

# Water Meter Basics



Water meters are used to measure the volume of water that passes a point in a pipe using mechanical, magnetic or electronic devices. The simplest mechanical meters measure the displacement of rotary pistons or loosely suspended disks as water flows past. They are called "oscillating piston" or "nutating disk" meters. Other types of meters use speed of flow (velocity meters) to calculate volume. Impellers (multijet meters) and turbine meters use similar principles. The large turbine meters are used in high-volume pipes. Newer meters use electromagnetic energy or ultrasonic transducers to measure flow in large-volume situations. Different types of meters are most accurate for low, medium and high-flow applications. The low volume of residential usage is most accurately measured by the positive displacement or multijet meters. Meters are most often made of bronze or brass and plastic and are spliced into a pipe on an inside surface near where the water enters the residence from the supplier.

## Positive Displacement Mechanics

Most residential meters are positive displacement meters. These accurate little meters fit into pipes from five-eighths to two inches in diameter. In these meters, the movement of the piston or a disk by water triggers a magnetic set of gears that drive a dial around a face on a face plate called a "register." The dial turns, triggering an odometer-type meter that keeps track of units (gallons, cubic feet or other measure) used. Meters that measure higher volumes in larger supply pipes are usually fitted with filters to prevent dirt or grit from getting into the "works" of the metering mechanism.

**Red "flower" looking dial on the meter register is called a leak detector. If no one is running water throughout the home (showering, dishwasher, washing machine, softener cycling, sprinkler, etc) and this dial is moving, you have water going through your meter. You have a leak. You will need to find the leak (toilet leak, dripping faucet, water softener malfunction, leak in sprinkler line are the most common) and repair OR call a plumber.**

## Remote Reading

Meter readers have always had a difficult job in areas where winters are severe, summers extreme or in areas plagued by hurricanes or wildfires. Many utility companies have brought their displacement meters into the 21st century by investing in remote reading technology. Electronic sensors are connected to the meter's register. The meter reader can drive down the street or block with a receiver and "read" the entire block's meters in the time it used to take to read just a few. Other utility companies have refined the process further by installing networks of "repeater stations" that receive readings from a group of homes on a regular schedule and then transmit them to a central receiver. If the receiver is linked to a computerized billing system, the work that used to take weeks for dozens of employees can be completed in minutes by just a few.