

# 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

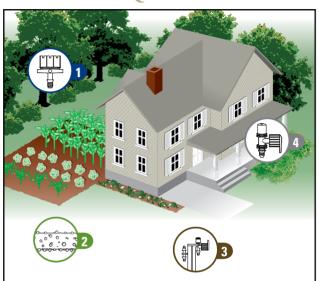




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# IDENTIFY PLANTS WITH SIMILAR WATERING REQUIREMENTS







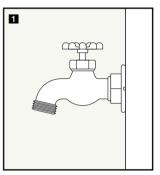


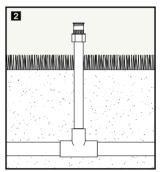


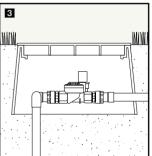
# WATER SOURCE AND PRESSURE

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







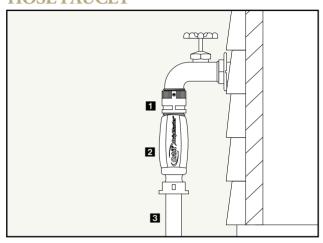
Water Pressure—Obtain a water pressure gauge (available at most home improvement stores) and attach it to your source of water. Drip-Irrigation systems are designed to operate between 15–35 PSI (high water pressure may cause system failure).

# 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.

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# 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.

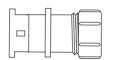
(part # DR-67346-69346) TIP— To make installation easier, allow the ½" Distribution/Supply Tube to sit in the sun and soften prior to installation.

# 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.



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# COMMON USES FOR DRIP-IRRIGATION

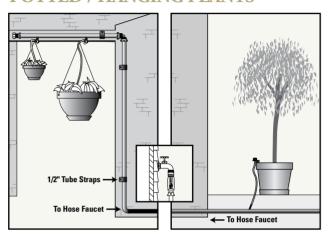
- 1. Potted/Hanging plants—page 8
- 2. Ground Cover and Flower Beds—page 10
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Select the application that best matches your needs.





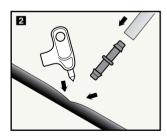
# POTTED / HANGING PLANTS

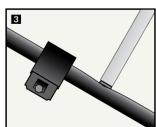


Note: Steps 1-3 apply to both potted & hanging plants

- **1 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'





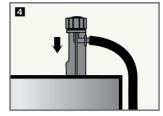
### FOR POTTED PLANTS

- 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.

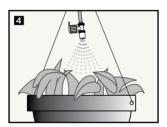
# FOR HANGING PLANTS

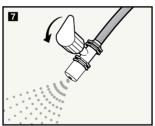
- 4 Attach Adjustable Flow Mist Sprayers to each ¼" Distribution/Supply Line and aim sprayer into the hanging basket.
- **5** Continue running lines to each hanging basket until the system is completed.
- 6 Remove the ½" End Cap and turn on water to flush system; replace cap.
- **7** Rotate the flow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





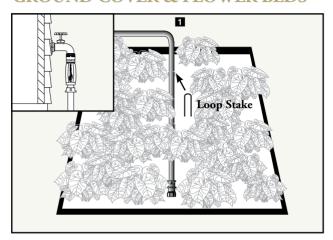




# Supplies needed

- ½" 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)

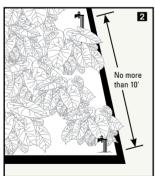
# **GROUND COVER & FLOWER BEDS**

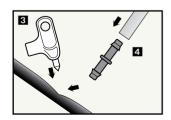


- Distribution/Supply Line—Lay the ½" Distribution/Supply Line down the center of the Flower Bed or Ground Cover and install a ½" End Cap. Use Loop Stakes to hold in place.
- 2 Low-Volume Sprinkler—
  Following the illustrated example, place Quarter-Spray-Pattern
  Sprinkler Heads in the corners, Half-Spray-Pattern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

■ Hole Punch—Punch a hole on top of the ½" Distribution/Supply line for each Low-Volume Sprinkler. Next insert a ¼" Barbed Coupler into each hole.

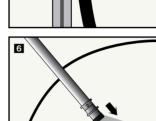




4 Connect the ¼" Distribution/ Supply Line to each of the exposed Barbed Couplers and run the Distribution/Supply Line to each sprinkler location. Cut tubing to desired length.

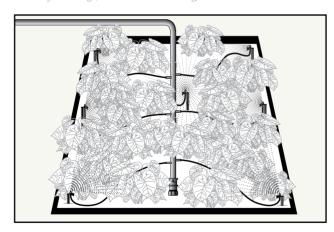
IMPORTANT: Keep Drip-Tubing lengths to less than 30'.

- 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)

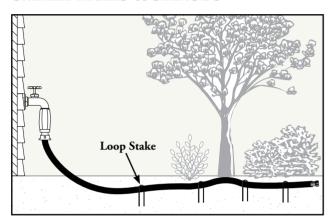
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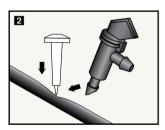
# Supplies needed

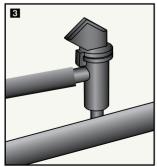
- 1/4" Distribution/Supply Tube (part # DR-69301-07301)
- 1/4" Barbed Couplers (part DR-40935-10 or DR-97150-10)
- Low-Volume Sprinkler on Stake (part # 67135, 67136, 67137 or 67138)
- ½" Loop Stake (part # DR-65731)
- Punch Tool (part # DR-10397-42315)

# **SMALL TREES & SHRUBS**



- 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 ¼" Distribution/ Supply Line to the end of the Flag Dripper and run the ¼" Distribution/ Supply Line to the plant location.
- 4 Install an insect plug into the end of the ¼" Distribution/Supply Line.

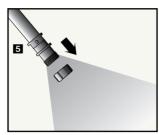


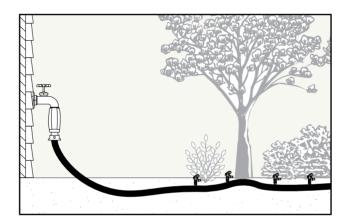




**5** Remove the ½" End Cap and turn on water to flush system; replace cap.

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)

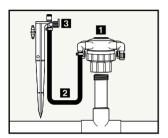
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# CONNECTING TO AN EXISTING UNDERGROUND SPRINKLER SYSTEM

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

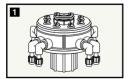
- 1 Manifold—Attaches to a ½" riser and consists of 1 to 8 outlets.
- 2 1/4" Distribution/Supply Line
- 3 Low-Volume Sprinkler, Dripper, or Soaker Tube

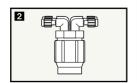


# **MANIFOLDS**

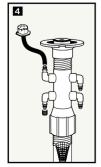
The main function of a Manifold is to distribute water through ¼" outlets. There are 4 types of Manifolds

- 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.





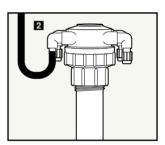


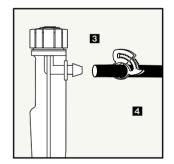


# INSTALLATION FOR ADJUSTABLE-FLOW, FULL-FLOW, AND RISER ADAPTER MANIFOLDS

- 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.









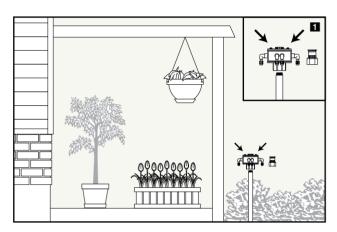
# **COMMON RETROFIT PROJECTS**

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

# **CONTAINER PLANTS AND SHRUBS**

# Replacing hand watering with Drip-Irrigation

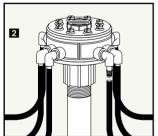
- Connect an 8-Port or a 4-Port Adjustable Manifold to an exposed shrub riser. If a vacant riser is not available, use a Saddle Adapter to connect to the sprinkler line.
- 2 Remove Caps and attach 1/4" Distribution/Supply Line to each 1/4" Barb.



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).

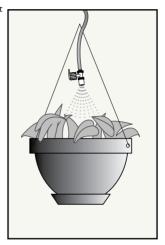
# POTTED PLANTS

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

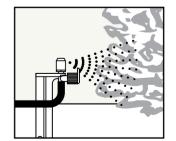
## **SHRUBS**

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.





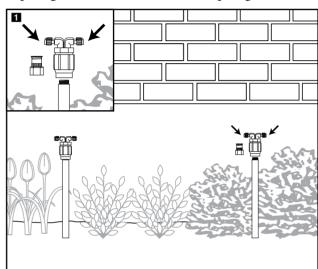




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# FLOWER BEDS, GROUND COVER, SHRUBS AND LARGE PLANTS

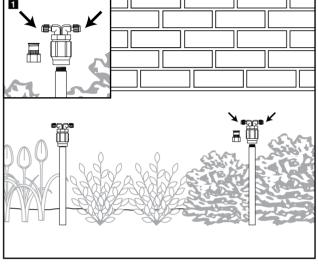
Replacing inefficient shrub heads with Drip-Irrigation



- 1 Remove shrub heads from risers and replace with "Full-Flow 4-Port
- 2 Remove Barb Caps from the manifolds and attach 1/4" 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

2

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



Manifolds."

debris.

Clamps on all ¼" connections. IMPORTANT: A single 4" Distribution/Supply Line should not exceed 30'.

Continued on next page

Supplies Needed

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

- 4-Port Adjustable Manifold (part # DR-67005)

- 1/4" Tube Straps (part # DR-65715-20)

- The appropriate Drip-Irrigation Sprinkler listed above

- 1/4" Distribution/Supply Tube (part # DR-69301-07301)

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COMMON RETROFIT PROJECTS

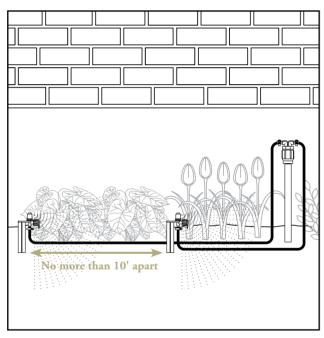
**SECTION** 

## FLOWER BEDS AND GROUND COVER

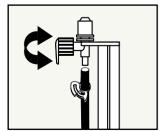
Attach a Low-Volume Sprinkler Head on 12" Stake, spaced no more than 10' apart. (See Parts List for spray pattern options)

### OR

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

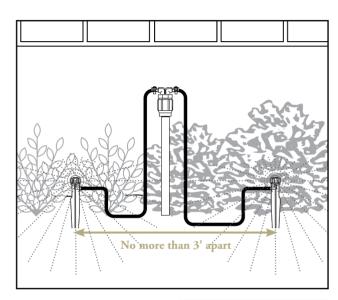


Note: Adjust the flow rate by turning the flow control on each Drip-Irrigation sprinkler head.



# 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)

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COMMON PROJECTS

**SECTION** 

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# 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:**

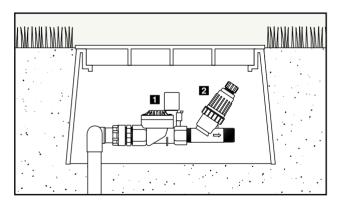
- Contact the local water district for code requirements.
- Before digging, contact utility companies to mark utility lines.

# 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

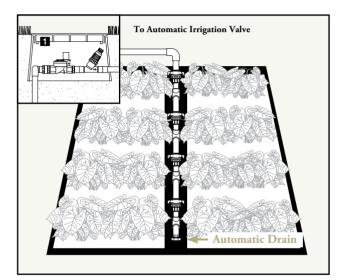


# **COMMON APPLICATIONS**

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

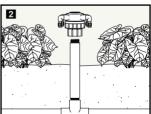
# **GARDENS**

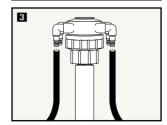
■ Water Supply—Connect ¾" PVC to the end of the Y-Filter and run the PVC pipe down the center of the garden. Attach a ¾" Slip x ½" Threaded Tee for each row. Use an Automatic Drain Valve on the end of the pipe and on any low sections of the PVC pipe.



- 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 ¼" Soaker Tube to each ¼" Barb. Run Soaker Tube along the base of each plant.

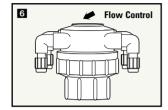
Tip—Use Metal Loop Stakes to hold the '4" Soaker Tube in place.



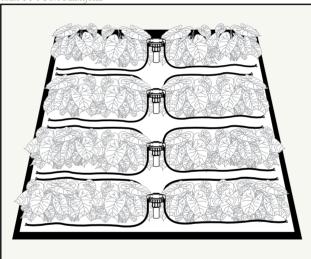


Note: Keep each ¼" Soaker Tube length to less than 15'.

- 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.



than 14 4-Port Manifolds



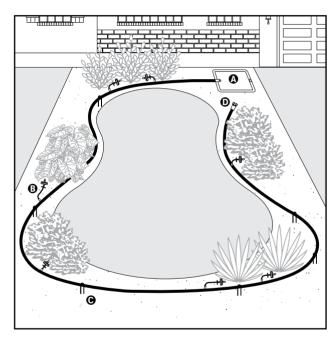
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# Supplies Needed

- 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

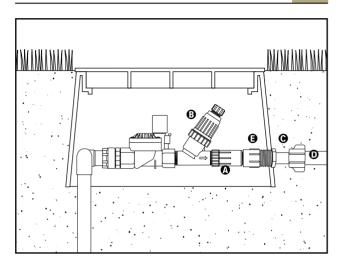
- ♠ Irrigation Valve
- **13** Pressure Compensating Dripper with a Tube Stake
- **G** Loop Stake
- End Cap



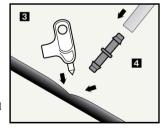
Water Supply—Connect a Pressure Regulator (part # DR-67740) to the Y-Filter and attach a Male Adapter (part # OP-67454 or OP-37305). Next attach 1/2" Distribution/Supply line to the exposed end. (See the top of page 26)

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

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- **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.



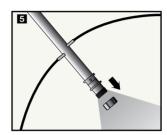
4 Connect the ¼" Distribution/Supply Line to each of the exposed Barbed Couplers and run it to the base of each shrub or tree. Cut tubing to desired length.

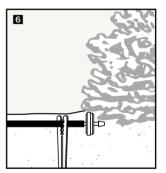
IMPORTANT: A single ¼" Distribution/Supply Line should not exceed 30'.

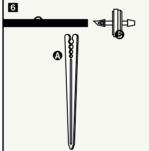
- **5** Remove the ½" End Cap and turn on water to flush ½" Distribution/ Supply Line, then replace cap to flush ¼" Distribution/Supply Lines.
- **6** Attach a Pressure Compensating Dripper to each ¼" Distribution/ Supply Line. To hold dripper in place, next to the base of the shrub or tree, use a Tube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

# **NOTES**

# **Micro-Irrigation Parts List**

# **MANIFOLDS**



8-Port Manifold DR-67000



4-Port Manifold DR-67005



4-Port Manifold



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



Full Flow

Riser Adapter Manifold

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**

**SECTION** 



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



3/4" Pipe Thread Adapter OP-37305

## 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

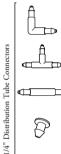


Flag Dripper 2 GPH 65200, 66200 4 GPH



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

# DISTRIBUTION TUBE FITTINGS



Barb Elbow DR-67400



Barb Tee DR-67401



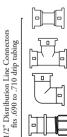
Barb Coupling DR-67402



Barb End Plug



Barb Shut-Off Valve DR-67404



Coupler OP-67451



Tee OP-67452

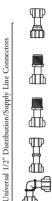


OP-67450 End Cap OP-67462

Elbow



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" 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

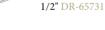


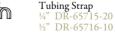
1/2" Barb x Male Pipe Thread-Stake OP-67992



Tubing Holder Stake DR-65721-10

Loop Stake 1/4" DR-65730









Tube Punch Tool DR-10397-42315

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