

March 3, 2021

Edward (Trey) C. Nazzaro  
**Town of Gulf Stream**  
100 Sea Road  
Gulf Stream, FL 33483

***Subject:***        **Town of Gulf Stream**  
                      **Water Meter Procurement**

Dear Edward:

Baxter & Woodman performed an evaluation of electronic water metering systems for the Town of Gulf Stream. The following is a summary of our findings:

Electronic water meters are a relatively new developing technology and concept for municipal use. The main driver for this technology is that electronic measurement has the ability to accurately measure low flow usage more efficiently than the older design mechanical water meters therefore, allowing the municipality to have a better ability to identify water usage accountability and therefore increase revenues. The AWWA Standard C715 was only developed within the past year or so. Prior to it's development, there was no standard guideline requirements for manufacture of product.

The Neptune Mach 10 water meter clearly meets and exceeds the newly established standards. In the critical and performance sense in that it enables the product to be a one of a kind standout. The key factors that set this meter apart from the others are as follows:

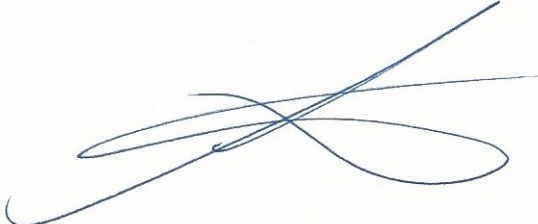
1. The meter is manufactured using NSF ANSI 61 lead free brass.
2. Perhaps, one of the most important features is that the measurement technology employed in the unit has a sampling rate of 4 X per second across the entire flow range of the unit therefore allowing for "real time" usage information.
3. The electronics of the unit are fully encapsulated in the registration technology.
4. The laying lengths are identical to the active standard laying lengths prescribed in current AWWA standards therefore, allowing for ease of replacement of existing equipment without the necessity of additional plumbing.

Attached you will find a suggested specification and information for the Neptune Mach 10 Ultrasonic Meters.

If you have any questions regarding the information presented, please contact us at 561-655-6175.

Sincerely,

**BAXTER & WOODMAN, INC.**

A handwritten signature in blue ink, appearing to read 'Sira J. Prinyavivatkul', is written over a light blue horizontal line. The signature is fluid and cursive, with a large loop at the end.

Sira J. Prinyavivatkul, P.E.  
Florida Water/Wastewater Department Manager

## **COLD-WATER METERS/ SOLID STATE METERS**

**SIZES: 5/8 " – 2"**

### **GENERAL**

Water Meters described herein shall conform to AWWA C715

All cold water meters (solid state type 5/8" - 2") furnished shall be produced in a manufacturing facility in the Continental United States and whose QMS is ISO 9001 certified.

### **LEAD FREE LEGISLATION**

The utility requires that all water meters submitted in this proposal be compliant with NSF/ANSI 61, which exceeds the requirements of NSF/ANSI 372 that became effective January 2014:

- > The utility wishes to ensure the safety of its drinking water.
- > The utility wishes to safeguard its investment in metering infrastructure.
- > Meters shall be made of "lead free" high-copper alloy as defined by NSF/ANSI 61.

### **TYPE**

Only meters featuring solid state metrology will be accepted because of enhanced low-flow accuracy performance and extended accuracy over meter life.

### **MEASUREMENT TECHNOLOGY**

The measurement technology shall be based on ultrasonic sensing featuring no moving parts. Magnetic type meters will not be considered.

### **SIZE, CAPACITY, LENGTH**

The meter's size, capacity, and length shall be as specified in AWWA Standard C715 (latest revision).

### **MAINCASE**

The meter maincase shall be made cast from NSF/ANSI 61 certified lead free alloy containing a minimum of 85% copper. Plastic maincases or flow tubes are not acceptable as the spuds are susceptible to cross-threading or breaking during installation, or from pipe stress over time. The serial number should be displayed in a permanent location on the register. Meter markings shall indicate size, model, direction of flow, and NSF 61 certification.

All lead free maincases shall be guaranteed free from manufacturing defects in workmanship and material for the warranted life of the meter.

All maincase screws or bolts shall be of 300 series non-magnetic stainless steel to prevent corrosion.

## **ELECTRONIC REGISTER**

The solid state meter electronic enclosure shall be constructed of a durable engineered composite designed to last the life of the meter. The meter shall provide a fully potted Coax F connector to be used in the event an external antenna is required.

## **ENVIRONMENTAL**

The solid state meter must feature fully potted electronics and battery for submersion in flooded meter pits.

## **REGISTRATION**

The register shall provide at least a 9-digit visual registration at the meter.

The register shall provide an 8-digit meter reading for transmission through the RF AMR.

The register shall employ a visual LCD leak detection indicator as well as provide remote leak detection through the Software.

The register shall provide reverse flow detection through the software.

The register shall provide an indication of days of zero consumption through the Software.

The register should accumulate and register consumption without connecting to a receptacle or RF AMR/AMI MIU. The register shall display flow rate information (interleaved with the current meter reading).

The register shall subtract reverse flow from the total registration.

## **STRAINERS**

Solid state meters shall not require a strainer for accurate operation.

## **PERFORMANCE**

Meter manufacturer's solid state meters shall exceed AWWA C715 accuracy standards and warrant their published accuracy levels for the life of their meters. Each meter shipment must be accompanied by factory test data showing the accuracy of the meter as tested at their factory.

## MANUFACTURER

Manufacturers shall be a member of AWWA with a minimum of twenty-five (50) years of field and production experience in water measurement technologies and serving water utilities in the United States. The bidder must have a minimum of **25 system references** in the State of Florida.

## INTEGRATED RF TRANSMITTER

The Town of Gulfstream, Florida is seeking a vendor to supply an **AMR** solution. The Town will not consider any AMI solutions due to the following reasons.

STAR system	Infrastructure restrictions.
Mesh system	Inability to accurately determine battery life
Cellular Endpoint system	Inability of any company to realistically guarantee cellular compatibility at 10 years and certainly not 20

The unit must be fully integrated. The Town will not consider any systems that connect a transmitter via a wire to the meter. Warranties must cover the entire meter as a unit. Meters shall be warrantied for 10 years from date of shipment.

## TECHNOLOGY PREFERENCE

It is the utility's preference that the solid state meter technology provided be ultrasonic-based technology featuring continuous measurements (> 4x per second) to ensure desired accuracy at low-end flows and during typical start/stop conditions. The meter shall not require any special modes for testing. The meter shall be able to pass an accuracy test as if it is a mechanical meter. When the water stops the meter must stop.

Acceptable meters shall be Neptune MACH 10® or approved equal.

## Software

Software shall be cloud based and allow the Utility to utilize an iOS or Android device in conjunction with a 52 channel receiver to read meters. The transceiver will connect to the Towns devices via Bluetooth. The Town will provide its own devices, phones and tablets.

**Pricing**

Quant.	Description	Unit	Total
XXX	1" Ultrasonic Meter with integrated Transmitter	\$	\$
XXX	1 1/2" Ultrasonic Meter with integrated Transmitter	\$	\$
	Female Iron Pipe		
XXX	2" Ultrasonic Meter with Integrated Transmitter	\$	\$
1	Mobile Collector	\$	\$
1	Hand Held Mobile collector	\$	\$
1	Set Up Fee (One Time)	\$	\$
1	On Site Training	\$	\$
Annual	Software Subscription	\$	\$

**References in Florida**

**Please List these from Large to Small including Name of Utility, Contact, email, phone number.**

# Be Confident with Sustained Accuracy Over Time

## Neptune® MACH 10® Ultrasonic Meter



The MACH 10® ultrasonic water meter features solid state metrology with no degradation of accuracy over time. Combined with a corrosion-resistant, lead free, high-copper alloy maincase, the MACH 10 is built to withstand demanding service conditions and deliver sustained accuracy over the life of the meter.

- Sizes  $\frac{5}{8}$ ",  $\frac{3}{4}$ ", and 1"
- Extended low-flow range for superior leak detection
- Accuracy sustained over meter life
- Can be installed in both horizontal and vertical applications
- Advanced ultrasonic technology
- Lead free, high-copper alloy maincase
- Certified to UL 327B ( $\frac{3}{4}$ ", 1") for residential fire service applications
- No maintenance

## Specifications

AWWA C715 Compliant

NSF/ANSI 61 Certified

UL327B Certified

(Optional on ¾", 1")

### Application

- Cold water measurement of flow in residential potable, combination potable and fire service, and reclaim/secondary water applications.

### Maximum Operating Water Pressure

- 175 psi

### Operating Water Temperature Range

- +33°F to +122°F (+0.5°C to +50°C)

### Environmental Conditions

- Operating temperature: +14°F to +149°F (-10°C to +65°C)
- Storage temperature: -40°F to +158°F (-40°C to +70°C)

## Options

### Sizes

- ⅝", ⅝" x ¾"
- ¾", ¾" x 1"
- 1", 1" x 1¼"

### Meter Options

- Potable water
- Reclaim water
- Residential fire service (combo or standalone meter service lines)

## Warranty

- Neptune provides a limited warranty for performance, materials, and workmanship. See warranty statement for details.

## System Compatibility

- Compatible with Neptune R900® and CMIU. Also available as MACH 10®)R900i™ for an integrated radio solution and MACH 10®)TC for Sensus Touch Coupler compatibility.

## Operating Characteristics

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	AWWA C715 Standard Type 1	Extended Low Flow @ 100% Accuracy (+/- 3%)
⅝"	0.10 to 25 U.S. gpm 0.02 to 5.68 m³/h	0.2 to 20 U.S. gpm 0.05 to 4.54 m³/h	0.05 U.S. gpm 0.01 m³/h
¾"	0.10 to 35 U.S. gpm 0.02 to 7.95 m³/h	0.5 to 30 U.S. gpm 0.11 to 6.81 m³/h	0.05 U.S. gpm 0.01 m³/h
1"	0.40 to 55 U.S. gpm 0.09 to 12.49 m³/h	0.75 to 50 U.S. gpm 0.17 to 11.35 m³/h	0.25 U.S. gpm 0.06 m³/h

## Available Units of Measure

Consumption	Rate
Gallons	GPM
Cubic Feet	GPM
Cubic Metres	LPM
Cubic Meters (International)	LPM
Imperial Gallons	GPM
Acre-Feet*	GPM
Litres*	LPM
Kilolitres*	LPM

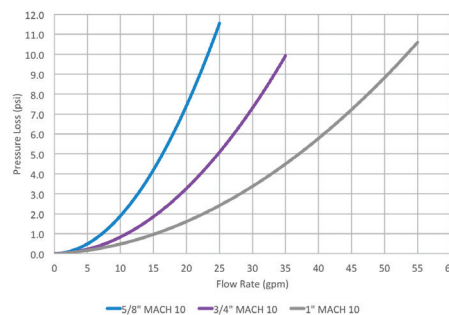
\*Unit cannot be displayed on LCD

## Dimensions

Meter Size	Length	Height	Threads (NPSM)
⅝"	7½"	3⅜"	¾" - 14"
⅝" x ¾"	7½"	3⅜"	1" - 11½"
¾"	9"	3⅜"	1" - 11½"
¾" SL	7½"	3⅜"	1" - 11½"
¾" x 1"	9"	3⅜"	1¼" - 11½"
1"	10¾"	3⅜"	1¼" - 11½"
1" x 1¼"	10¾"	3⅜"	1½" - 11½"

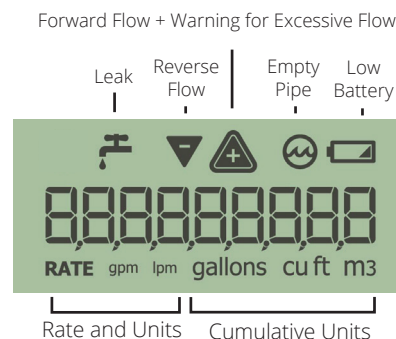
## Pressure Loss

This chart shows typical meter performance. Individual results may vary.



## LCD Display

9-digit display for extra resolution on manual reads.



## Registration

High Resolution (8-digit reading)	
0.1	U.S. Gallons
0.1	Imperial Gallons
0.01	Cubic Feet
0.001	Cubic Metres



Residential Fire Service Meter



neptune.com

Neptune Technology Group

1600 Alabama Highway 229

Tallahassee, AL 36078

800-633-8754 f 334-283-7293



# Be Confident with Sustained Accuracy Over Time

## Neptune® MACH 10® Ultrasonic Meter



The MACH 10® ultrasonic water meter features solid state metrology with no degradation of accuracy over time. Combined with a corrosion-resistant, lead free, high-copper alloy maincase, the MACH 10 is built to withstand demanding service conditions and deliver sustained accuracy over the life of the meter.

- Sizes 1½" and 2"
- Extended low-flow range for superior leak detection
- Accuracy sustained over meter life
- Can be installed in both horizontal and vertical applications
- Advanced ultrasonic technology
- Lead free, high-copper alloy maincase
- Certified to UL 327B (1½", 2") for residential fire service applications
- No maintenance

## Specifications

AWWA C715 Compliant

NSF/ANSI 61 Certified

UL 327B Certified

(Optional for 1½", 2")

### Application

- Cold water measurement of flow in potable, combination potable and fire service, and reclaim/secondary water applications.

### Maximum Operating Water Pressure

- 175 psi

### Operating Water Temperature Range

- +33°F to +122°F (+0.5°C to +50°C)

### Environmental Conditions

- Operating temperature:  
+14°F to +149°F (-10°C to +65°C)
- Storage temperature:  
-40°F to +158°F (-40°C to +70°C)

## Options

### Sizes

- 1½"
- 2"

### Meter Options

- Potable water
- Reclaim water
- Residential fire service (combo or standalone meter service lines)

## Warranty

- Neptune provides a limited warranty for performance, materials, and workmanship. See warranty statement for details.

## System Compatibility

- Compatible with Neptune R900® and CMIU. Also available as MACH 10®)R900i™ for an integrated radio solution and MACH 10®)TC for Sensus Touch Coupler compatibility.

## Operating Characteristics

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	AWWA C715 Standard Type 1	Extended Low Flow @ 100% Accuracy (+/- 3.0%)
1½"	0.80 to 125 U.S. gpm	2.0 to 100 U.S. gpm	0.30 U.S. gpm
2"	1.50 to 160 U.S. gpm	2.5 to 160 U.S. gpm	0.50 U.S. gpm

## Dimensions

Meter Size	Length	Height	Flanges
1½"	10"	6¼"	Oval
	13"	6¼"	Oval
	12⅝"	6¼"	Internal Thread
	12⅝"	6¼"	External Thread
2"	10"	6½"	Oval
	15¼"	6½"	Oval
	17"	6½"	Oval
	15¼"	6½"	Internal Thread
	15¼"	6½"	External Thread

## Available Units of Measure

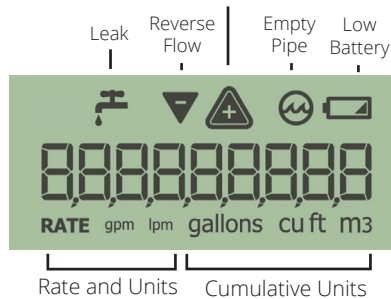
Consumption	Rate
Gallons	GPM
Cubic Feet	GPM
Cubic Metres	LPM
Cubic Meters (International)	LPM
Imperial Gallons	GPM
Acre-Feet*	GPM
Litres*	LPM
Kilolitres*	LPM

\*Unit cannot be displayed on LCD

## LCD Display

9-digit display for extra resolution on manual reads.

Forward Flow + Warning for Excessive Flow

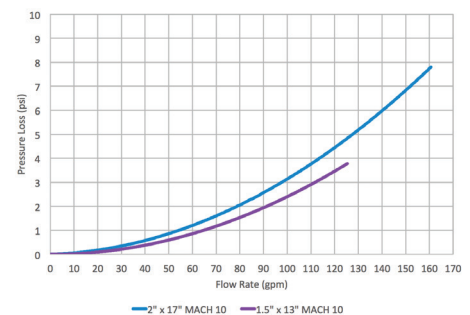


## Registration

High Resolution (8-digit reading)		1½"	2"
1	U.S. Gallons	✓	✓
1	Imperial Gallons	✓	✓
0.1	Cubic Feet	✓	✓
0.01	Cubic Metres	✓	✓

## Pressure Loss

Typical meter performance. Individual results may vary.



neptunetg.com

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