

# FREE INSTALLATION GUIDE

The best way to water plants, trees, shrubs, hanging baskets, and gardens



#### WHAT IS DRIP-IRRIGATION?

A Drip-Irrigation system is a watering system designed to apply water to designated areas, such as gardens, flower beds, container plants, trees, and ground cover.

### WHY INSTALL A Drip-Irrigation System?

- Saves Water—Water is delivered directly to the roots
- Saves Money—Up to a 70% reduction in water waste, resulting in lower water bills
- Saves Time—Replaces hand watering
- Healthier Plants—Plants flourish when receiving the precise amount of water
- Less Yard Maintenance—Delivers water to the plants, not to weeds



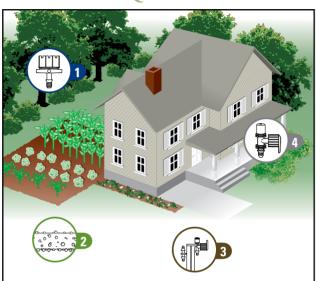


#### **TABLE OF CONTENTS**

Section 1
Before You BeginPage 4
SECTION 2 Water Sources Page 5
SECTION 3 Connecting to a Hose FaucetPage 6
SECTION 4 Common Hose Faucet Projects Potted/Hanging PlantsPage 8
Ground Cover & Flower BedsPage 10
Small Trees & ShrubsPage 12
Section 5 Retrofit—Connecting to an Underground Sprinkler System
SECTION 6 Common Retrofit Projects Container Plants and Shrubs
Flower Beds, Ground Cover, Shrubs, and Large Plants
SECTION 7 Direct Connection to an Irrigation ValvePage 22
Section 8 Common Projects Gardens Page 23
Desert LandscapingPage 25
SECTION 9 Orbit DripMaster Parts ListPage 29

3

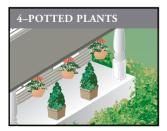
## IDENTIFY PLANTS WITH SIMILAR WATERING REQUIREMENTS







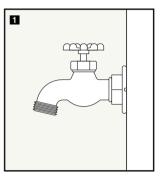


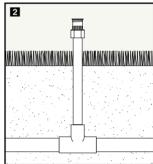


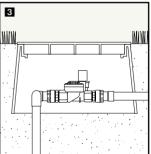
#### WATER SOURCE AND PRESSURE

Water Source—Drip-Irrigation Systems can be connected to any of the following water sources. Select the best option for you.

- Outside Hose Faucet
- **■** Existing Underground Sprinkler System
- **■** Direct Connection to an Irrigation Valve







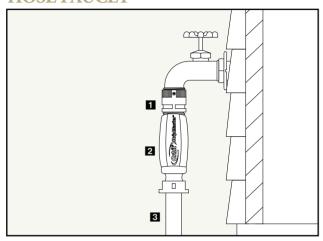
Water Pressure—Obtain a water pressure gauge (available at most home improvement stores) and attach it to your source of water. Drip-Irrigation systems are designed to operate between 15–35 PSI (high water pressure may cause system failure).

#### PROCEED TO THE APPROPRIATE SECTION

- 1. For Hose Faucet Connection—proceed to the next page.
- 2. For Connection to Existing Underground Sprinkler
  System (Retrofit)—proceed to page 14.
- 3. For Connection to a Designated Irrigation Valve—proceed to page 22.

3

### CONNECTING TO AN OUTSIDE HOSE FAUCET



An outside hose faucet is one of the simplest ways to connect your Drip-Irrigation system.

TIP—For complete hands-free watering, install an Orbit Electronic Hose Timer to the hose faucet prior to connecting your Drip-Irrigation system.



### The following items are recommended for your hose faucet Drip-Irrigation system:

#### 1 Anti-Siphon

Prevents contaminants from entering your drinking water supply. (Required in most areas). (part # OP-67750)

**2** 3-in-1 Drip Faucet Connection A Pressure Regulator (25 PSI), Filter,

and 1/2" Drip Tubing Adapter in one. (part # OP-67739)



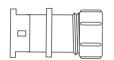
**3** Distribution/Supply Tube The main supply line that feeds water to the Drip-Irrigation system.
Distribution Tube may be installed either above or below ground.
(part # DR-67346-69346) TIP— To make installation easier, allow the ½" Distribution/Supply Tube to sit in the sun and soften prior to installation.

#### 4 Tube End Cap

Plugs the end of the ½"
Distribution/Supply Tube and serves as a drain for the Drip-Watering system. (part# OP-67462)



Important: Check local code requirements prior to installing any watering system.



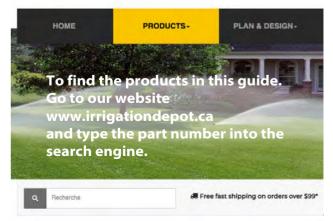
4

#### **COMMON USES FOR DRIP-IRRIGATION**

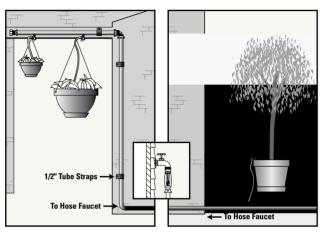
- 1. Potted/Hanging plants—page 8
- 2. Ground Cover and Flower Beds—page 10
- 3. Large Plants, Small Trees & Shrubs—page 12

Select the application that best matches your needs.





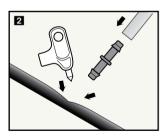
#### **POTTED / HANGING PLANTS**

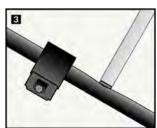


Note: Steps 1-3 apply to both potted & hanging plants

- **Distribution/Supply Line**—Place the ½" Distribution/Supply Line close to your Potted or Hanging Plants. Use ½" Tube Straps to secure the Tube and install a ½" End Cap.
- **2** Hole Punch—Punch holes in the ½" Distribution/Supply Line for each container or hanging basket. Next, insert ¼" Barbed Couplers into each hole.
- 3 Connect ¼" Distribution/Supply Line to each exposed Barbed Coupler and run the Distribution/Supply Line to each container/basket. Use ¼" Tube Straps to hold in place.

IMPORTANT: A single ¼"
Distribution/Supply Line should not
exceed 30'





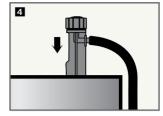
#### FOR POTTED PLANTS

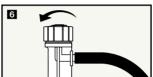
- 4 Attach Multi-Stream Drippers to each ¼" Distribution/Supply Line and insert stake next to each plant.
- **5** Remove the ½" End Cap and turn on water to flush system; replace cap.
- **6** Adjust water flow by twisting the top of the Multi-Stream Dripper.

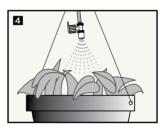
#### FOR HANGING PLANTS

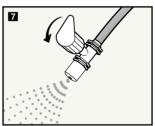
- 4 Attach Adjustable Flow Mist Sprayers to each ¼" Distribution/Supply Line and aim sprayer into the hanging basket.
- **5** Continue running lines to each hanging basket until the system is completed.
- 6 Remove the ½" End Cap and turn on water to flush system; replace cap.
- **7** Rotate the flow control knob on the Mist Sprayer to adjust flow rate.

IMPORTANT: The maximum recommended number of Multi-Stream Drippers and Mist Sprayers per ½" supply line is 15.





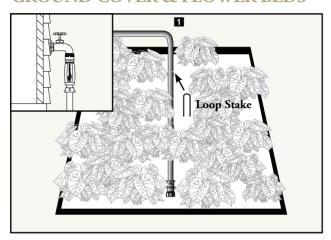




#### Supplies needed

- 1/2" Tube Straps (part # DR-65716-10)
- 1/4" Tube Straps (part # DR-65715-20)
- 1/4" Distribution/Supply Tube (part # DR-69301-07301)
- 1/4" Barbed Couplers (part # DR-40935-10 or DR-97150-10)
- Stake with Multi-Stream Dripper (part # 66105, 67105 or 68105)
- Adjustable Flow Mist Sprayer (part # DR-66190)
- Punch Tool (part # DR-10397-42315)

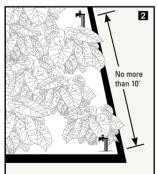
#### **GROUND COVER & FLOWER BEDS**

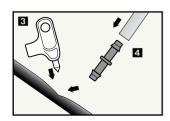


- Distribution/Supply Line—Lay the ½" Distribution/Supply Line down the center of the Flower Bed or Ground Cover and install a ½" End Cap. Use Loop Stakes to hold in place.
- 2 Low-Volume Sprinkler—
  Following the illustrated example, place Quarter-Spray-Pattern
  Sprinkler Heads in the corners, Half-Spray-Pattern Sprinkler Heads along the sides, and Full-Spray-Pattern
  Sprinkler Heads in the center of your ground cover.

IMPORTANT: Spacing should be no more than 10' from one sprinkler to the next.

**3** Hole Punch—Punch a hole on top of the ½" Distribution/Supply line for each Low-Volume Sprinkler. Next insert a ½" Barbed Coupler into each hole.





4 Connect the ¼" Distribution/ Supply Line to each of the exposed Barbed Couplers and run the Distribution/Supply Line to each sprinkler location. Cut tubing to desired length.

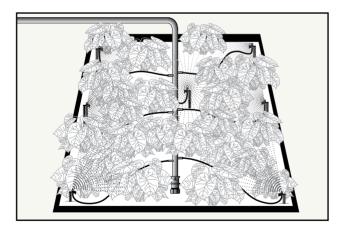
IMPORTANT: Keep Drip-Tubing lengths to less than 30'.

- Attach the On-Stake Low-Volume Sprinkler to each ¼"
  Distribution/Supply Line.
- 6 Remove the ½" End Cap and turn on water to flush system; replace cap.
- **7** Rotate the flow control knob to adjust flow rate.



IMPORTANT: The maximum
recommended number of Low-Volume Sprinklers per ½" supply line is 16 at
medium flow setting (8 at the maximum setting)

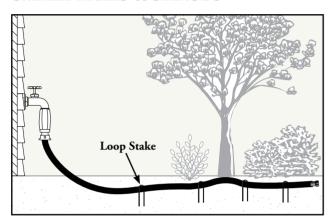
5



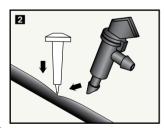
#### Supplies needed

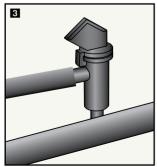
- 1/4" Distribution/Supply Tube (part # DR-69301-07301)
- 1/4" Barbed Couplers (part DR-40935-10 or DR-97150-10)
- Low-Volume Sprinkler on Stake (part # 67135, 67136, 67137 or 67138)
- 1/2" Loop Stake (part # DR-65731)
- Punch Tool (part # DR-10397-42315)

#### **SMALL TREES & SHRUBS**



- **1 Distribution/Supply Line**—Lay the ½" Distribution/Supply Line next to the base of your plants, shrubs, and trees. Install a ½" End Cap at the end of the tubing. Use Loop Stakes to hold in place.
- 2 Hole Punch—Punch holes on top of the ½" Distribution/Supply Line next to the base of each plant, shrub or tree. Insert the barbed end of a 4 GPH Flag Dripper into the hole.
- 3 If needed, attach 1/4" Distribution/ Supply Line to the end of the Flag Dripper and run the 1/4" Distribution/ Supply Line to the plant location.
- 4 Install an insect plug into the end of the 1/4" Distribution/Supply Line.

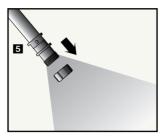


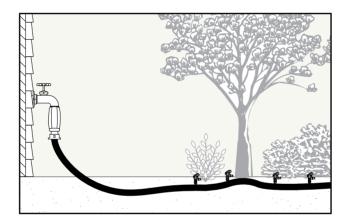




5 Remove the ½" End Cap and turn on water to flush system; replace cap.

Note: If your Drip-irrigation system is being installed on nonlevel ground, replace all 4 GPH Flag Drippers with 1 or 2 GPH Pressure Compensating Drippers to ensure consistent water flow across the entire system.





IMPORTANT: The total number of 4 GPH (Gallons per Hour) Flag Drippers attached to a single ½" Supply Line should not exceed 45.

#### Supplies needed:

- Flag Drippers (part # 65201, 66201 or 68201)
- ½" Loop Stake (part # DR-65731)
- 1/4" Insect Plug (part # 66405 or 67405)
- Punch Tool (part # DR-10397-42315)

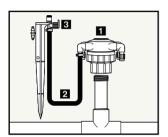
5

### CONNECTING TO AN EXISTING UNDERGROUND SPRINKLER SYSTEM

Connecting to an existing underground sprinkler system (or Retrofit) is a simple way to supply water to your Drip-Irrigation system. Retrofits are commonly used to conserve water by replacing inefficient shrub sprinklers and bubblers.

### Retrofit Drip-Irrigation systems consist mainly of

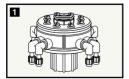
- 1 Manifold—Attaches to a ½" riser and consists of 1 to 8 outlets.
- 2 ¼" Distribution/Supply Line
- 3 Low-Volume Sprinkler, Dripper, or Soaker Tube

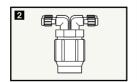


#### **MANIFOLDS**

The main function of a Manifold is to distribute water through ¼" outlets. There are 4 types of Manifolds

- Adjustable Flow Manifolds—Ideal when water system pressures exceeds 40 PSI and where flow control is desired.
- **2** Full Flow Manifolds—Ideal for replacing inefficient shrub heads and bubblers.
- 3 Shrub Adapter—Ideal for micro-sprinklers.
- 4 Riser Adapter Manifolds—Permits Drip-Irrigation without eliminating a sprinkler head.



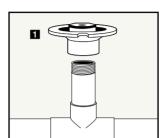


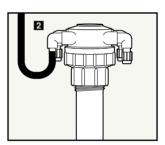


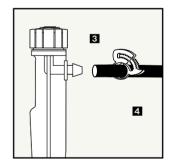


#### INSTALLATION FOR ADJUSTABLE-FLOW, FULL-FLOW, AND RISER ADAPTER MANIFOLDS

- 1 Remove sprinkler head from a ½" Riser and attach the manifold. (For Riser Adapter Manifold, reattach sprinkler head).
- **2** Remove Cap(s) from the <sup>1</sup>/<sub>4</sub>" Barb(s) and insert <sup>1</sup>/<sub>4</sub>" Distribution/Supply Line.
- 3 Attach a Low-Volume Sprinkler or Drip-Irrigation Dripper to the end of the Distribution/Supply Line.
- 4 To avoid high water pressure failure, install a ¼" High Pressure Clamp on all tube connections.
- **5** Position Drip-Irrigation Dripper next to plant.
- **6** If applicable, adjust flow-control knob for desired flow rate.









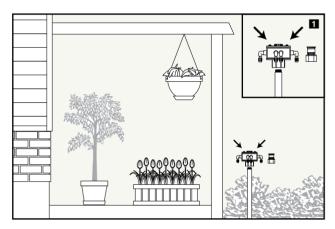
#### **COMMON RETROFIT PROJECTS**

- 1. Container Plants and Shrubs—page 16
- 2. Shrubs and Large Plants—page 19

#### **CONTAINER PLANTS AND SHRUBS**

#### Replacing hand watering with Drip-Irrigation

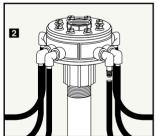
- Connect an 8-Port or a 4-Port Adjustable Manifold to an exposed shrub riser. If a vacant riser is not available, use a Saddle Adapter to connect to the sprinkler line.
- 2 Remove Caps and attach ¼" Distribution/Supply Line to each ¼" Barb.



3 Run each ¼" Distribution/ Supply Line to each container. Use ¼" Tube Straps to hold tube in place. (Window boxes and large containers may require more than one line.)

IMPORTANT: A single ¼"
Distribution/Supply Line should
not exceed 30'.

- 4 Flush lines to clear any debris.
- **5** Select the appropriate Drip-Irrigation Dripper for each container and plant.



#### HANGING BASKETS AND WINDOW BOXES

Use FlexMist

(part # DR-66190) or Adjustable Mist Sprayer (part # DR-67191).

#### POTTED PLANTS

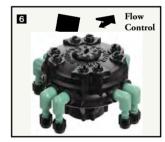
Use Multi-Stream on a Stake (part # DR-31295, DR-31495)

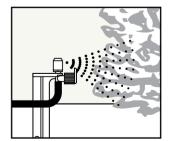
#### **SHRUBS**

Use Low-Volume Sprinkler Head on 12" Stake. (See Parts List at end of manual for spray pattern options)

**6** Adjust the flow rate by turning the flow control screw.

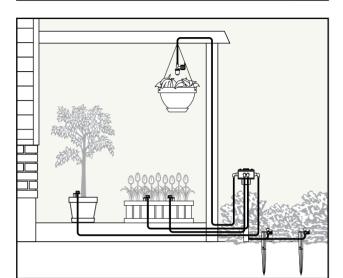








Continued on next page



#### Supplies Needed

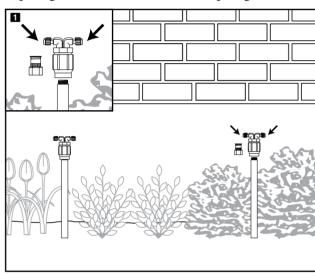
- 8-Port Adjustable Manifold (part # DR-67000)

Or

- 4-Port Adjustable Manifold (part # DR-67005)
- The appropriate Drip-Irrigation Sprinkler listed above
- 1/4" Tube Straps (part # DR-65715-20)
- 1/4" Distribution/Supply Tube (part # DR-69301-07301)

#### FLOWER BEDS, GROUND COVER, SHRUBS AND LARGE PLANTS

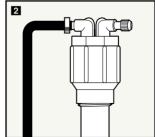
#### Replacing inefficient shrub heads with Drip-Irrigation



- Remove shrub heads from risers and replace with "Full-Flow 4-Port Manifolds."
- 2 Remove Barb Caps from the manifolds and attach ¼" Distribution/ Supply Lines to each exposed ¼" Barb. Run individual ¼" Distribution/ Supply Line to each Low-Volume Sprinkler Head. Flush lines to clear any debris.

IMPORTANT: Full-Flow Manifolds do not have an internal pressure regulator. To avoid high pressure failures install ¼" High Pressure Clamps on all ¼" connections.

IMPORTANT: A single ¼"
Distribution/Supply Line should not exceed 30'.



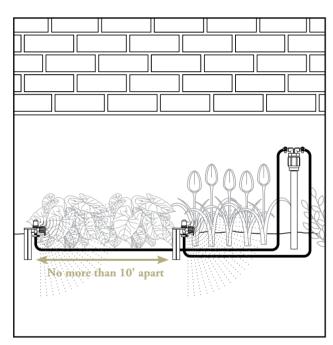
Continued on next page

#### FLOWER BEDS AND GROUND COVER

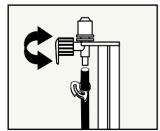
Attach a Low-Volume Sprinkler Head on 12" Stake, spaced no more than 10' apart. (See Parts List for spray pattern options)

#### OR

Multi-Stream Dripper on a stake, spaced no more than 3' apart. (part # DR-31295, DR-31495, DR-30995)

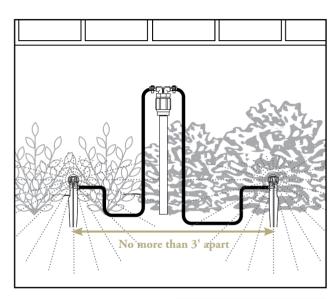


Note: Adjust the flow rate by turning the flow control on each Drip-Irrigation sprinkler head.



#### SHRUBS AND LARGE PLANTS

Use Multi-Stream Dripper on a Stake next to each shrub or large plant. (part # DR-31295, DR-31495, DR-30995)



Note: Adjust the flow rate by turning the flow control on each Drip-Irrigation Sprinkler Head.



#### Supplies needed:

- Full-Flow 4-Port Manifold (part # DR-67025)
- The appropriate Drip-Irrigation sprinkler head listed above
- 1/4" Distribution/Supply Tube (part # DR-69301-07301)
- ¼" High Pressure Clamps (part # DR-67710)

7

COMMON PROJECTS

**SECTION** 

### CONNECTION TO A DESIGNATED IRRIGATION VALVE

Direct connection to an underground irrigation valve is ideal for medium to large Drip-Irrigation projects. This application is most commonly used for gardens, large flower beds, shrubs, trees, and desert landscaping.

#### **IMPORTANT:**

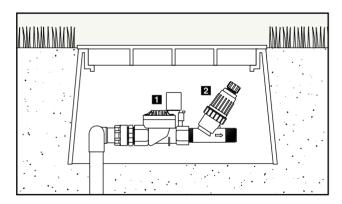
- Contact the local water district for code requirements.
- Before digging, contact utility companies to mark utility lines.

#### Connection to a designated valve consists of

- 1 3/4" Irrigation Valve (manual or automatic)
- **2** Y-Filter (model DR-69736)

Note: Using a filter not designed for Drip-irrigation, may cause damage.

3 ½" Distribution/Supply Tubing (part # DR-67346-69346) or ¾" Polyethylene or PVC Pipe

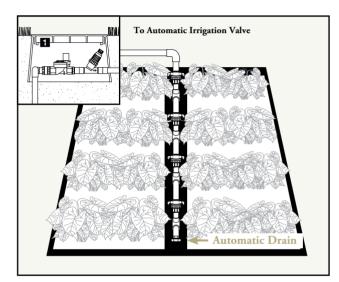


#### **COMMON APPLICATIONS**

- 1. Gardens—page 23
- 2. Desert Landscaping—page 25

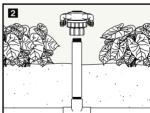
#### **GARDENS**

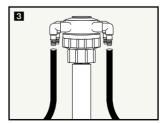
■ Water Supply—Connect ¾" PVC to the end of the Y-Filter and run the PVC pipe down the center of the garden. Attach a ¾" Slip x ½" Threaded Tee for each row. Use an Automatic Drain Valve on the end of the pipe and on any low sections of the PVC pipe.



- 2 Screw in ½" Risers on each Tee (extending 6" to 8" above ground). Attach an Orbit\* 4-Port Adjustable Manifold on each riser.
- 3 Remove manifold caps and attach '4" Soaker Tube to each '4" Barb. Run Soaker Tube along the base of each plant.

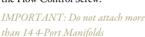
Tip—Use Metal Loop Stakes to hold the '4" Soaker Tube in place.



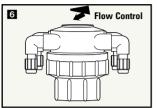


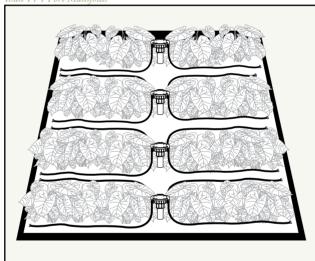
Note: Keep each ¼" Soaker Tube length to less than 15'.

- **5** Remove the Automatic Drain Valve, attached to the end of the PVC pipe and flush the line to remove any debris.
- **6** Adjust the flow rate by turning the Flow Control Screw.







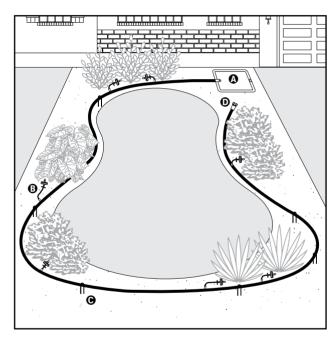


#### Supplies Needed

- 1/2" Automatic Drain Valve (part # OP-94561-51240)
- 4-Port Adjustable Manifold (part # DR-67005)
- 1/4" Loop Stakes (part # DR-65730)
- 1/4" Soaker Tubing (part # DR-69330)
- 1/4" End Plugs (part # DR-67403)
- PVC Fitting: ¾" Slip x ½" Threaded Tees OR Insert Poly Fitting
- 1/2" Risers

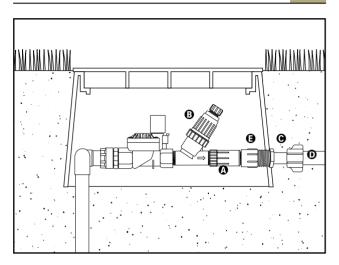
#### DESERT LANDSCAPING

- **⚠** Irrigation Valve
- **13** Pressure Compensating Dripper with a Tube Stake
- **G** Loop Stake
- End Cap

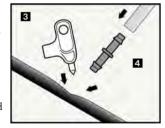


Water Supply—Connect a Pressure Regulator (part # DR-67740) to the Y-Filter and attach a Male Adapter (part # OP-67454 or OP-37305). Next attach ½" Distribution/Supply line to the exposed end. (See the top of page 26)

IMPORTANT: Use a Pressure Regulator to avoid damage to the Drip-Irrigation system.



- **A**Pressure Regulator
- 1 Y-Filter
- Male Adapter
- ½" Distribution/Supply Line
- **❸**Threaded Coupler (sold separately)
- 2 Run Distribution/Supply Line next to plants, shrubs and trees you intend to water. Next install a ½" End Cap. Use ½" Loop Stakes to hold the line in place.
- **3** Hole Punch—Punch a hole in the ½" Distribution/Supply Line for each shrub or tree. Next insert a ¼" Barbed Coupler into each hole.



4 Connect the ¼" Distribution/Supply Line to each of the exposed Barbed Couplers and run it to the base of each shrub or tree. Cut tubing to desired length.

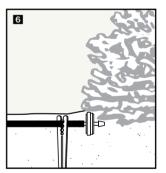
IMPORTANT: A single ¼" Distribution/Supply Line should not exceed 30'.

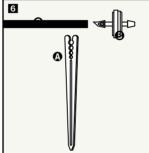
- **5** Remove the ½" End Cap and turn on water to flush ½" Distribution/Supply Line, then replace cap to flush ½" Distribution/Supply Lines.
- **6** Attach a Pressure Compensating Dripper to each ¼" Distribution/ Supply Line. To hold dripper in place, next to the base of the shrub or tree, use a Tube Stake.

Note: More than one ¼"Distribution/ Supply Line (with Pressure Compensating Dripper) may be required for large trees or shrubs.

IMPORTANT: Do not attach more than 57 2-GPH Pressure Compensating Drippers to a single ½" Distribution/Supply Line







- **⚠** Tube Stake
- B Pressure Compensating Dripper
- **●** ¼" Distribution/Supply Line

#### Supplies needed:

- ½" Male Adapter (part # OP-67454 or OP-37305)
- ½" Distribution/Supply Tubing (part # DR-67346-69346)
- ½" End Cap (part # OP-67462)
- 1/2" Loop Stake (part # DR-65731)
- Punch Tool (part # DR-10397-42315)
- 1/4" Barbed Couplers (part # DR-40935-10 or DR-97150-10)
- ¼" Distribution/Supply Tube (part # DR-69301-07301)
- Tube Stakes (part # DR-65721-10)
- Pressure Compensating Dripper (part # DR-67205, DR-67206)

#### **Micro-Irrigation Parts List**

#### MANIFOLDS



8-Port Manifold DR-67000



4-Port Manifold DR-67005



4-Port Manifold DR-67025



1/2" MPT 2-Port Manifold DR-67035



Full Flow

2-Port Manifold DR-66030



1/2" Female Pipe Threaded Shrub Adapter with Threaded Outlet DR-41015



1/2" Riser Adapter with 1/4" Barb DR-67035



#### **FAUCET**



3-in-1 Faucet

-Adapter Filter

-Pressure Reducer

-1/2" Tubing

Adapter

OP-67339



Faucet Adapter 1/2" Distribution Tube OP-67455



Faucet Adapter 1/4" Distribution Tubing DR-67432



Hose Thread Swivel x 1/2" Tubing Tee OP-67456



Pressure Regulators 25 PSI—Hose Threaded DR-67741



Hose Bib Anti-Siphon Valve OP-67750



Plastic Hose-Y OP-58085

#### PIPE THREAD



Y-Filter 3/4" Male Pipe Thread DR-69736



Pressure Regulators 25 PSI—3/4" Pipe Threaded DR-67740



1/2" Pipe Thread Adapter OP-67454



3/4" Pipe Thread Adapter OP-37305

**NOTES** 

#### LOW VOLUME SPRINKLER



Mini Rotating Sprinkler DR-20205



Low-Volume Sprinkler Full 66116, 67116 1/2 66117, 67117 1/4 66118, 67118 Strip 66115, 67115



Low-Volume Sprinkler Head on 12' Stake Full 67136 1/2 67137 1/4 67138 Strip 67135



Adjustable Mist Sprayer DR-67191



Adjustable FlexMist™ DR-66190

#### DRIPPERS AND BUBBLERS



Multi-Stream Dripper DR-31245 DR-31445



Multi-Stream on a Stake DR-31295 DR-31495 DR-30995

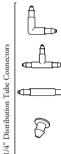


Flag Dripper 2 GPH 65200, 66200 4 GPH



Pressure Compensating Dripper 1 GPH DR-67205 2 GPH DR-67206

#### DISTRIBUTION TUBE FITTINGS



Barb Elbow DR-67400



Barb Tee DR-67401



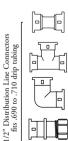
Barb Coupling DR-67402



Barb End Plug



Barb Shut-Off Valve DR-67404



Coupler OP-67451



Tee OP-67452



Elbow OP-67450 End Cap

OP-67462



Shut-Off Valve OP-67463



Hose/Faucet Adapter DR-10813



Male Hose Threaded Adapter DR-10809



3/4" Male Pipe Threaded Adapter DR-10811



Coupler DR-10815



Tee DR-10803



End Cap DR-10800

#### DISTRIBUTION/SUPPLY TUBE



1/4" Distribution Tube 100' DR-69301-07301



1/2" Distribution Tube 100' DR-67346-69346 500' DR-67347-69500

#### 1/4" SOAKER TUBE



Dripline 100' DR-12930-SHB106 DR-12936-SH106

1/4" Porous Soaker Tube 50' DR-69330

#### 1/4" SOAKER TUBE



Extension Riser 8" or 12" DR-50125 DR-50135



12" Tubing Stake DR-10404



3/4" Female Hose Thread x 1/2" Barbed-Stake OP-67990



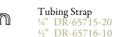
1/2" Barb x Male Pipe Thread-Stake OP-67992



Tubing Holder Stake DR-65721-10









1/4" High Pressure Clamp DR-67710



Tube Punch Tool DR-10397-42315

31

30 Micro-Irrigation | Installation Guide