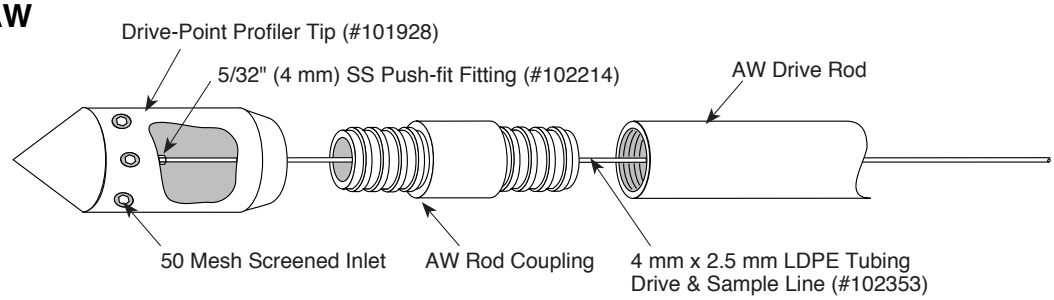
Drive-Point Profiler Operating Instructions

Model 660

Model 660 AW



Operating Principles

The Drive-Point Profiler enables the collection of groundwater samples from multiple discrete elevations in a single drive/drilling location. A rig advances the Profiler and attached AW rod to the desired sampling depth. Lengths of AW drive rod are added as the assembly is advanced.

The Profiler Tip has screened inlets set circumferential. The inlets lead to a single stainless steel fitting, where tubing that runs through the extension rods to the surface is attached.

A Peristaltic Pump connected to the tubing is used to collect samples from each discrete depth.

To prevent the inlets from clogging, the Profiler is flushed with de-ionized (D.I.) water while it is driven between sampling zones.

Note: The Solinst Model 410 Peristaltic Pump is effective to depths up to the suction lift limit, which can be up to 33 ft or 10 m at sea level.

AW Drive-Point Profiler Setup

1. Ensure a Peristaltic Pump is available and functioning properly.
2. Check that enough de-ionized water is on hand to complete the job. During driving, flushing approximately 5 to 20 ml/min is sufficient.

   Note: Tubing must be square cut to properly connect to the push-fit fitting.

3. Cut an appropriate length of 5/32" (4 mm) LDPE or Teflon-lined tubing. The minimum tubing length cut should be equal to the expected drive depth, plus an additional 10 ft (3 m).
4. Pass the tubing through the first length of AW Drive Rod and AW Coupling and push-fit the tubing into the fitting on the inside of the Profiler Tip.
5. Thread the AW Coupling and Drive Rod into the Profiler Tip and tighten with pipe wrenches.
6. Thread the AW Drive Head Adaptor (not supplied by Solinst) over the tubing and tighten onto the AW Drive Rod.
7. Slip the AW Drive Head over the tubing and onto the Adaptor ensuring that the tubing protrudes through the AW Drive Head slot.
8. Connect the 5/32" (4 mm) tubing to the Peristaltic Pump.

Advancing

1. Turn the Peristaltic Pump on and start the delivery of D.I. water. Begin advancing the Profiler to the desired sampling depth.
   - Monitor the level of the D.I. water in the source container in order to ensure continuous flow. Also note the rate and volume of water injected into the ground.
   - If the Profiler is clogged, the flow will stop.
   - Increase the pumping rate to clear the obstruction.
2. Turn off the pump and stop driving when the appropriate sampling depth has been reached.

Sampling

1. Remove the pump tubing from the D.I. water.
2. Hold the pump tubing over a waste water container and reverse the flow of the pump.
   - Monitor the clarity, volume, and conductivity of the sampled water.
   - Take samples when the water becomes “dirty”, the volume removed equals the volume injected, and the conductivity exhibits marked change, indicating that all D.I. water has been purged and formation water is being extracted.

   Note: A flow-cell and in-line sensors can also be used to monitor other chemical parameters such as temperature, pH, and dissolved oxygen as the water is being purged. Once these parameters stabilize, a sample representative of the formation water can be assured.

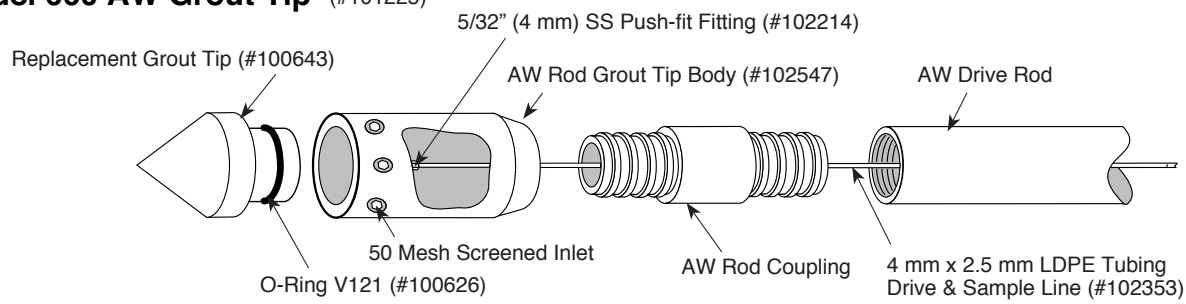
3. Place the pump tubing back into the D.I. source and pump D.I water (amount equal or greater than the volume of the tubing) back into the system to rinse the tubing before driving to the next sampling point.
4. Repeat steps 1 through 3 for each subsequent sampling point.

Adding Drive Rod Lengths

1. Disconnect the 5/32" (4 mm) tubing from the Peristaltic Pump.
2. Remove the AW Drive Head and Drive Head Adaptor.
3. Thread an AW Coupling and Drive Rod over the Tubing.
4. Thread the Drive Rods together using the Coupling and tighten.
5. Reinstall the AW Drive Adaptor and Drive Head.
6. Reconnect the 5/32" (4 mm) tubing to the Peristaltic Pump.
7. Continue advancing and sampling.

Note: Replacement or decontamination of the downhole materials used is recommended before attempting subsequent sampling sites. See over.

Model 660 AW Grout Tip (#101225)



Sealing Profiler Holes

Grout Tip AW Drive-Point Profiler

Holes in most homogeneous sands will collapse as soon as the Profiler is withdrawn. In other geologic formations it is best to use a Profiler fitted with a Grout Tip.

- Sampling using the Grout Tip Profiler is done in the same manner as those without a Grout Tip. (See previous page).
- The Grout Tip is a single use tip that can be separated from the Profiler with a high-pressure grout pump, after sampling is complete.
- This allows the hole to be grout sealed as the Profiler is being withdrawn, ensuring no void spaces.
- Replacement Grout Tips are available (#100643), and easily fit onto existing Grout Tip Bodies by pushing into the end until the O-ring properly seats.

Maintenance and Decontamination

After the system has been removed, proper decontamination of the Drive- Point Profiler must be performed.

1. Disconnect the 5/32" (4 mm) tubing and discard or appropriately decontaminate.
2. Using the Allen Key provided, remove the screened inlet hole inserts and then remove the screens (50 mesh).

> **Note:** Be careful not to lose the screens. Replacement screens are provided for convenience. Be careful not to damage the screens when decontaminating.

3. Wash all components with a mild detergent and thoroughly rinse with D.I. water, or follow local guidelines or standards as required by your decontamination procedure.

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