

Lesson 16: Automated Watering

In this lesson, you will learn how to answer these questions:

Why use automated watering?
How do I install automated watering?

Why use automated watering?

Since more than 80% of a plant's weight is water, consistent and adequate watering is essential for healthy plants. If a plant begins to wilt, it has already stopped growing. That's why plants usually require water at least once a day during warm weather and sometimes more often in hot weather.

The aim in watering should be to provide a uniform amount of water at all times. This encourages uniform plant growth day after day. By installing an automated watering system, you can easily and consistently ensure that your plants are getting the water they need. You will also be able to distribute water evenly over the entire growing area so dry spots won't occur.

It's fairly easy and inexpensive to install an automated watering system in soil-beds and grow-boxes. After installing this system, fast-growing plants in soil-beds or grow-boxes can be watered in 30 to 60 seconds, even on low water volume and low pressure.

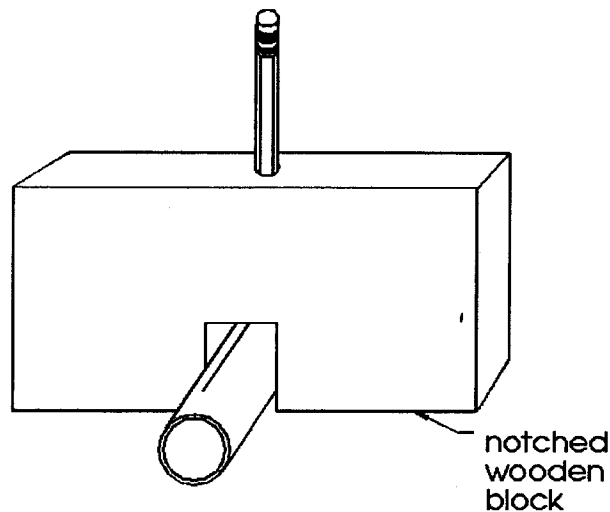
How do I automate watering?

Step 1: Purchase Pipe

Purchase ¾-inch (200 PSI) plastic pipe. Make up lengths 30 feet long (or the length to fit your soil-beds or grow-boxes).

Step 2: Make Three Rows of Holes in the Pipe

Make a simple jig to mark the pipe. Have a helper hold the pipe to keep it from turning. Slide the marking jig down the pipe to make a straight visible line down the full length of the pipe. Then turn the pipe 30° and make another line. Repeat a third time. Mark the pipe on 4-inch centers its full length across the lines.



Marking plastic pipe using a simple jig.

Place a hand-held electric drill in a small drill press and make tiny holes in the plastic pipe. The proper drill size is smaller than 1/16th. It is sold as a no. 57. The holes should be on the pencil lines and the 4" marks.

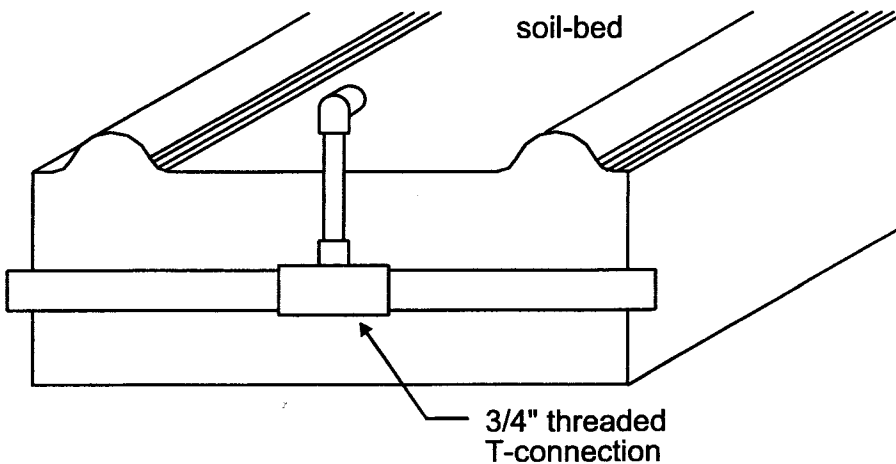
If the soil-beds or grow-boxes are longer than the length of a pipe, glue the pipes together to make the right length before drilling holes in the pipe. Make certain the lines match. The holes in the pipe must be in straight rows or the system will not

operate accurately. Glue a threaded (male) coupling on each end of the drilled pipe. Plug one end with a threaded female cap.

TIP If your soil-beds or grow-boxes are longer than 30 feet, use the no. 57 drill for the first 30 feet and a 1/16th drill for the rest of the length.

Step 3: Plumb and Connect the Water

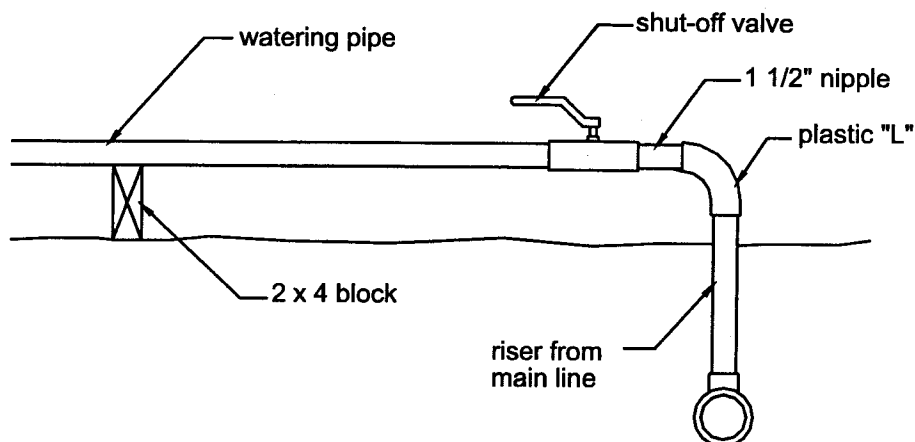
Plumb and connect the water to each soil-bed or grow-box. To do this, dig trenches in the soil and install 3/4" threaded T-connections.



Installing threaded T-connections.

Step 4: Install Shut-Off Valve

Install a "quick shut-off" valve at the end of the soil-bed or grow-box by the water source. Using plastic pipe fittings, plumb the water source two inches above the end of the bed. Install a half-threaded plastic "L." The threaded portion should be female threads.



Shut-off valve assembly.

Step 5: Cover the Trenches

After the main line and risers are connected and glued in place, cover the trenches with soil.

Step 6: Connect Drilled Pipes

Mate the threaded couplings of the drilled pipe with the threaded "L."

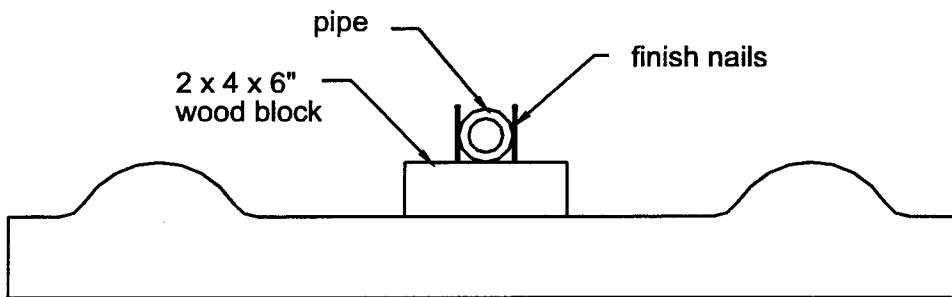
Step 7: Prepare Blocks of Wood

From a 2" x 4" strip of lumber, cut off 6-inch blocks, 5 per 30-foot soil-bed or grow-box. Space them evenly down the center of the row. Lay the blocks across the beds, not length-wise.

Step 8: Attach Watering Pipes

Lay the pipe down the center of the beds on the 2" x 4" blocks and thread each into its water source. Turn the holes in the pipe so the center row faces straight downward.

TIP To keep the pipe positioned on the blocks, drive two 1 ½" finish nails into the center of the block 1" apart.



Drilled pipe should rest on 2 x 4 x 6" wooden blocks.

Refer to the scale drawing of your soil-beds or grow-boxes and calculate how much pipe and the number and kinds of fittings you will need to automate the watering in your garden.



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