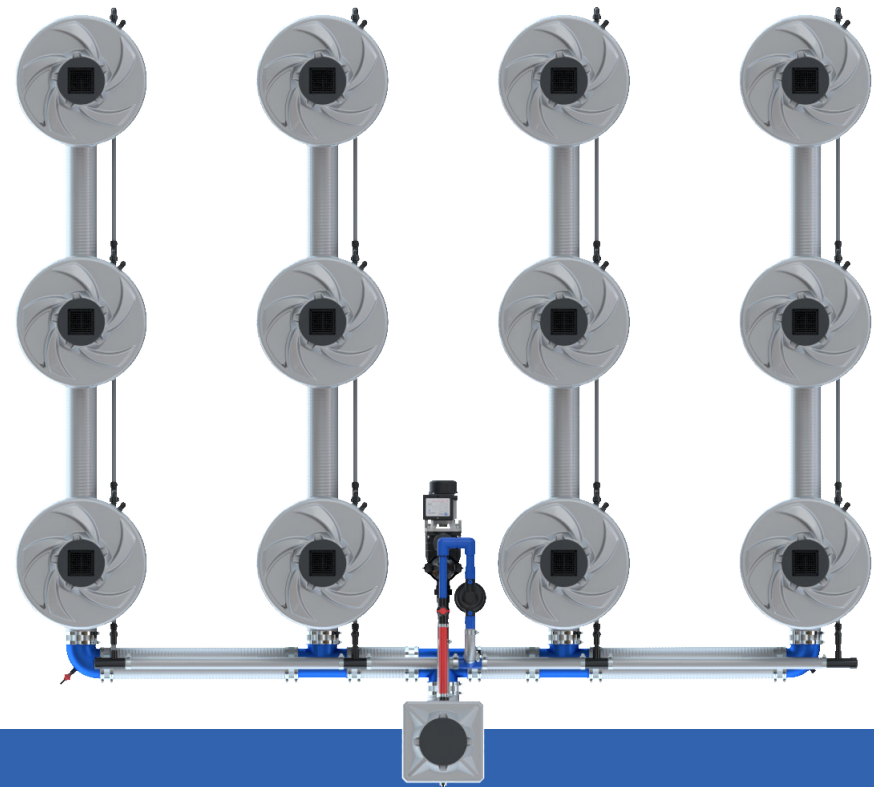
2 row



3 row



4 row

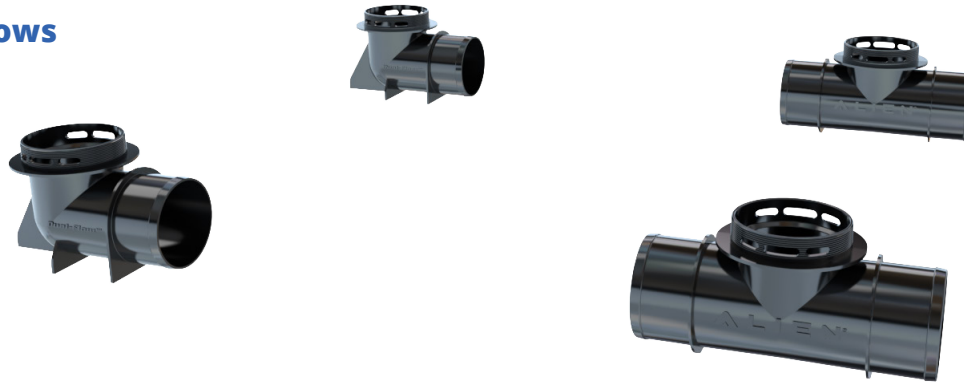


CONFIGURATIONS

Larger configurations are available; contact our tech team for advice. <https://alienhydro.com/contact> or reach out to sales@alienhydro.com or 720-420-1209

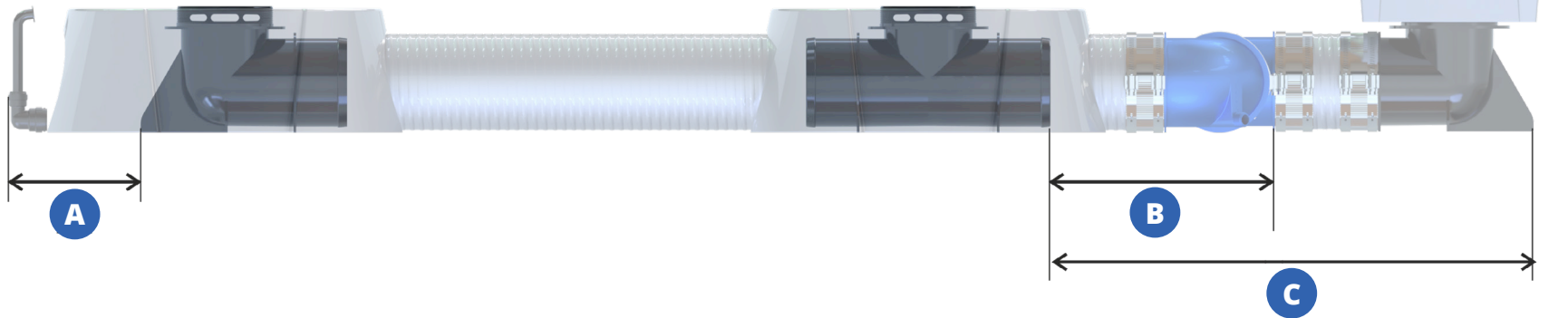
SYSTEM SET-UP

- 1 Position the black Dual-Flow Tees and elbows where you would like the plants to be.



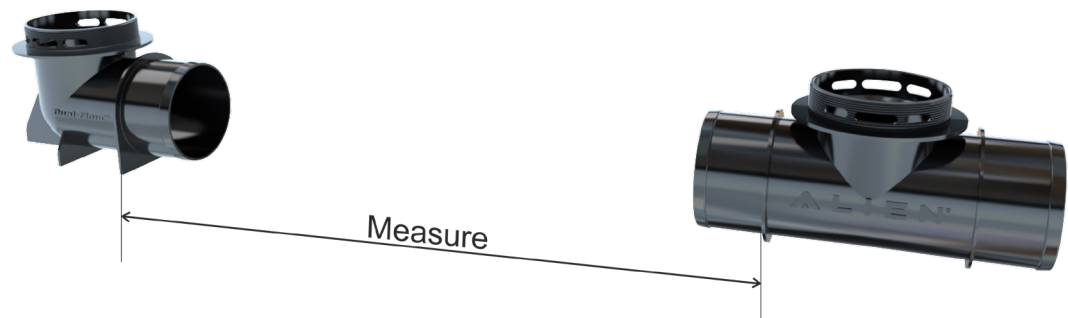
- 2 Minimum distance from obstacles:

- A 7.5 inches / 190mm
- B 12.5 inches / 315mm (If the header pot is located inside the main footprint)
- C 27.5 inches / 700mm (If the header pot is located outside the main footprint)



- 3 Once you are confident that the system will fit in the space, measure the distance between the flanges or use the table on the next page and cut the 5" pipe using the pipe cutters.

Be careful- the blade is very sharp!



5" PIPE LENGTH GUIDE

This table shows the tube lengths for the most common plant centers.

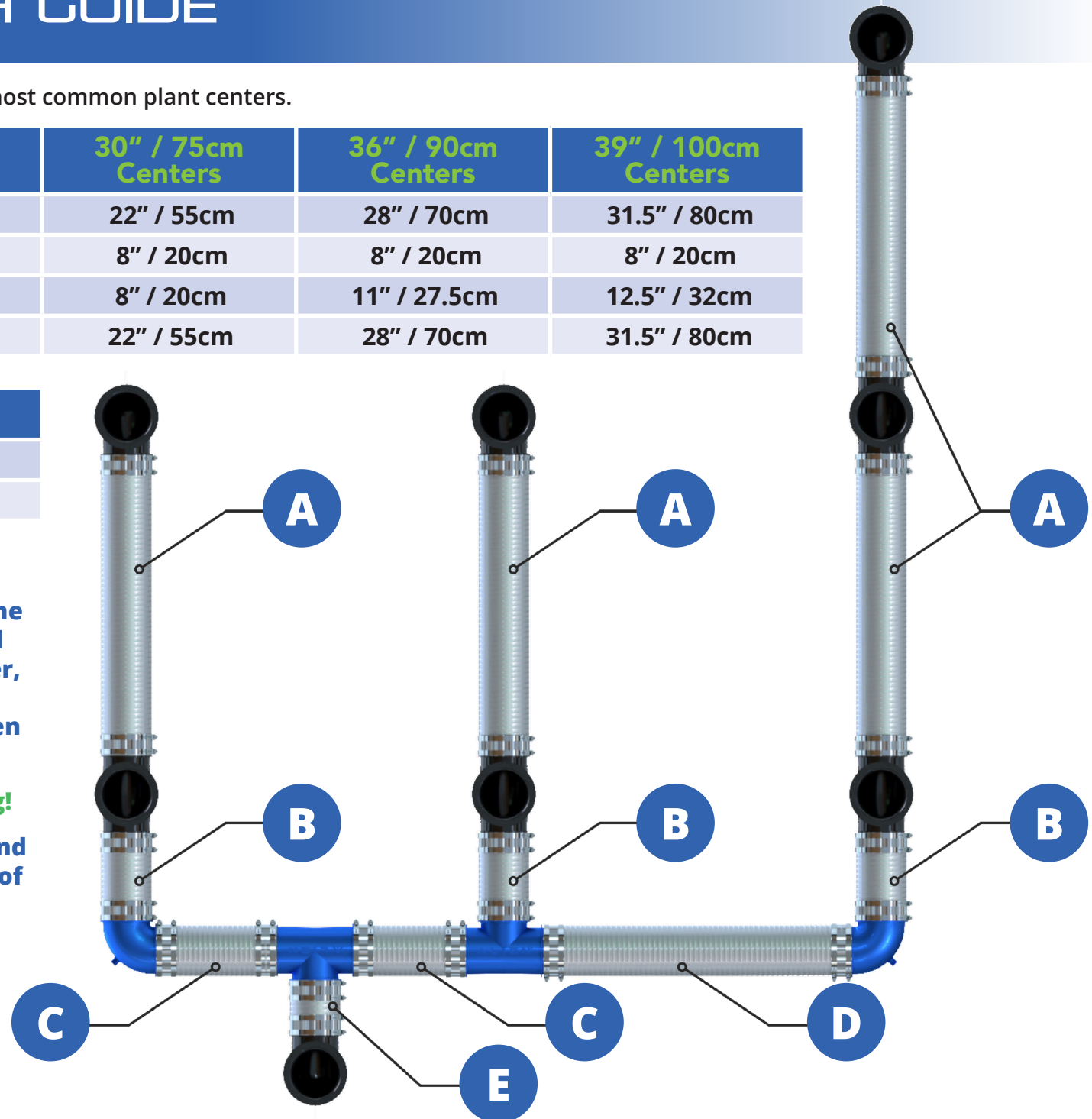
Tube	26" / 65cm Centers	30" / 75cm Centers	36" / 90cm Centers	39" / 100cm Centers
A	18" / 45cm	22" / 55cm	28" / 70cm	31.5" / 80cm
B	8" / 20cm	8" / 20cm	8" / 20cm	8" / 20cm
C	6" / 15cm	8" / 20cm	11" / 27.5cm	12.5" / 32cm
D	18" / 45cm	22" / 55cm	28" / 70cm	31.5" / 80cm

Header Tube	E
Minimum	6" / 15cm
Maximum	31.5" / 80cm

It is OK if the ends of the 5" pipe cuts are a bit jagged- this is normal with the reinforcing spiral inside the tube, and will be hidden by the clamps. However, make sure to remove any "dangling" pieces of pipe that may break off when fitting it to the tees and elbows.

Read the next step before assembling!

The diagram to the left shows rows and row extensions that may not be part of your kit; ignore what you don't need.



4

Spread a roughly 1/16 inch / 2mm thick layer of silicone grease around the slanted portion of the barb on the fitting to lubricate and seal the joint, then slide a 5" clamp over the pipe and push onto the fitting all the way to the flange.

Use the electric drill attachment (recommended) or 8mm socket screwdriver to tighten, but not over-tighten the clamp (see warning below).

Ensure the nuts are located to the side as shown, and that no part of the clamp is over the flange.



8mm Socket
for Drill



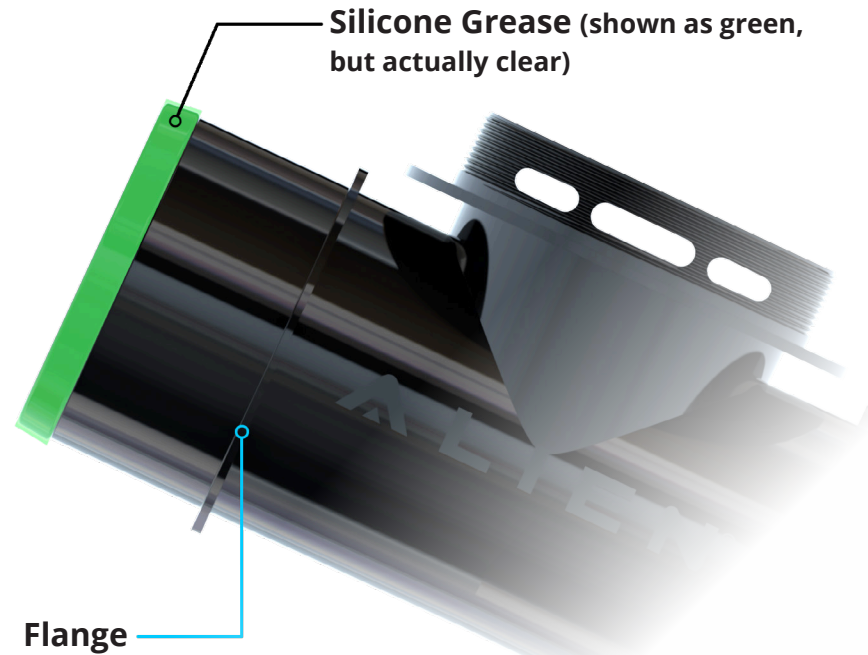
8mm Socket
Screwdriver

Warning: do not over-tighten!

If using an electric drill (recommended), use chuck setting 5 maximum.

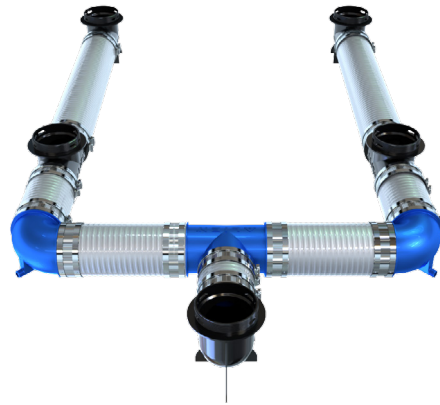
If tightening the clamp by hand, to approximately 10 inch-pounds / 0.83 foot-pounds / 1.13 N-m of torque.

Over-tightening will cause leaks and can crack the fittings- the clamps exert more force than you realize!



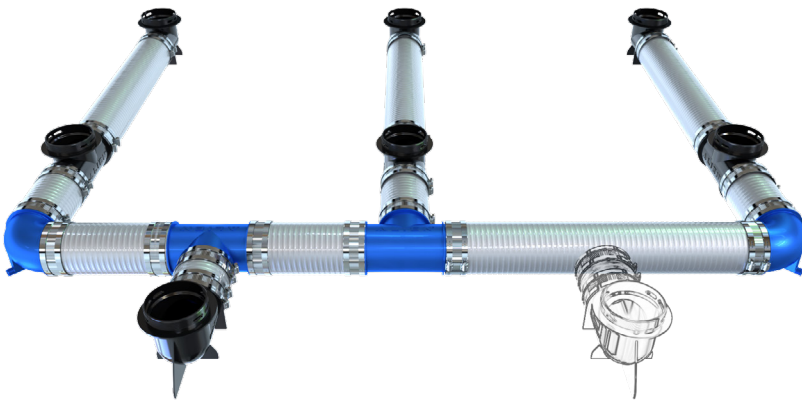
- 5** Position the blue 5" fittings to make the manifold that connects the rows.
The drain outlets on the blue elbows should be at the bottom, toward the floor.
Once you're sure the system spacings are correct, cut and fit the 5" tube.

2 row

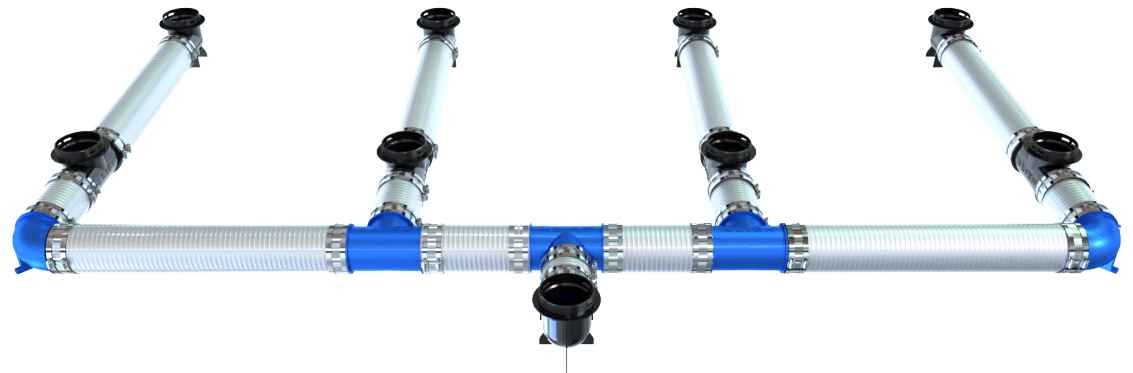


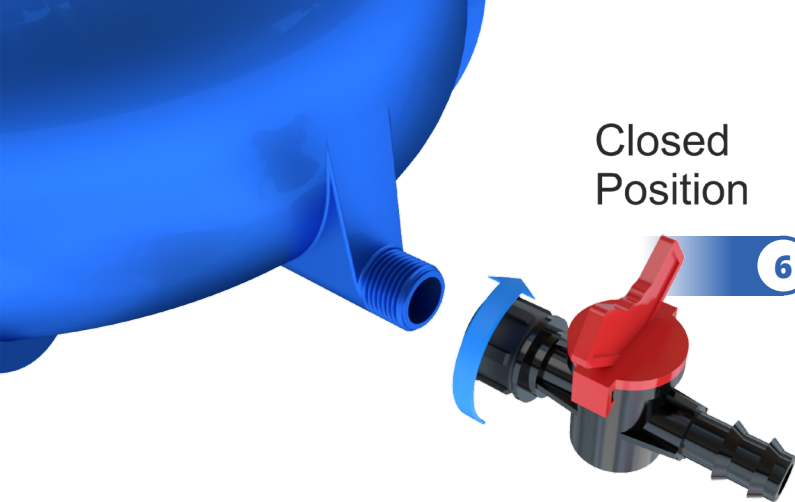
If you are using either a 4 pot system in a 1.5x1.5m tent or a 16 pot system in a 3x3m tent, reduce the plant centers marked 'A' from 75cm to 70cm to allow space for the entire system including the manifold.

3 row



4 row





Closed
Position

6 Screw the drain tap to one of the blue elbows. Ensure there is a washer inside.

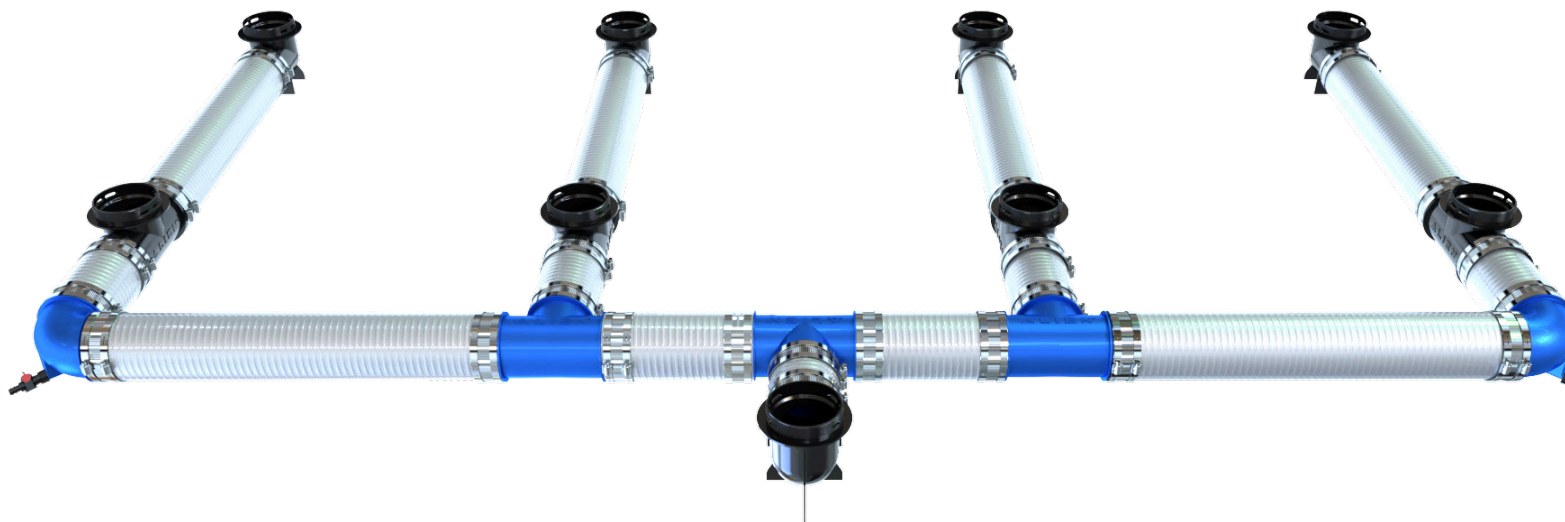


7 Fit the cap and washer to the other blue elbow.

8 Ensure the drain tap is closed and fill the completed 5" pipe manifold with water to check for leaks.

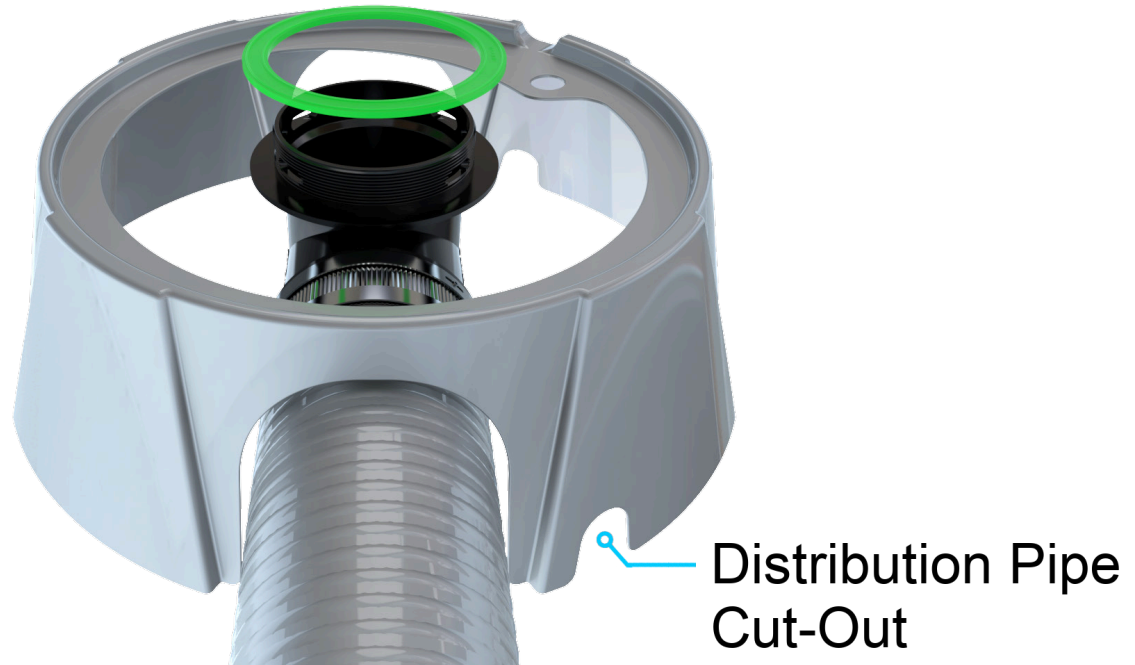
Remember, over-tightening the 5" clamps can cause leaks or make them worse!

If you do find a leak, loosen the clamp and take the joint apart. Inspect for and remove any dirt or debris in the joint, then apply more silicone grease and re-assemble.



- 9 Position the pot bases as shown and place a green 5" washer on each fitting.

Viewed from where the header pot will go, the distribution pipe cut-outs should be on the right side of the 5" pipe.

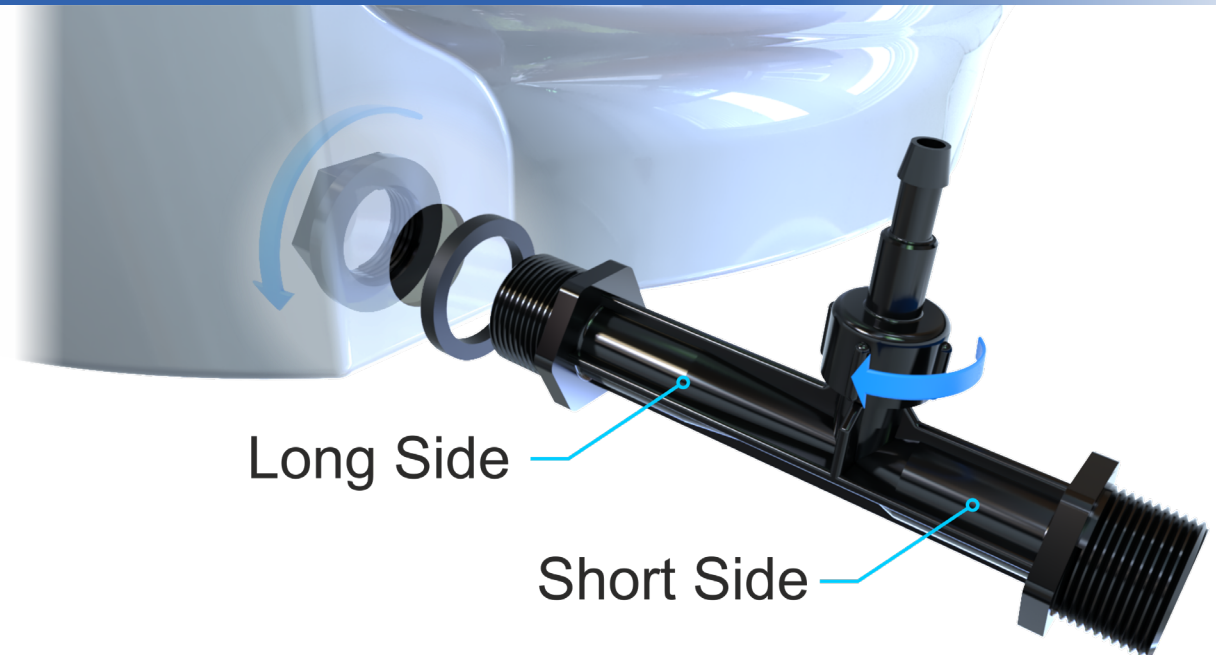


VENTURI INSTALLATION

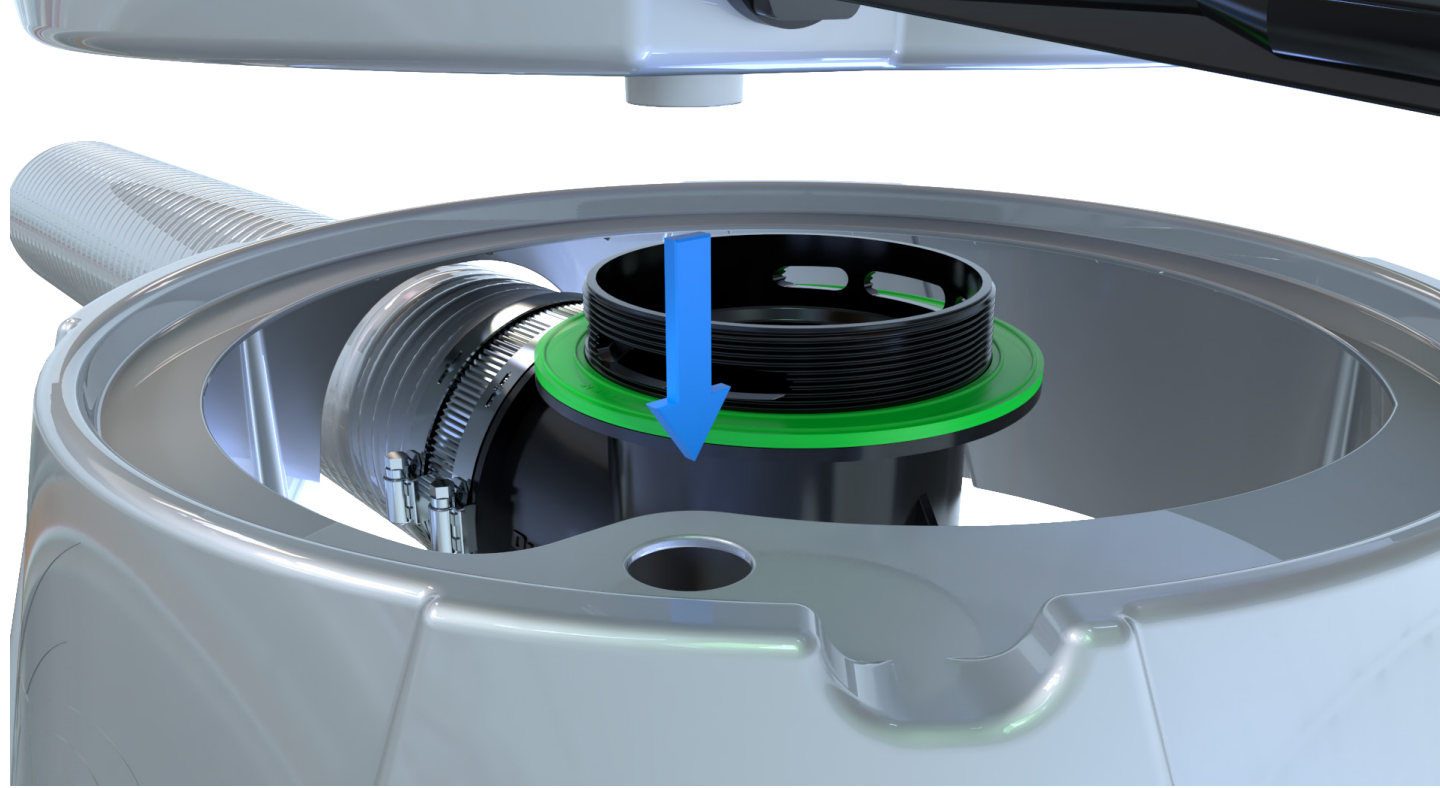
- 10 Ensure the air inlet on each Venturi is tightened. The rubber washer goes on the outside of the pot. The long side points towards the pot and the barbed air inlet points up. There is an arrow on the side of the Venturi to show the direction of flow. The system will not work with the Venturis installed backwards. Use the wrench provided to tighten the nut inside the pot.



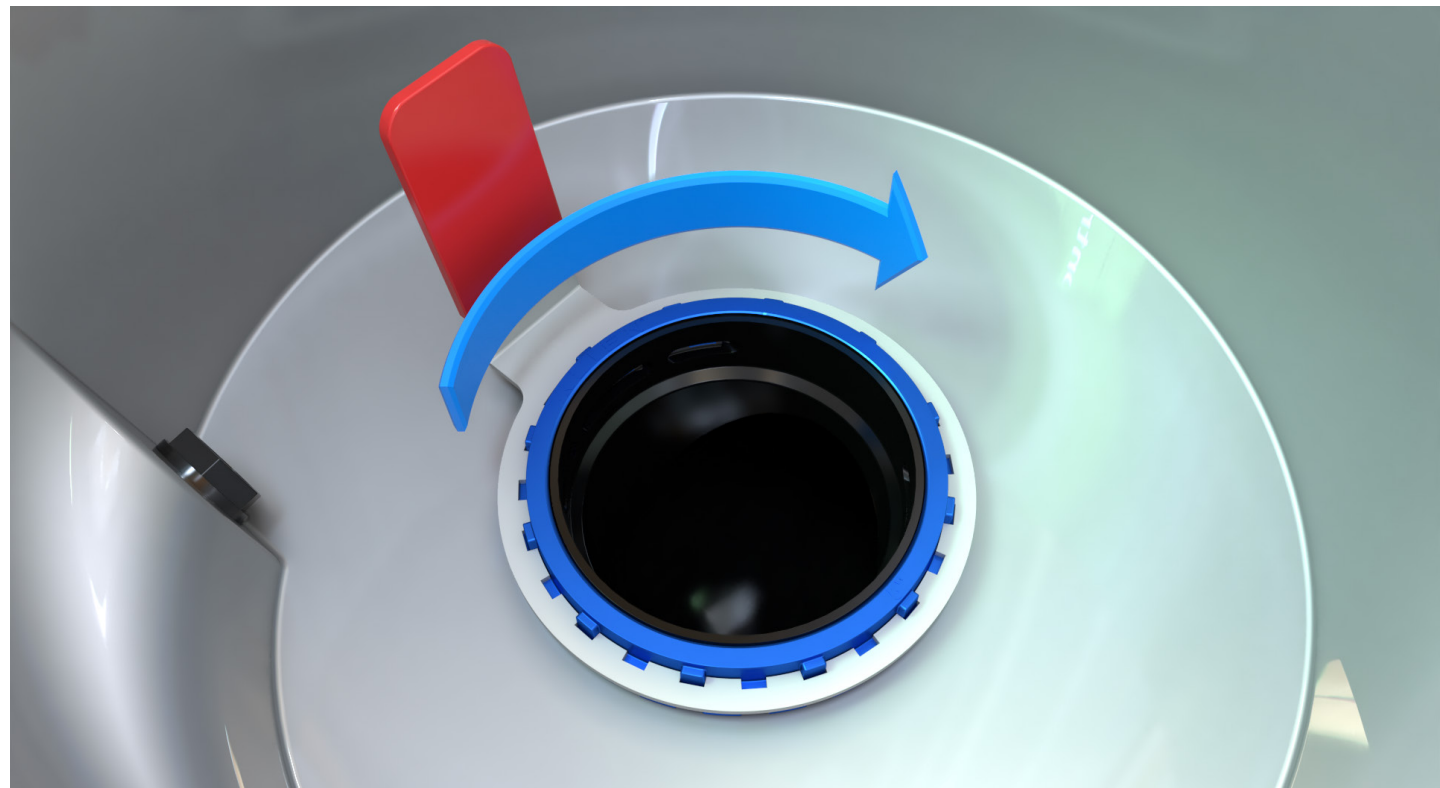
Wrench

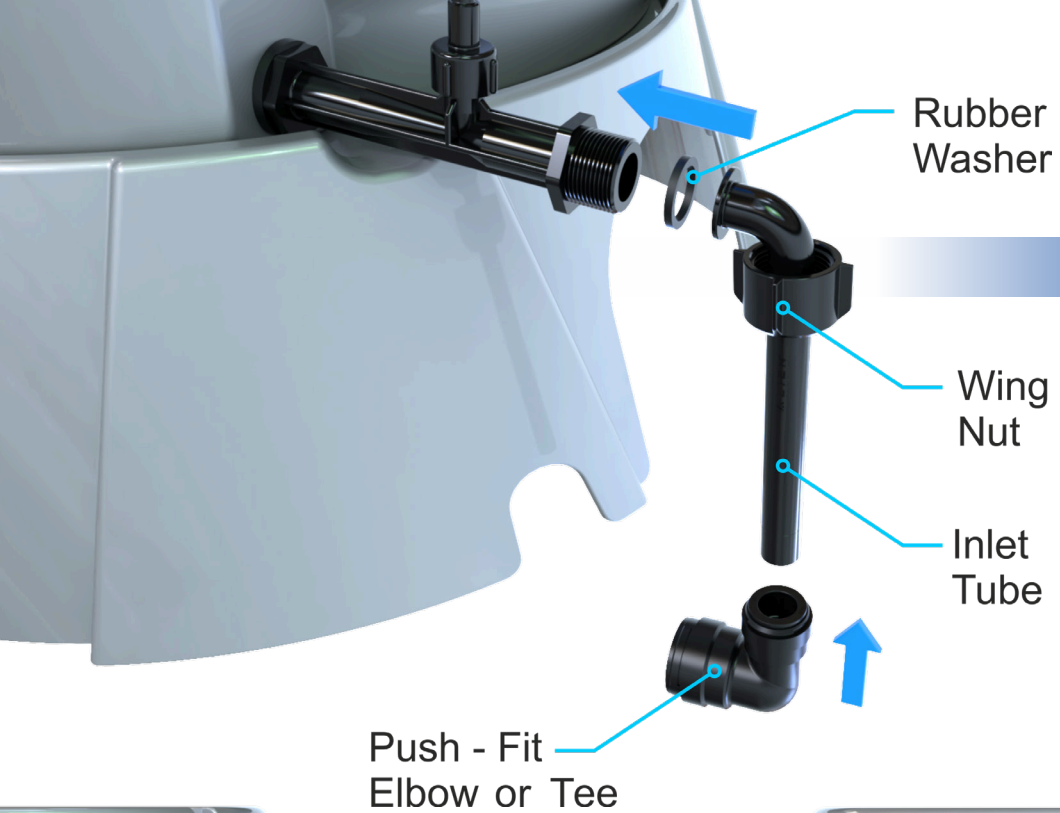


- 11** Put the pots on the stands using the locating hole in the base. Ensure the pot is fully seated on the base.



- 12** Screw the blue 5" nuts on inside the pot and tighten with the nut wrench provided. **Be careful- the wrench's teeth are sharp!**

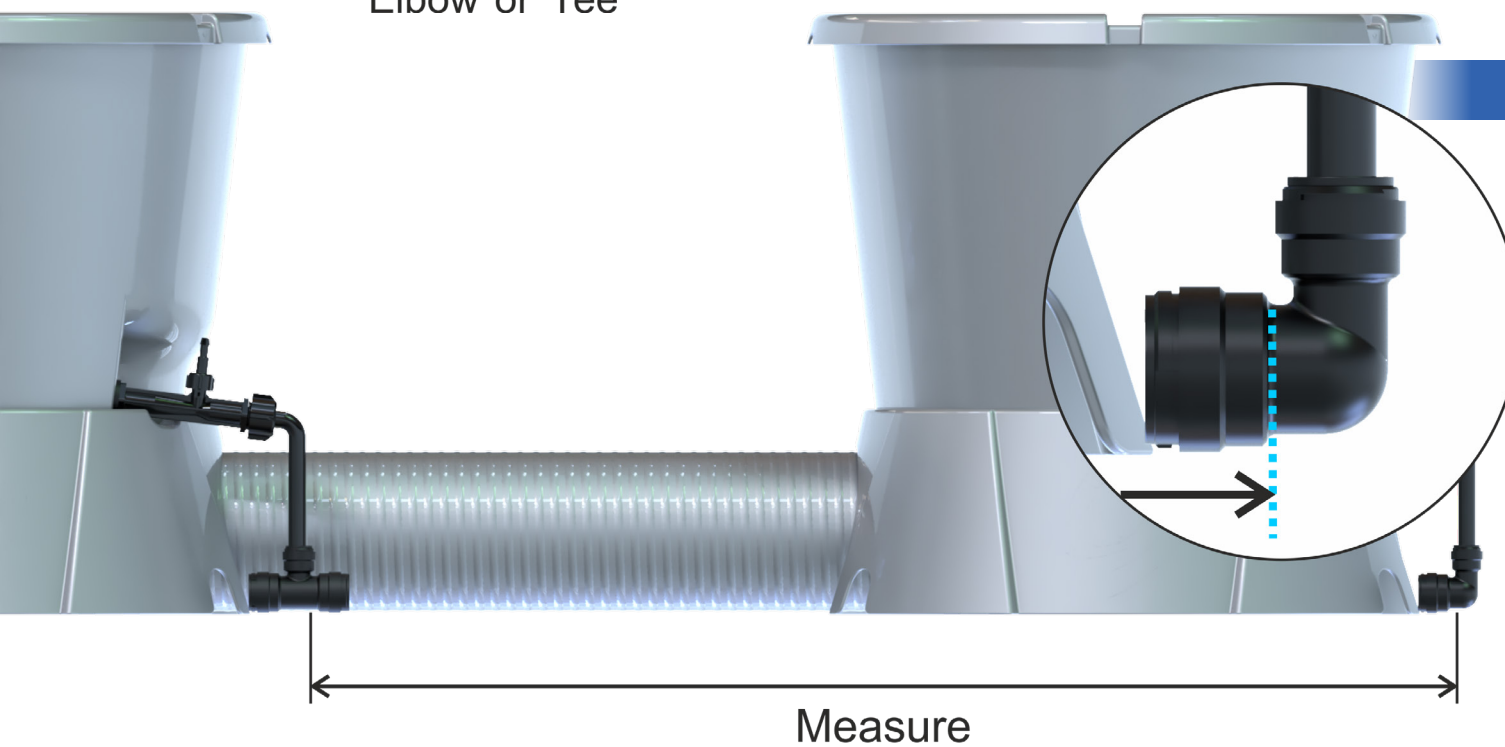




13 Slide the wing nut onto the inlet tube. Place a washer inside the wing nut and screw onto the Venturi.

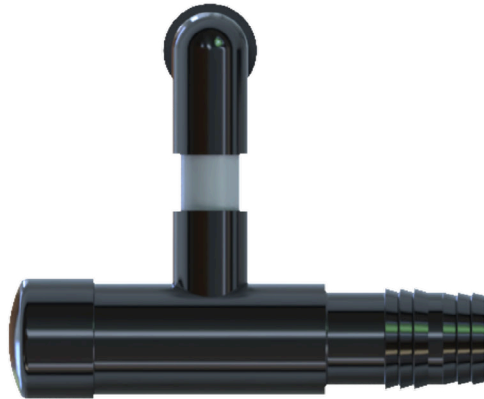
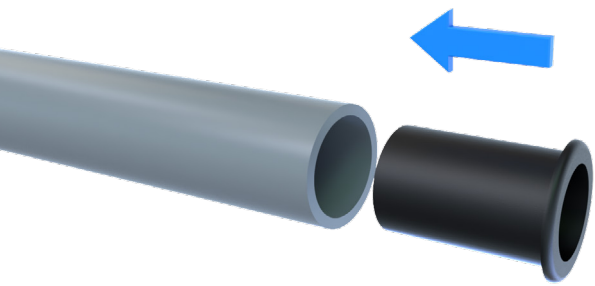
Push the stem of the inlet tube into the push-fit connector.

Reducing elbows go on the end of a row's lines and tees on all the rest.

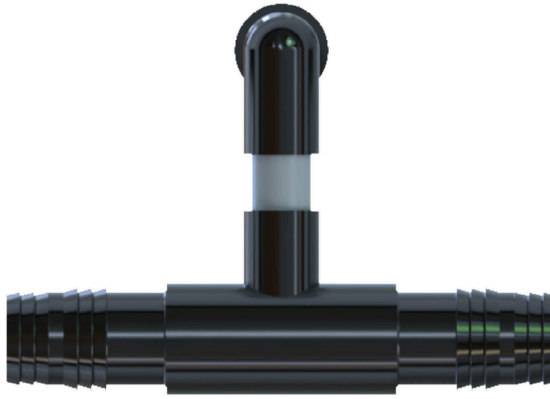


14 The push-fit connectors are joined with the rigid 22mm diameter grey pipe. Take the measurement as shown for cutting.

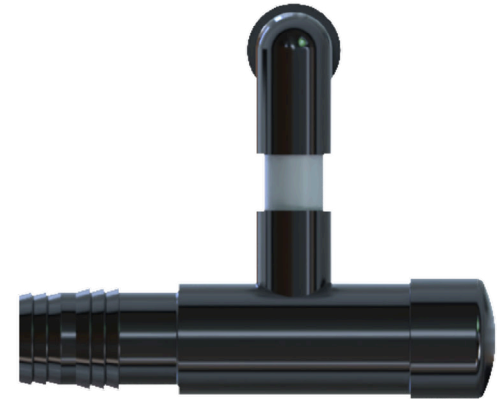
15 Cut the pipe and push an insert into each end of the pipe.



Left Terminal

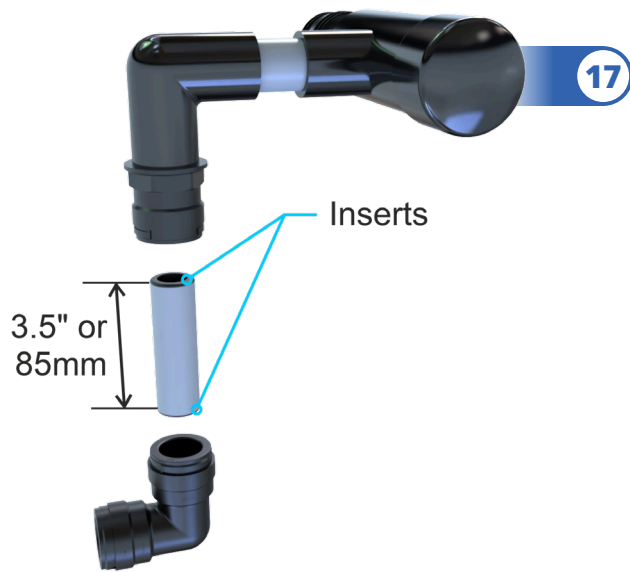
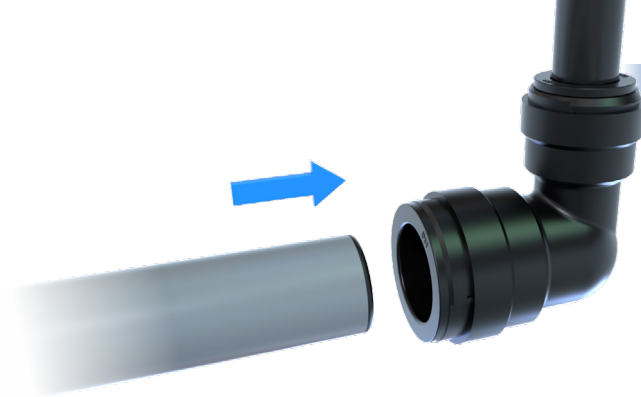


Center Terminal

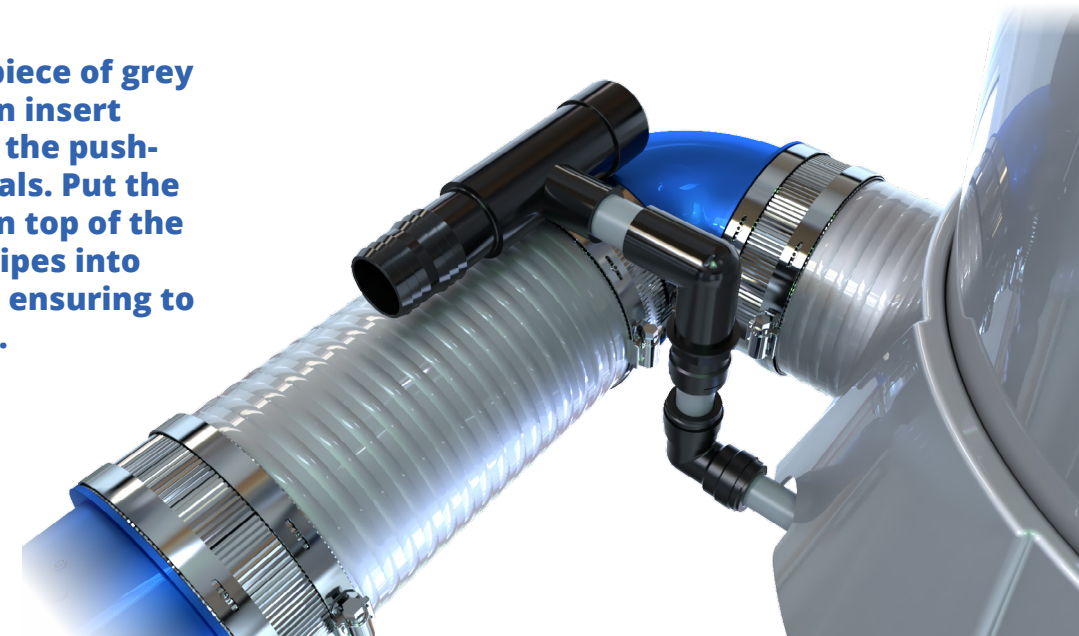


Right Terminal

16 Fit the pipe to the push-fit connections ensuring to push all the way in.



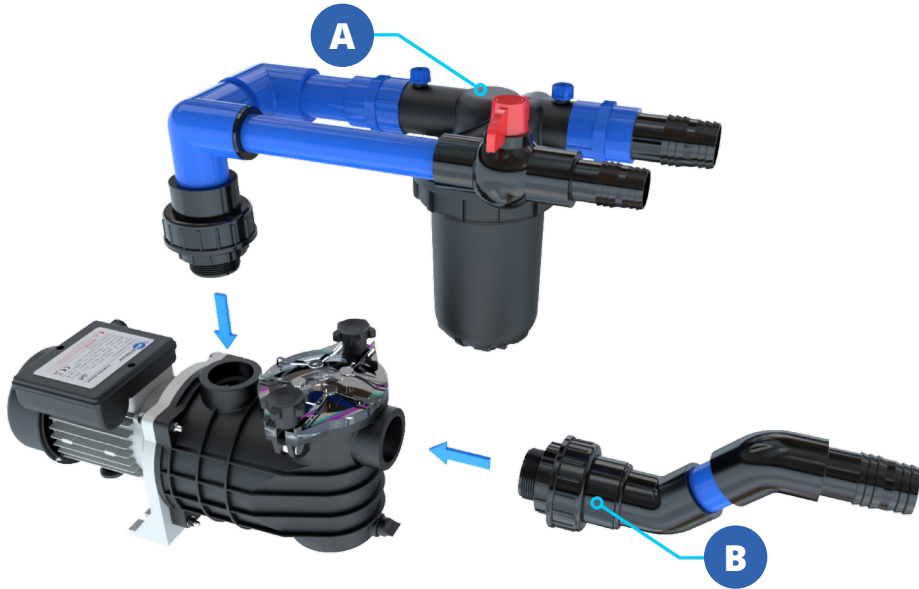
17 Cut a 3.5 inch or 85mm piece of grey rigid 22mm pipe. Push an insert into both ends. Connect the push-fit elbows to the terminals. Put the terminal into position on top of the manifold. Fit all 22mm pipes into the push-fit connectors, ensuring to use inserts in both ends.



18 Fit the filter manifold and inlet to the pump. Unscrew the union on each manifold, then screw the threaded side of the union into the pump and re-connect the union.

A Filter manifold with union

B Inlet manifold with union



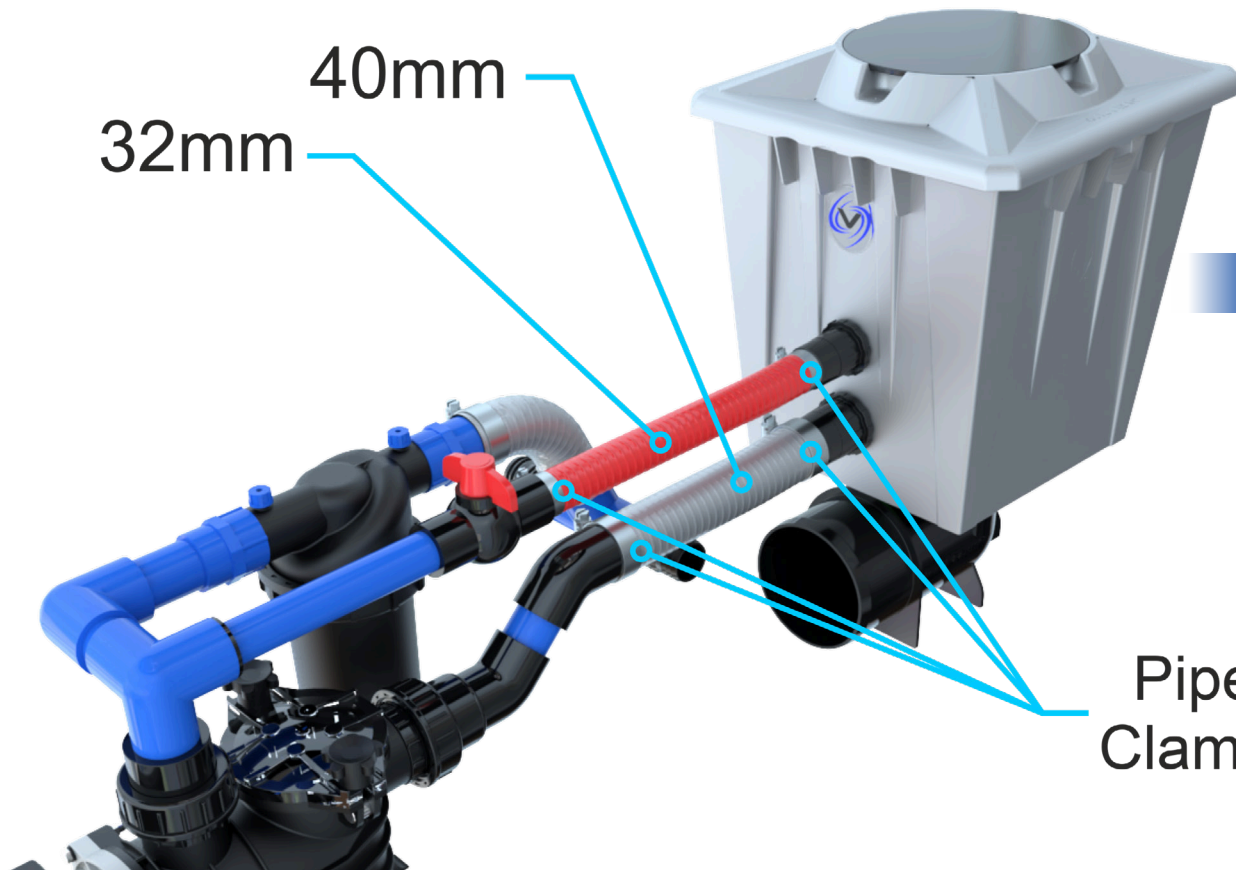
19

Fit the tank connectors to the header. The smaller 32mm goes above the 40mm. One washer inside and one outside. Hold the threaded fitting on the inside and tighten the outside by hand.

Fit the header to the 5" Dual-Flow elbow, with the green washer on the outside and nut inside; tighten with the 5" wrench.



40mm
32mm



Pipe
Clamps

20

Connect the pump to the header using 40mm diameter silver and 32mm diameter red pipe- slide the pipe clamps on before fitting the pipe. Note that the red pipe gets the 2 smaller clamps and you may need to loosen these a bit before sliding over the pipe. Warming the pipe ends in warm water or using a tiny bit of silicone grease makes the pipe easier to fit.

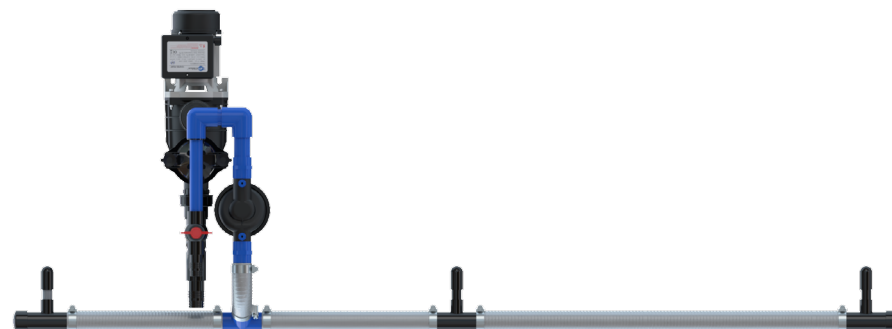
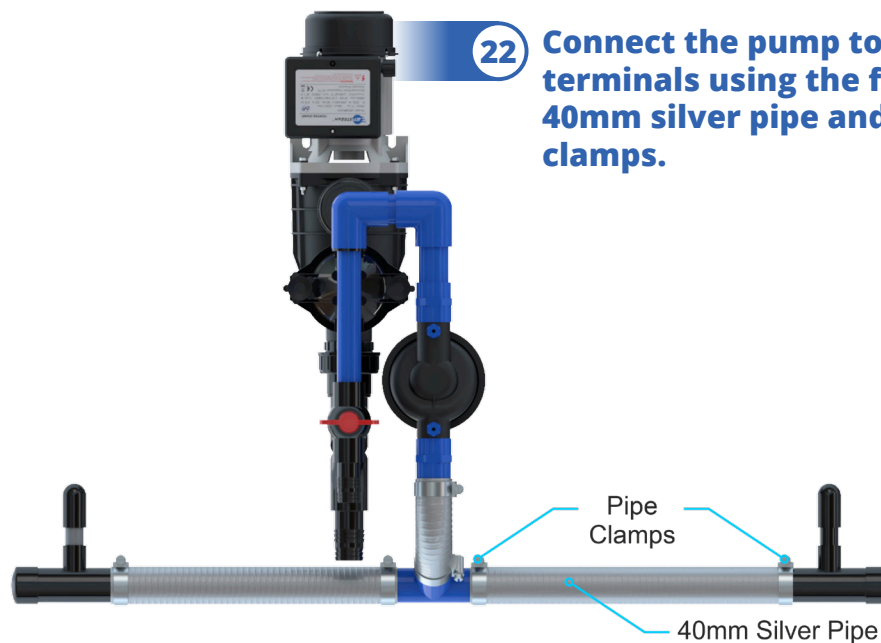
Place the header lid and blank on the header pot.

21 Connect an un-cut piece of 40mm pipe to the barbed fitting on the filter and secure it with a pipe clamp. Warm the ends of the pipe or use a tiny bit of silicone grease to allow easy fitting.

Place the distribution tee on top of the 5" pipe manifold between the other terminal fittings and use it to mark where the other end of the 40mm pipe needs to be cut to fit over the barbs on the distribution tee. Cut and secure the pipe to the distribution tee with a pipe clamp as shown.



22 Connect the pump to the terminals using the flexible 40mm silver pipe and pipe clamps.



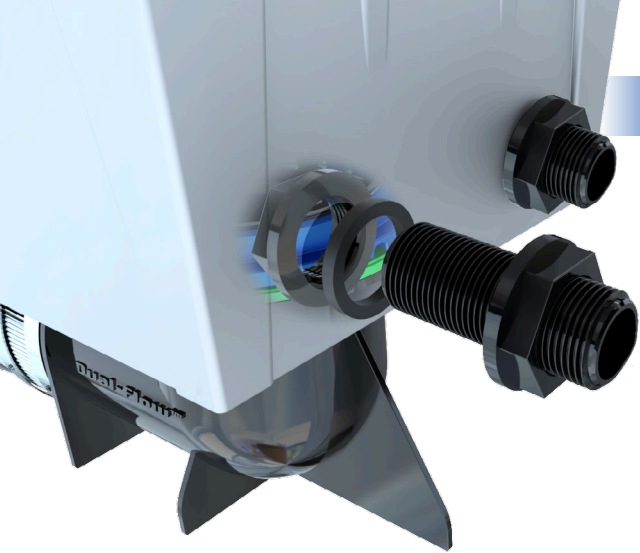
VENTURI AIR SUPPLY



The Venturi air supply line must be set up with the air filter securely in the clip held at the top of the pot to prevent nutrient solution from leaking if the pump is not running.



25 Place the lids, net pots and inspection covers on the pots.



26

Install the threaded chiller fittings & washers from the outside of the header pot.

Tighten the nut on the inside with the wrench provided.



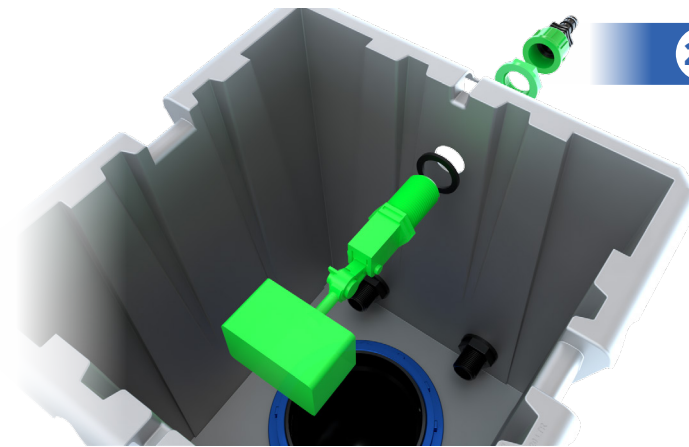
If a water chiller is not being installed simply fit the caps provided. They can be fitted to the inside or outside.



27

Install the water chiller and pump as shown. (not included)

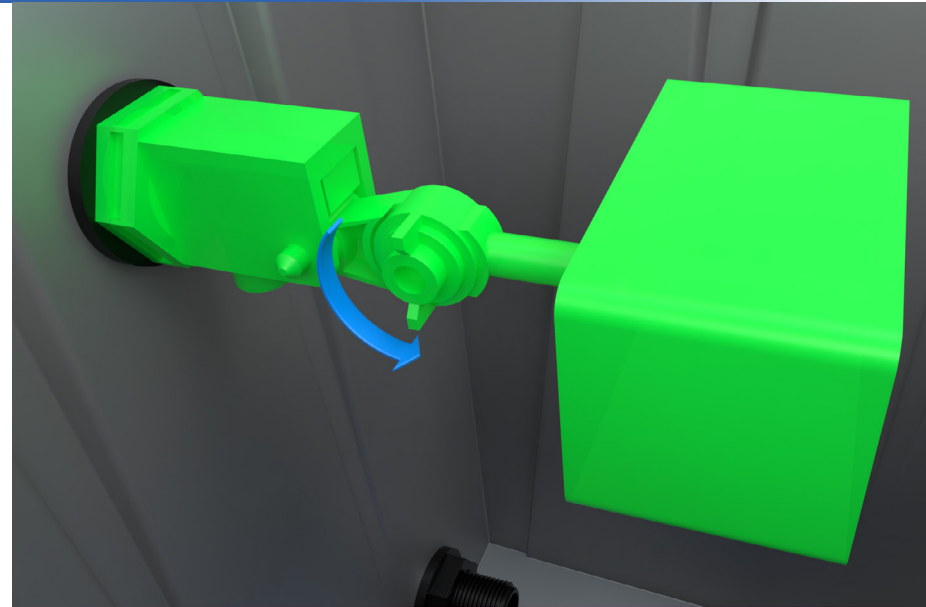
The threaded chiller fittings are standard 1" pipe thread.



28

Install the float valve in the header pot with the washer on the inside of the pot. Tighten the nut on the outside of the pot. Install the hose barb connector if desired.

FILLING THE SYSTEM



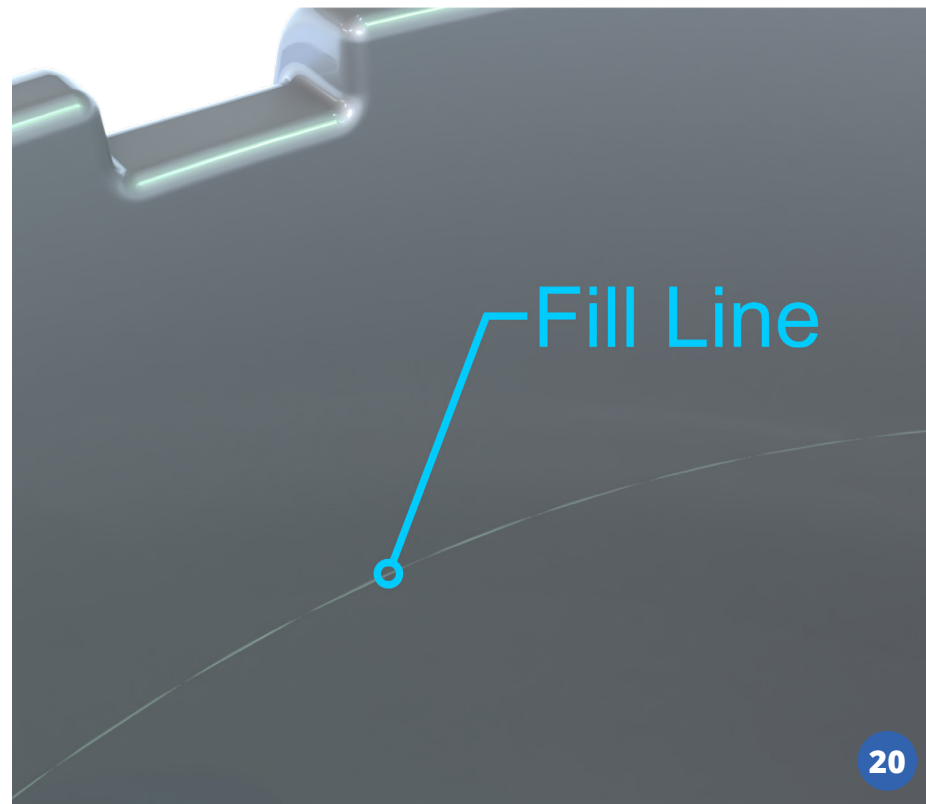
The system is ready to fill with water. Double check that the nuts on all pots, Venturis and pipe clamps are tight, and that the drain tap valve is closed.

- 1 Loosen the pump filter lid. This will let air escape as the system fills.
- 2 When the water reaches the top and begins to overflow, tighten the lid.
- 3 Fill the system until the water reaches the fill line marked on the inside of the pots.

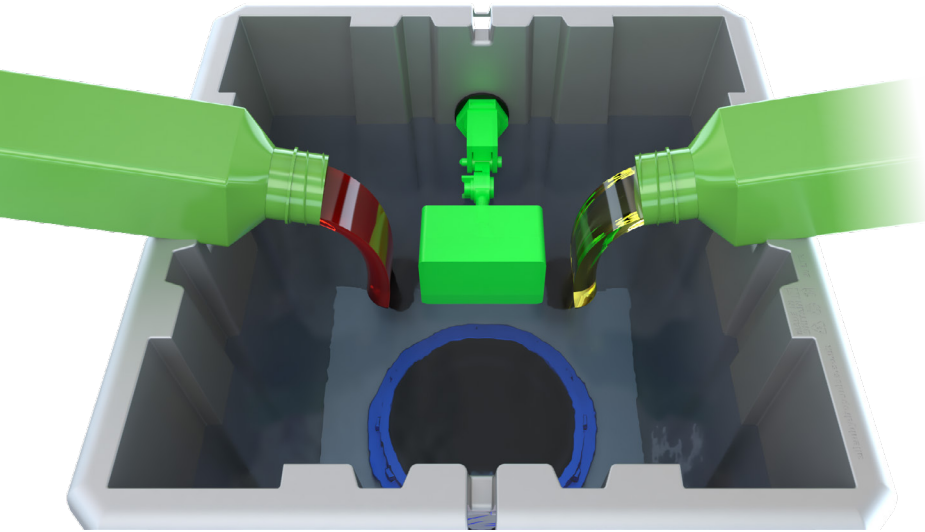


If the plants you are transplanting into the system have zero roots protruding the net pot, fill 3/4" / 2cm above the 'fill line' to avoid the plant roots dehydrating.

The float valve is adjustable to allow the set fill level to be maintained.

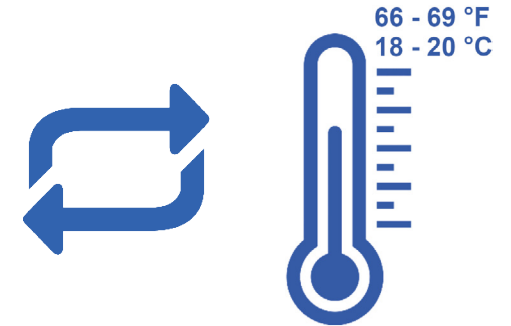


ADDING NUTRIENTS



This can be done by pouring equal amounts of A&B into the header. This will immediately mix in the water pump and be distributed to each pot simultaneously. If plants are present in the system add the concentrated nutrients slowly to avoid shock.

Let the system recirculate for some time before taking a reading. Adjust accordingly. Do the same for PH adjustments. Ideally let the system recirculate overnight to allow the water to reach a habitable temperature for the plants. Cold water can shock plants.

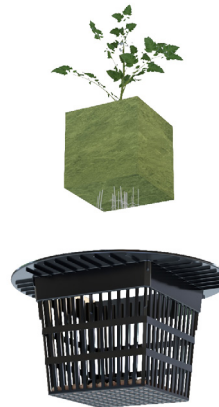


PLANTING INTO THE SYSTEM



1

Put a layer of substrate into the bottom of the net pot level with the raised grid.



2

Water the cutting before transplanting. Place the rooted cutting into the pot.



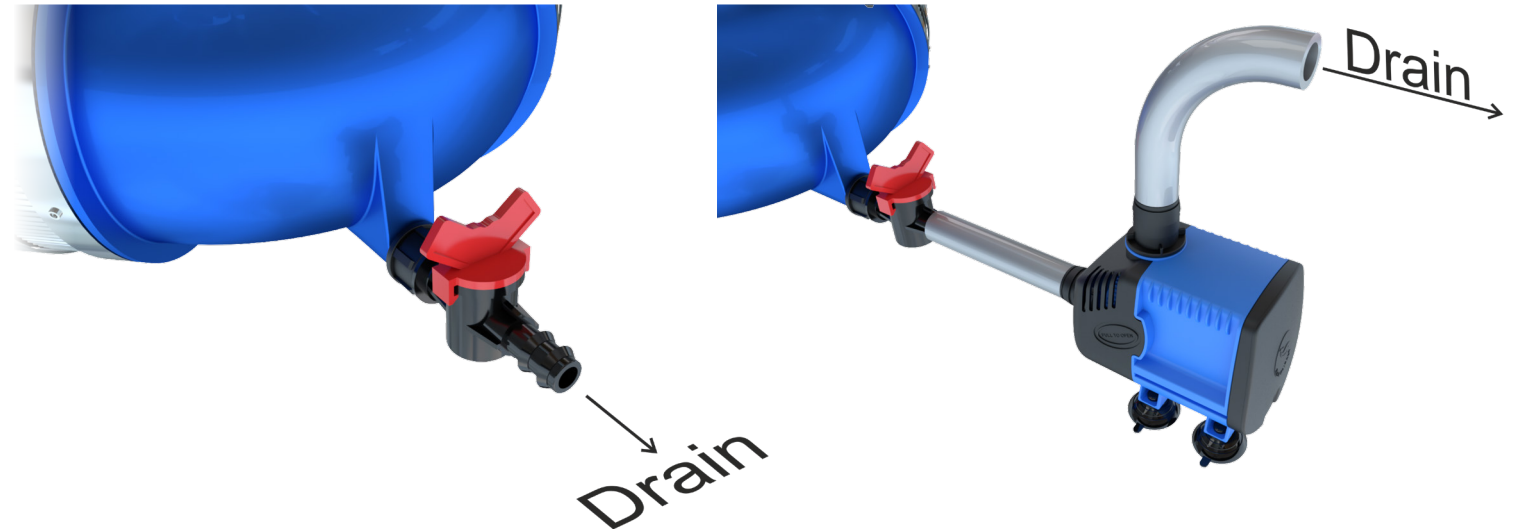
3

Fill the remaining void with substrate.

NUTRIENT CHANGE-OUTS

The nutrient solution should be drained and replaced every 7-10 days. The drain tap can be opened to allow gravity to drain down or a water pump can be connected.

A 5/8" / 16mm inner diameter tube can connect to the drain barb.



ROOT ROT X™

Fill the system with Ph'd water only and dose with Root Rot X. Allow the system to recirculate for 3-12hrs. This process can be done at the end of a light cycle to allow the system to recirculate overnight with Root Rot X before adding nutrients. This will dissolve any biofilm present on the inside of pots, pipes, fittings and filters and also sterilize the roots to help prevent disease. This process is important to keep the system and Venturi's performing at their best.



FILTER CLEANING

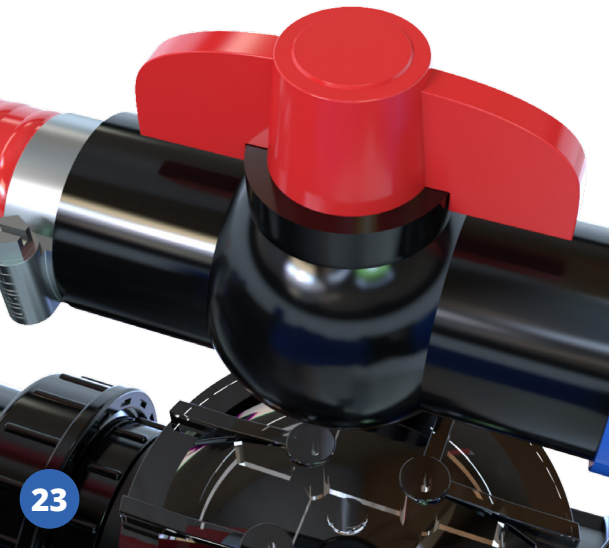


The water pump has a basket filter which catches larger debris. The secondary in-line filter has a fine mesh filter to remove smaller debris and organic matter.

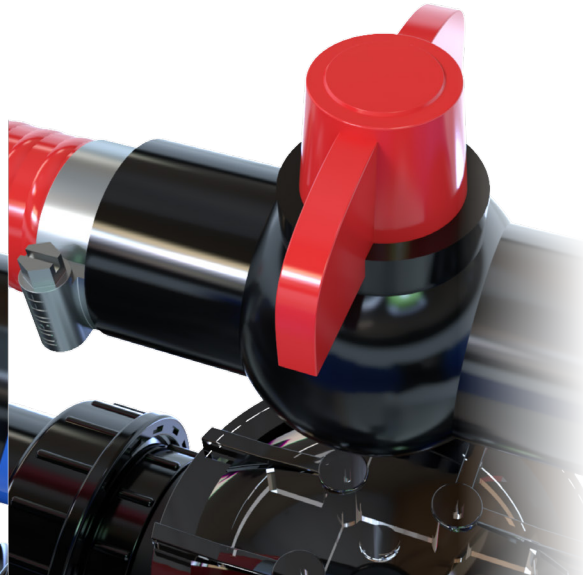
Both filters should be checked and cleaned when the system is empty, ideally every time when performing a nutrient change.

PRESSURE RELEASE VALVE

Open
Position



Closed
Position



The fully closed position will provide maximum pressure to the Venturis. Slightly or fully opening the valve will reduce pressure and also decrease the sound of the aeration inside the pots.

TOP-UP TANKS



The system can be used without a tank but will require regular top ups in the flowering stage. The float valve in the header pot can be connected to any tank or water butt to maintain fluid levels. The tank should be raised to allow gravity to deliver nutrient solution to the header pot. A CAMO® Tank can be used, however there is no stand available for it (illustration only). The water butt and conical tank shown are examples and are not supplied by ALIEN®. The system itself holds a lot of water so a tank probably won't be necessary for small plants in the vegetative stage.

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