

# POSITIVE DISPLACEMENT METERS

5/8", 3/4", 1"



## POSITIVE REINFORCEMENT FOR YOUR FRONTLINE METER RANKS

Master Meter's Positive Displacement Meter is leading the PD charge into the 21st century. Utilities preferring PD meters can now choose our advanced meter technology with 3G performance previously available only with Master Meter Multi-Jets. The basic PD meter has served on the frontlines for water utilities, virtually unchanged, for the past century. We salute its legacy, but our engineers felt this decades old design could use some improvement. Our latest PD meters are an engineer's dream — completely redesigned using the same Computational Fluid Dynamics (CFD) type software used by NASA to build advanced aerospace equipment. These meters feature optimized flow dynamics for quiet, precise operation and unmatched sustained accuracy. Whether you are replacing old meters or addressing growth, choose the latest in meter technology and put Master Meter Positive Displacement meters to work on your frontline.

## TECHNOLOGY FOR ADVANCING YOUR UTILITY

Master Meter Positive Displacement meters are designed with the future in mind for use in mobile and fixed network AMR/AMI data management systems. Choose the optional DIALOG 3G® Integrated AMR Register and put our ConnectionFree™ AMR Technology to work for you. 3G delivers powerful results with 4,000 read data logging and vigilant Revenue Impact Alerts™ monitoring for leaks, theft (*backflow*), tamper, and zero consumption. Our award-winning register design houses all vital components — encoder, RF transmitter, battery and antenna — safely within the register's sealed stainless steel and tempered glass enclosure. We eliminated external wires, components and connections — the #1 cause of warranty related issues on competitive designs.

## FEATURES:

- \* Oscillating piston technology delivers maximum flow with minimal pressure drop
- \* Measuring chamber housing and piston measuring element built with advanced, non-hydrolyzing engineered polymer materials
- \* Meets or exceeds all AWWA Standards
- \* Ultra-low head loss at 6.5 PSI at 20 GPM
- \* 35 + Years Verified Sustained Accuracy (4,000,000 million USG) in independent tests on the 5/8" size meter by the Utah Water Research Laboratory
- \* Improved capability to pass entrained solids
- \* Superior low flow capability records every leak
- \* With Optional 3G Integrated Register:
  - Revenue Impact Alerts - Leak, Tamper, Theft (*Backflow*), and Zero Consumption
  - Rich 4,000 Read Data Logging Capabilities (scalable / customer defined resolution)
  - Deploy DMA/DMZ Advanced Infrastructure Leak Management Programs

## REGISTER OPTIONS:

- \* DIALOG 3G Integrated AMR Register
- \* DIALOG 3G LCD Interpreter™
- \* DIALOG 2G® Pit
- \* DIALOG 2G Indoor
- \* Direct Read

## READ:

- \* Direct Read/Manual
- \* Proximity/Wand Read - 2G
- \* Mobile Drive-By AMR - 3G
- \* Fixed Network AMI Solution - 3G (100% migratable using existing Mobile AMR infrastructure)

## SIZES AVAILABLE:

5/8", 3/4", 1"



## TECHNICAL SPECIFICATIONS:

**AWWA Standard** - Meets or exceeds all sections of Standard ANSI / AWWA C700, most recent revision for cold water displacement meters with AWWA bronze main cases.

**NSF/ANSI Standard 61** - Optional Standard 61 certified no - lead main case available.

**Design/Operation** - Incoming water is continuously divided into crescent-shaped volumes by the action of the inlet ports, chamber interior and piston walls as controlled by the division plate and controller assembly. This hydraulic action causes the center of the oscillating piston measuring element to make continuous circular movements. A drive spindle formed integrally with the piston web moves the drive magnet. A magnetically-coupled follower magnet in the register assembly is directly connected to a gear system in the register that totalizes those movements into the desired billing units. The register assembly is removable under line pressure permitting seamless, simplified upgrades in AMR reading technology.

**Measuring Chamber** - The measuring chamber housing and piston measuring element are constructed of smoothly-finished, non-hydrolyzing engineered polymer materials. The removable chamber is sealed to the main case by a unique elastomeric chamber seal that resists the chances of back pressure seal blowouts or fouling of the sealing surfaces and adverse effects on accuracy due to normal pipeline distortions. Measuring chamber surfaces

that serve as bearing areas are generously dimensioned out of continual water-lubricated, non-hydrolyzing polymer material. These broad surface areas act to disperse any potential wear over a greater area. Advanced chamber design combined with a unique mechanical control process, provide greater operating clearances yet deliver outstanding low flow accuracy and sustained overall accuracy over a long operating life. Key small wear components such as the division plate, control roller and drive dog are constructed from hydrolytically-stable, lubricated nylon that minimizes localized wear.

**Register** - Standard Direct Read, DIALOG 2G and DIALOG 3G AMR System registers are available. Six wheel odometers are standard. Together, an integrated and migratable technology environment is attained; direct, proximity (wand), mobile AMR, and Fixed Network AMI.

**Register Sealing** - All Direct read and DIALOG® registers are IP-68 rated, permanently sealed with a scratch resistant glass lens, stainless steel base and wrap-around gasket to prevent intrusion of dirt or moisture.

**Register Units** - Registration available in either U.S. gallons, cubic feet or cubic meters.

**Magnetic Drive** - A reliable, direct magnetic drive provides linkage between measuring element and register

so that no gearing is exposed to water.

**Test Circle** - Large center sweep hand with one hundred (100) clearly marked gradations near the periphery of the dial face.

**Low Flow/Leak Indicator** - Clearly visible leak indicator with high sensitivity resulting from direct one-to-one linkage to the measuring element.

**Main Case** - Choice of waterworks bronze case of 81% copper composition, or, 86% copper, no lead bronze. All main cases incorporate externally threaded ends to aid installation.

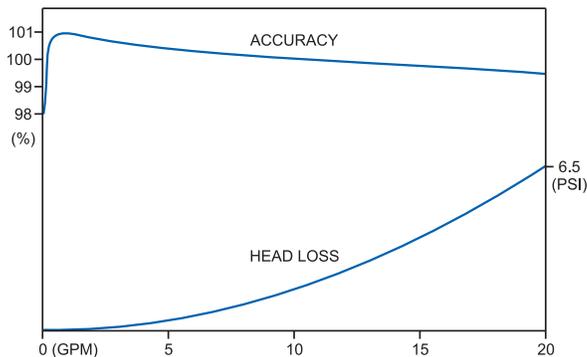
**Optional Bottom Plates** - Bronze, Cast Iron (CI), or Engineered Plastic.

**Strainer** - A rigid, advanced polymer strainer is provided with more than 4 times the open area of the pipe. The unique strainer design smoothes the flow of water entering into the meter creating a flow profile that is gentle on the meter's internal components. Tough materials operating in a smooth, balanced environment enable the meters to perform more accurately over time.

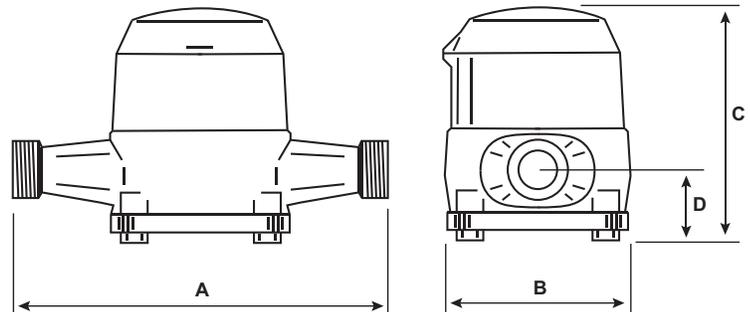
**Tamper Detection** - Design inhibits unauthorized register tampering and removal of the register. This design also provides a visual indication of tampering attempts.

METER OPERATING CHARACTERISTIC/DIMENSION	5/8" x 1/2"	5/8 x 3/4"	3/4" (.75")	3/4" (9")	1"
Flow Rating (gpm)	20	20	30	30	50
Continuous Flow (gpm)	10	10	15	15	25
Normal Flow Range (gpm)	1-20	1-20	2-30	2-30	3-50
Low Flow (gpm @ > 97%)	1/4	1/4	1/2	1/2	3/4
Extended Low Flow (gpm @ > 95%)	1/8	1/8	1/4	1/4	1/2
Maximum Working Pressure (psi)	150	150	150	150	150
Maximum Working Temperature (°F)	105	105	105	105	105
Specific Displacement (revs/gallon)	56.4/1	56.4/1	32/1	32/1	15.3/96
Headloss at Maximum Flow Rate (psi)	6.5	6.5	8.4	8.4	7.9
Length (A below)	7.5"	7.5"	7.5"	9"	10.75"
Width (B below)	3-13/16"	3-13/16"	3.47"	3.47"	6-13/16"
Height, standard register with lid (C below)	5-3/8"	5-3/8"	5.07"	5.07"	5.75"
Height, bottom to center line (D below)	1-5/8"	1-5/8"	1.51"	1.51"	2 5/8"
Weight (lbs)	4.25	4.25	7.9	8.4	12.2
Packed To Carton	6	6	6	6	4
Carton Weight (lbs)	30	30	50	53	53.8

ACCURACY AND HEAD LOSS CHART



STANDARD PD WATER METER



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