



## **IWS FLOOD AND DRAIN INSTRUCTIONS**

The IWS Flood & Drain System is a highly developed hybrid ebb and flow system which works by flooding from the bottom of each individual pot. The system uses gravity to send water to the pots and only uses pumps to fill and drain the main 25 litre control bucket. This has two magnetic float valves mounted inside to control the power to the pumps. These floats precisely control the flood level in the growing medium to stop any over watering or flooding. As the water is forced through the growing medium it forces out all the stale air in the medium surrounding the root ball and as it drains away replacing it with fresh oxygen.

The pots are made up of three parts:

1. A stand with a pre-set height and a 10 degree slope which allows all the water to drain back to the main control tank which will then pump it to either waste or back to your reservoir to be recalculated.
2. A base pot which incorporates a patented water tight sealing gland through which the nutrient is delivered to the plant.
3. A separate drain pot with 10mm machined holes in the bottom of the pot to allow even and controlled flooding of the growing medium also the pots can be removed with the plant intact without damaging the roots. The IWS timer is made up of two parts the Grasslin segmental timer and the minute timer. The Grasslin timer tells the brain when to start a feed and the minute timer then reduces it to however long you have set the time for. This will send power to the pump in the main tank which will turn on (indicated by the green light) filling the brain pot. As this fills, the pressure of the water forces itself down the pipe work and into the pots filling the medium from below. As equal pressure is gained the water in the brain pot will rise and lift the float valve turning the pump off, the brain will refill the pot as the medium soaks up the water until the time set is reached. The pump in the brain pot will kick in and drain the system back to the main green tank. It will remain set in drain mode until the next feed.

Congratulations on your purchase! Here's some more good news - setting up your IWS Flood & Drain System is easy! You should be ready to go in well under an hour.

Before you get started, please check that you have all the necessary parts:

- 1 x nutrient tank with lid (please note there are different sizes of tank depending on the number of pots you have)
- Maxi jet pump (connected inside the nutrient tank)
- Brain pot (with fixed pump inside) and lid
- IWS flood & drain timer
- Inner pots (holes in the base)
- Outer pots (solid base)
- Pot stands
- 6 elbow fitting hose connectors (one for each end system pot)
- Tee fitting hose connectors (one for each middle line pot)
- 6 hose connectors (for brain pot)
- Sealing glands for each pot

- Black hosepipe - enough hosepipe is supplied to give you 1 metre for each pot
- There's also a plastic tap attachment to modify your nutrient tank - however this is not required to set up the system.

The quantity of certain items in each kit varies depending on the pot system you have purchased - see table below for the exact number of components in each pot system. If you think something is missing please contact your retailer.

IF YOU THINK SOMETHING IS MISSING PLEASE CONTACT US.

#### 6 POT SYSTEM

- 100 litre tank with pumps
- Brain pot with timer
- 6 stands and pots
- 6 elbows
- 10 metres of hosepipe

#### 12 POT SYSTEM

- 220 litre tank with pumps
- Brain pot with timer
- 12 stands and pots
- 6 elbows & 6 tees
- 15 metres of hosepipe

#### 24 POT SYSTEM

- 220 litre tank with pumps
- Brain pot with timer
- 24 stands and pots
- 6 elbows & 18 tees
- 30 metres of hosepipe

#### 36 POT SYSTEM

- 350 litre tank with pumps
- Brain pot with timer
- 36 stands and pots
- 6 elbows & 30 tees
- 45 metres of hosepipe

#### 48 POT SYSTEM

- 350 litre tank with pumps
- Brain pot with timer
- 48 stands and pots
- 6 elbows & 42 tees
- 60 metres of hosepipe

Before we get started, you may also find the following items useful:

- A sharp knife or a pair of scissors.
- A cup of hot water.
- An adjustable spanner is also handy for ensuring all nuts are really tight.

Ok, let's get on with it....

## **IWS Flood & Drain System Instructions**

1) Choose where to grow! Find a suitable area in which to install the IWS Flood & Drain System. You are going to need access to one additional nearby electric point.

2) Position the nutrient tank. Once you have selected a space, place the nutrient tank at one end.

Remember that it will need to be easily accessible.

3) Connect the nutrient tank to the brain pot. Locate the two pipes labelled 'fill' and 'drain' coming out of the nutrient tank and connect them to the corresponding nozzles on the brain pot. You will need to soften the ends of the pipes in a cup of hot water so they slide on easily. Rotate the elbow connected to the 'fill' hose inside the brain pot so that it is pointing sideways as not to flow water over the pump which may cause air blockages. If you get an air blockage, turn the pump sideways while under water - this will release air from the pump.

4) Connect the nutrient tank pump's power lead to the brain pot. Plug the three pin connector into the side of the control box on the brain pot. Ensure the nutrient tank pump remains positioned at the bottom of the tank.

5) Connect the IWS flood & drain timer to the brain pot. Plug the seven pin connector into the front of the control box on the brain pot.

6) Create a watertight fitting on each outer pot. Take a sealing gland and unscrew the smaller end nut, then remove one of the two rubber sealing washers. Now, carefully screw the sealing gland through the hole in the outer pot so that the narrower end is on the inside. Replace the washer on the narrow end of the sealing gland. There should now be a rubber sealing washer on the 'inner' and 'outer' sides of the pot. Finally, screw the end nut back on. Tighten on both sides to create a watertight fitting.

7) Position the pots. Imagine the final desired size of the plants and space the pot stands appropriately.

Next, sit the outer pots on the pot stands.

8) Fit the elbow and tee connector to each outer pot. Loosen the sealing gland outer nut on each of the outer pots. Insert the tube of the elbow or tee through the sealing gland, into the pot, as far as it will go, and then trim back the pipe with a knife up to the flange of the sealing glands. Remember to use all six lanes from the brain pot where possible to allow quicker floods and drains. E.G a 12 pot system would be 2 pots on each lane using a tee to connect through to the elbow which would act as your stop end. Rotate the elbow and tee connector so that it lies horizontally, facing towards the brain pot.

Re-tighten the outer nut.

9) Fit the hose connectors to the brain pot. (Similar to the last step) Loosen each of the six outer nuts on the brain pot. Insert the tube end of each hosepipe connector as far it will go and re-tighten the outer nut. No need to trim back these pipes.

10) Connect the brain pot to each of the outer pot. You will need to cut the black hosepipe to various lengths depending on the distance between each pot and the brain pot. Leave some slack so that you have a little room for manoeuvre later! Connect each brain pot nozzle to the fitting on the outer pot nearest the brain and work outward to the remaining pots. Remember to first soften the ends of each length of hose in hot water.

11) Fill the inner pots with growing medium and place inside each outer pot.

12) Fill the nutrient tank with water (and nutrients as required). Be careful not to overfill the nutrient tank. Remember the water level must sit below the anti-siphon valve.

13) Set up the IWS flood & drain timer.

a. Set the current time. Rotate the timer's 24hr dial so that the small arrow points to the current time. For instance, if it is 4pm, rotate the dial to '16'.

b. Set the flood duration. For this example we'll set the flood duration to five minutes.

i. Flick the second / minutes switch to 'minutes'.

ii. Turn the "feed time" dial to 5.

c. Set the times when your plants are watered. Push a segment out on the 24hr timer dial corresponding to each flood.

d. Ensure the small switch on the 24hr timer is positioned centrally. This sets the timer to react only to the position of the segments rather than being set to permanently 'on' (1) or 'off' (0).

14) Ok, we're nearly ready to go! Plug the brain pot into the mains electricity. The red power light should be illuminated on the IWS flood & drain timer.

15) Wait for the first feed. When the timer reaches the first watering period the green feed light on the IWS flood & drain timer will switch on and water will start pumping from the nutrient tank into the brain pot. The brain pot fills with water and gravity pushes the water through the hosepipes into each of the six pots. Once the watering is complete both the green feed light and the nutrient tank pump will switch off. The green drain light on the IWS flood & drain timer will switch on as the drain pump in the brain pot starts.

For any further hydroponic information please phone one of our stores or visit [www.3ch.co.uk](http://www.3ch.co.uk)