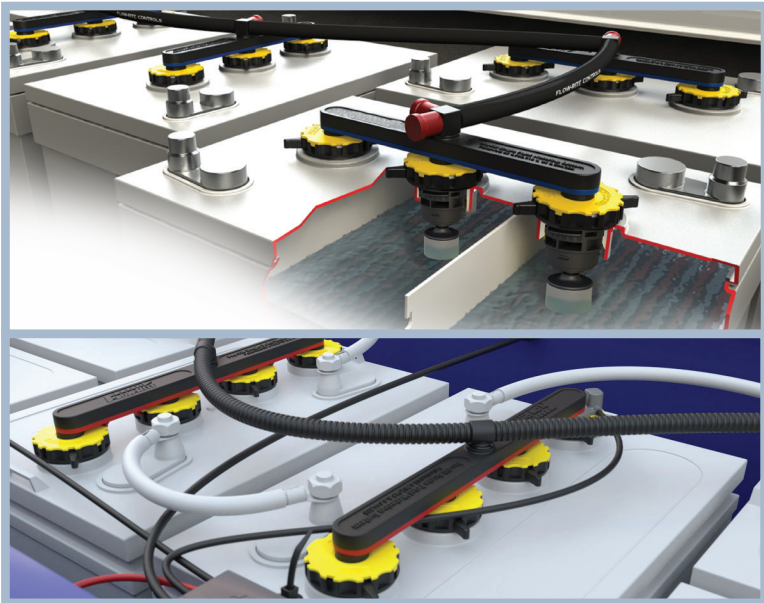


ProFill™

Single Point Battery
Watering System

Installation & Maintenance Manual for Clampless and Snake Tubing Kits



Pictures may differ from your specific application.

General Information & Precautions

This publication provides detailed instructions for installing the single point watering system kits with part numbers beginning with “BG”. Thoroughly review this document before any Single Point Watering (SPW) installation procedures are performed.



The following safety statements must be read, understood, and heeded before a kit is installed. Failure to do so could result in personal injury and/or property damage.

Danger

- Battery – Explosive gases! Do not smoke. Keep sparks and flames away from vehicle and service areas. Ventilate when charging or operating vehicle in an enclosed space. Wear safety glasses and rubber gloves when working on or near batteries.
- Battery – Poison! Contains acid! Causes severe burns. Avoid contact with skin, eyes, or clothing.

Antidotes:

- External: Flush with water. Call a physician immediately.
- Internal: Drink large quantities of milk or water. Follow with milk of magnesia or vegetable oil. Call a physician immediately.
- Eyes: Flush with water for 15 minutes. Call a physician immediately.

Warning

- Follow the procedures exactly as stated in this instruction, and heed all DANGER, WARNING, and CAUTION statements in this instruction manual as well as those on the vehicle and battery charger.
- Only trained technicians should service or repair the single point watering system. Anyone doing even simple repairs or service should have knowledge and experience in plumbing, electrical, and mechanical repair. The appropriate instructions must be used when performing maintenance, service, or accessory installation.
- Prior to servicing the vehicle or leaving the vehicle unattended, turn the key switch OFF, remove the key, and chock the wheels when servicing the vehicle.
- Wear safety glasses or approved eye protection when servicing any part of the watering system. Wear safety glasses and rubber gloves when working on or near batteries.
- Do not wear loose clothing or jewelry such as rings, watches, chains, etc., when servicing the vehicle or battery charger.
- Moving parts! Do not attempt to service the vehicle while it is running.
- Use insulated tools when working near batteries or electrical connections. Use extreme caution to avoid shorting of components or wiring.
- If wires are removed or replaced, make sure wiring and wire harness are properly routed and secured. Failure to properly route and secure wiring could result in vehicle malfunction, property damage, personal injury, or death.

Package Contents for Clampless Tubing Kit

Note: Pictures may differ slightly from your specific application.



8 volt manifold shown

<u>Kit Size</u>	<u>Qty of Manifolds</u>
12 Volt	2
24 Volt	4
36 Volt	6
48 Volt	8 (6 Volt manifolds)
48 Volt	6 (8 Volt manifolds)
72 Volt	24 (6 Volt manifolds)
72 Volt	18 (8 Volt manifolds)
96 Volt	32 (6 Volt manifolds)



Tubing

QTY: Varies on kit size.



Red End Caps

QTY: 9



Coupler & Dust Cover

QTY: 1

Package Contents for Snake Tubing Kit

Note: Pictures may differ slightly from your specific application.



8 Volt manifold shown

Kit Size	Qty of Manifolds
12 Volt	2
24 Volt	4
36 Volt	6
48 Volt	8 (6 Volt manifolds)
48 Volt	6 (8 Volt manifolds)
72 Volt	24 (6 Volt manifolds)
72 Volt	18 (8 Volt manifolds)
96 Volt	32 (6 Volt manifolds)



Snake Tubing

QTY: Varies on kit size.

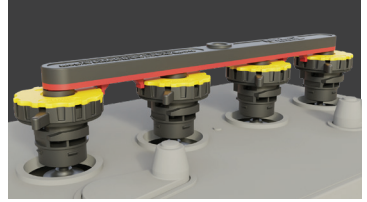
Kits include precut tubing.

When using snake tubing, your kit will not include the coupler & dust cover or red end caps.

Installation

Step 1

Remove vent caps and insert Pro-Fill® manifold assembly. Press manifold firmly ensuring the rubber washer is correctly seated around the refill valve.



Step 2

Secure valves by rotating them a 1/4 turn in a clockwise motion to secure it and manifold to the battery.



Step 3a (clampless tubing)

Install tubing. Plumb all of the manifolds together with the included tubing. For precut kits, please see diagrams on the following page for proper tube routing. For universal kits, when cutting tubing, ensure there is enough slack to create a slight bend in the tubing. Place the feed tube with coupler attached on a manifold that is near the middle of the plumbing so that water can be distributed to all batteries evenly. Make sure it does not hang over the edge of the battery.



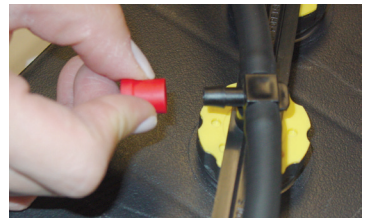
Step 3b (snake tubing)

Install tubing. Snap in the snake segment ports into the manifold.



Step 4

Place a red end cap on each of the remaining barbs. *When using snake tubing, you will not need red end caps.*



Watering Procedures

Water After Charge

Electrolyte levels drop during discharge and rise during charge. In addition, charging generates heat, fluid expansion, and explosive gases. Watering a battery before charge (or with a low charge level) can lead to boil over, resulting in potential damage to the watering system, battery, and vehicle.

When needed, water must only be added to a fully charged battery. If the battery has been neglected and water levels have fallen below the plates, water should be manually added to just cover the plates. After the battery has been charged, you can finish filling with the watering system.

Watering Intervals

Watering intervals are dependent on the local climate, charging methods, application, and age of batteries. Flow-Rite recommends checking consumption rates manually or with the optical indicator (when equipped). New batteries should be checked once a month and older batteries weekly until water consumption rates are known.

Typically for a heavy use application, watering a maximum of once per week is recommended, and for light use applications once per month. Do not water a battery that has been sitting for an extended period of time with no activity (non-use or not on charge) such as a battery that has sat idle over the weekend. It is best to water a warm battery that has just been fully charged.



Important: *Water quality is important to maintain the life of your battery and watering system. Always use water that meets the quality requirements of your battery's manufacturer.*

Battery Watering Operation

Now that your single point watering system is installed, you may add the following water supplies and/or accessories.

- Portable Watering Cart
- Deionizer
- Hand Pump
- Regulated Hose Supply
- Portable Water Supply
- Gravity Tank
- Mini Pump

Please refer to their instructions for proper operation!

If you are interested in learning more about these products, contact your sales rep or visit flow-rite.com

For successful operation of your single point watering system, always:

- Use Flow-Rite approved equipment.
- Only fill batteries after they have been fully charged and require water.
- Follow Flow-Rite's required watering procedures.
- Perform regular scheduled maintenance!



Warning! Use of unapproved equipment or modification of approved equipment can lead to system failure and will void your warranty.

Regular Maintenance

Your single point watering system requires regular preventative maintenance on at least a quarterly basis.

1. Check all screens and/or filters on water supplies

Clean or replace all filters & line strainers as necessary. Failure to do so can cause a reduction in the water pressure and flow rates needed to operate the system properly. A filter screen can be found on the inlet of all regulators, and a line strainer on all supply hoses. Pump powered water supplies include a strainer on all suction hoses. For deionizers, be sure to replace the filter cartridges as indicated by the water quality light. Consult your water supply's manual for detailed instructions.

2. Inspect the condition of all tubing, connections, and couplers.

Make sure that all parts are in good working condition and are secure, leak free, and properly connected. The coupler must have an O-ring and dust cover properly attached.

3. Electrolyte levels

Flow-Rite recommends checking the electrolyte level in each cell for accuracy after the system has been installed and operational for three months.

Seasonal Maintenance

Water Supplies

Water supplies must be drained and stored in an empty state if they will be exposed to freezing temperatures. Failure to do so can cause permanent damage.

Watering Systems

If you have vehicles that are taken out of service or put into storage for a period of 6 weeks or longer, your single point watering system will require seasonal maintenance. To winterize the SPW system simply drain any remaining water from the feed tube. Additionally the following steps need to be followed when bringing your vehicle back into service.

1. After the batteries have been fully charged/equalized, connect the system to its water supply for 3-5 seconds then disconnect regardless of whether or not the batteries are completely full.
2. Return the vehicle back to normal operation.
3. Place the vehicle back into its regular watering schedule (waiting at least one week until next watering).

Operating Specifications

Operating Requirement of SPW system

Flow Rate:	2.0 - 5.0 gallons per minute* 7.6 - 19.0 liters per minute
Pressure Range:	3.0 - 35.0 PSI (no flow, static) .21 - 2.4 bar
Temp. Range:	Freezing - 150° F Freezing - 65.5° C

Water Supply Operating Requirements

Inlet Pressure Range:	40 - 100 PSI (no flow, static)
Temp. Range:	33 - 150° F 1 - 65.5° C

All product specifications and requirements should be met for proper operation of your Flow-Rite SPW system. Contact your battery supplier or Flow-Rite if you have any questions regarding product specifications or how to verify a water supply.

*Flow rate should be measured at the end of a purger (female/male coupler combination).

Troubleshooting

In the event that a valve does not shut off, qualify water supply to ensure that it is producing a minimum of 2 GPM (measured through the purger). If the issue persists and the water supply qualifies, call for service. If it does not qualify, perform maintenance procedures on the water supply and re-qualify. If it does not qualify after performing maintenance, call for service.

Warranty

5 Year Limited Warranty for Single Point Watering Systems

Flow-Rite Controls warrants to Purchaser that its product, the Pro-Fill system, will be free of all defects in material and workmanship for five (5) years after the date of purchase. If within five years of the date of purchase, the Pro-Fill system, fails to perform due to a manufacturing defect, Flow-Rite Controls will repair or replace the Pro-Fill system, free of charge.

For the full warranty document, please go to www.flow-rite.com/resources/battery-care-literature/

If you have more questions, email customerservice@flow-rite.com or call **616-583-1700**.



We're
Listening

Flow-Rite's **Customer Service Team** is always available to listen and learn about how to support you and your business.



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