

# A major advance in drip irrigation using a clay pot

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Subsurface clay pot



Unpowered Valve Box

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# 1. Installation of the Unpowered Valve Box and the subsurface clay pots

- 1 Select a drip irrigation zone where all the plants in the zone have the same irrigation requirement.
- 2 Replace two drippers with subsurface clay pots.



- 3 Connect the clay pot or pots to an Unpowered Valve Box.



- 4 Connect two dripper inside the Unpowered Valve Box.



- 5 Connect the water supply for the zone to the inlet of the Unpowered Valve Box (between 10 kPa and 800 kPa).



6 Connect the irrigation zone to the outlet of the Unpowered Valve Box.



7 Fill the Unpowered Valve Box with water until the float is partially covered.



8 Turn on the water supply and all the plants will be watered automatically without power.

## 2. How to use the Unpowered Valve Box

The Unpowered Valve Box allows you to automatically irrigate your garden using gravity feed from an elevated rainwater tank without using a pump and without power.

Clay pot irrigation of crops can be used for surface and subsurface irrigation using either non pressure compensating (NPC) drippers or pressure compensating (PC) drippers.

The discharge from each dripper can be set to any value between 285 ml and 612 ml

**Using PC drippers on sloping land or NPC drippers on flat land, the interval between irrigation events adjusts automatically to ensure that the discharge from each dripper during an irrigation event is the same as the average on-demand discharge from a subsurface clay pot since the previous irrigation event.**

Table 1 lists the discharge from each dripper during the irrigation event for various settings of the gap between the upper and lower floats.

gap between the upper and lower float	dripper discharge
zero gap	285 ml
3 mm	317 ml
6 mm	350 ml
9 mm	383 ml
12 mm	415 ml
15 mm	448 ml
18 mm	481 ml
21 mm	513 ml
24 mm	546 ml
27 mm	579 ml
30 mm	612 ml

Table 1. Discharge from each dripper during the irrigation event for various settings of the gap between the upper and lower floats

### **3. Key features**

1. Unpowered (no batteries, no solar panels, no electronics, no computers, and no WiFi)
2. Use for gravity feed or pressurised irrigation
3. Use for PC (pressure compensating) dripper or NPC (non pressure compensating) drippers
4. Use for subsurface or surface drip irrigation
5. Use for drip tube or drip tape
6. The water supply pressure should be between 10 kPa and 800 kPa
7. The water usage is controlled by the demand from the plants
8. The discharge from each dripper during an irrigation event is the same as the average on-demand discharge from a subsurface clay pot since the previous irrigation event
9. Adjust the interval between irrigation events by adjusting the float
10. The water usage increases significantly during a heat wave
11. With a continuous water supply, you can leave your irrigation application unattended for months on end