

# ***Installation and Setting Instructions For PD Water Meters***

## ***General Requirements***

### 1. Important Considerations

- Service lines, valves, connections and meters must be watertight.
- Provide an upstream shut-off valve of high quality and with low pressure drop.
- Install the meter horizontally in the line to obtain optimum performance.
- Be sure the meter is easily accessible for service and inspection.
- Protect the meter and service against frost, flooding, mechanical damage and tampering.
- Be sure meter can easily be read at the unit or provided with a remote reading register.
- The service and meter installation should not be an obstacle or hazard to the customer or interfere with public safety.

### 2. Meters should be transported, installed, and protected with care.

### 3. Special fittings and accessories are available to provide easier meter installation.

- Copper meter setters, re-setters, horns and meter yokes are available for holding the service pipe in proper alignment to the meter and laying length spacing. For many installations, the metal setters and meter yokes can provide an electrical continuity to protect meters and consumers from dangerous electrical shock.

### 4. Meters may be installed indoors or outdoors. When meters are installed outdoors, they are usually located in a meter box. The box should have a two to three inch clearance around the meter to avoid damage or strain to the service piping, meter, or the meter box in case the box settles after installation.

- The service pipe entering and exiting the meter box should be properly bedded to insure that it is not axially misaligned and lies evenly on the bottom of the pipe trench. Care should be taken when placing the backfill material to cover the service pipe should be done carefully to ensure that pipe alignment is maintained and the service pipe will not be damaged by eventual ground shifts.

### 5. Indoor meter settings may be located in basements, crawl spaces, utility rooms, or in a garage.

- Before a meter is removed for service or replaced, indoor settings must be checked for

electrical continuity through the service pipe (provided the pipe is metallic). The AVVWWA policy states service pipes are not to be used as electrical ground. (Check local codes and practices.) A permanent ground strap or metal setter which provides electrical continuity must be used if electrical grounding to water services is used.

- Water dripping on the floor is undesirable. The meter installation should include a valve just downstream from the meter to prevent damage to the floor during meter servicing or removal from the line.
  - For meters that are located indoors, a remote reading system is recommended. This eliminates access problems and avoids customer complaints concerning strangers entering the home. The system is installed so that the meter can be read at a convenient outdoor location. Meter setters reduce mechanical stress on meters, provide electrical continuity, and ease meter installation
6. Services, especially water meters, should be protected from freezing. The amount of earth covering service lines must be adequate to protect against frost penetration. Because of the relatively small volume of water in service lines, these pipes freeze more rapidly than mains.
- Where outside meter settings are used, the meter boxes and pits should be excavated below the frost line. Even though the meter itself is not installed below the frost line, the heat rising from the warmer earth excavation below the frost line will reduce the possibility of freezing.
  - With proper precautionary measures, the number of frozen services and meters can be held to a minimum.
  - For those locations in which a remote possibility of freezing exists, bronze meters with cast-iron bottoms are recommended

### ***Instructions for Setting Disc Meter In A New Installation***

1. When cutting into a new section of service pipe, the service pipe must be flushed to remove all chips, pipe dope, or any other residue resulting from the plumbing at the line and meter setting.
2. Prior to the existing service line being cut, a suitable electrical grounding line must be attached to the service line, spanning the section of the service which is to be removed for the installation of the meter. When the line is cut the grounding wire will provide an alternate path for any electrical potential that may exist across the opening in the line. NOTE: The curb (shut-off) valve must be closed during the cutting operation relieving water pressure in the service line.
3. Install the correct size inlet and outlet meter valves, meter couplings, meter setters in conformance with local plumbing codes and recommended practices.

- The meter should be set in a horizontal position, protected from freezing, damage and tampering.
  - NOTE: Make sure the line opening in which the meter is to be set matches the laying length of the meter allowing for a small amount of additional space for coupling gaskets. Be sure that the inlet and outlet sides of the meter setting are axially aligned to the pipe.
  - CAUTION: Do not attempt to use any meter as a lever or crowbar to straighten misaligned meter settings. Damage to the meter may result.
  - DO NOT attempt to set a meter into a meter opening which is too long and attempt to force the piping into place with the coupling nuts on the meter setting. This can cause serious damage to the threaded ends of the meter and housing.
  - Additional problems can be avoided by correcting any irregularities in pipe spacing and misalignment before placing the meter into its setting.
4. Install the new meter by placing new connection gaskets inside the connection coupling nuts. Set the meter between the coupling nuts with the direction of flow through the meter corresponding to the direction of flow through the system.
    - Engage the coupling nuts to the threaded meter ends. Check to ensure that the nuts are properly aligned to avoid cross threading (stripping) damage to the threaded meter ends.
    - The best method for properly starting meter coupling nuts is to position the nuts squarely against the meter spud end. Turn the nut counterclockwise (in reverse) while holding the nut against the meter spud end. When the first threads on both the coupling nut and the meter spud end coincide, a slight click will be heard and the movement of the nut into the starting position will be felt. At this point, turn the nut clockwise to complete the connection. In a good installation, this can be accomplished by turning the nut by hand until it is tight. When hand-tight, apply a partial turn using an open-end wrench. DO NOT over tighten. Pipe dope or sealants are not required or recommended.
  5. Take precautions for leakage in case water leaks or spills as the service pressure is carefully turned on.
  6. Be sure to shutoff valves on the inlet and outlet side of the meter. Open the curb (shut-off) valve slowly to pressurize the service line to the meter setting. Next, slowly open the inlet side valve which will fill the meter with water. Check for leaks around the meter and connections. Open the meter outlet side valve slowly to pressurize the consumer side of the system. Open a consumer faucet to allow entrapped air to escape. Turn off the faucet when normal water flow occurs.

### ***Instructions for Replacing an Existing PD Meter***

1. Before proceeding, check the piping around the existing meter setting for suitable condition. If there is corrosion or damage repair the piping system.
2. Check to be sure that a suitable electrical grounding wire is properly attached to the upstream and downstream pipe connections of the meter. DO NOT remove the meter without an alternate ground path permanently in place.
3. Close the inlet side valve to the meter. Then depressurize the system by opening a faucet to relieve water pressure until water flow stops. Do not remove the meter if flow continues. Check valves and make necessary repairs to the curb (shut-off) valve or inlet side valve as needed. When water flow stops, isolate the meter by closing the outlet side valve of meter setting. Provide necessary protection for the floor below the meter setting in case of water spills or leaks during removal of the existing meter, installation of a new meter, and opening line pressure upon completion of the setting.
4. Loosen meter couplings, remove the meter and the old gaskets in the coupling nuts. Clean coupling nuts and remove any pipe dope or dirt from the threads.
5. Check existing setting for alignment and spacing. Correct any misalignment and spacing in the setting.
6. Place new connection gaskets inside the coupling nuts. Place the meter between the coupling nuts with the inlet and outlet of the meter corresponding to the direction of flow in the service line.
  - Engage the coupling nuts with the threaded meter ends.
  - Check that the coupling nuts are properly aligned to prevent cross-threading (stripping) damage to the threaded meter ends. (For the best method and for properly starting the meter coupling nuts to the meter ends, see instructions for New Meter Installations, item 4.)
  - Turn the coupling nuts until they are hand-tight. Apply a partial turn using an open-end wrench, DO NOT over tighten. Pipe dope or sealants are not required or recommended.
7. Open the inlet shut-off valve slowly to fill and pressurize the meter. Check for leaks around the meter and connections.
  - Open the meter outlet valve slowly to pressurize the consumer side of the system.
  - Open a faucet to allow any trapped air to escape. Turn off the faucet when normal water flow occurs.