

**TO:** James L. App, City Manager  
**FROM:** Doug Monn, Director of Public Works  
**SUBJECT:** Water Meter Installation Fees  
**DATE:** May 7, 2013

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**Needs:** That the City Council consider updating and adjusting fees for installation of larger water meters.

**Facts:**

1. The new sewer rate structure has prompted the request for the installation of many separate landscape meters.
2. Mag meters are currently being used as the standard installation for most non-residential meters. They are much more effective at capturing low flows, and they do not have the continuous accuracy degradation over time associated with turbine meters providing a longer span between replacement and lower overall cost.
3. Non-revenue water losses cost the City up to \$500,000 a year. Much of this non-revenue water is associated with meter error as a result of age or non-read of low flows.
4. Fees for the installation of water meters were established by Resolution 3120 in June, 1986. They have remained constant ever since.
5. Rate payers are not assessed for replacement of existing meters.
6. General Plan policy provides that new development should pay for its impacts on City services to be fiscally neutral.
7. The newer meters cost more than the fee currently being charged for their installation. The meter cost increases reflect the City's cost. No mark-up or handling charge was added.

**Analysis  
and**

**Conclusion:** The new sewer rate structure has prompted the request for the installation of many more separate landscape meters. Mag meters are currently used as the standard installation for non-residential purposes. Mag meters are very effective at capturing low flows while avoiding accuracy degradation over time typically associated with turbine meters.

Non-revenue water losses cost the City up to \$500,000 per year. Much of this non-revenue water is attributed to water meter error. The mag meter costs about \$600 more than its turbine counterpart. Fees established for the installation of water meters in 1986 remain adequate today for smaller meters (3/4-inch and one-inch). However, the advanced technology available in mag meters requires new rates for 1.5-inch and 2-inch

meter installations to cover their actual cost. The City does not mark up the cost of the meters.

**Policy**

**Reference:** General Plan

**Fiscal**

**Impact:** Fees are proposed to be increased to cover expenses

**Options:** a. Adopt Resolution No. 13-xxx; increasing fees for the installation of larger water meters to cover their actual cost to the City.

b. Amend, modify or reject the above option.

Attachments: (2)

1. Large Water Meter Specifications
2. Resolution



# evoQ<sub>4</sub>

## Electromagnetic Water Meter

Make every drop count



[www.elsteramcowater.com](http://www.elsteramcowater.com)  
[www.elster-evolution.com](http://www.elster-evolution.com)

## evoQ<sub>4</sub> Electromagnetic water meter

Today's water meters need to be more reliable, accurate and durable with advanced flow technology that has the capability to capture revenue while reducing overall operating costs. The evoQ<sub>4</sub> provides a total solution for commercial water utility metering, by filling the needs of turbines, compounds, single jets and electromagnetic meters.

With advanced measurement and flow technology, the evoQ<sub>4</sub> battery powered mag meter delivers high accuracy through a wide range of flows and varied conditions and applications. Typical accuracy performance ranges from 99.25% to 100.75% (+/- 0.75% error) of true value through the normal flow range. The meter line can be sized to suit either predominantly high or low flow rates, and is ideal for a wide variety of bulk flow metering applications, such as network monitoring, leakage detection and commercial billing.

### Reliable connectivity

With a choice of bi-directional pulse or encoded outputs, the evoQ<sub>4</sub> provides dependable connectivity to critical distribution management and billing systems, including AMR and data-logging devices. The evoQ<sub>4</sub> is compatible with evolution™ AMI and other AMR/AMI devices.

### Accurate measurement

The evoQ<sub>4</sub> has a standard, continuous sampling rate of 0.5 second, so you can be confident of accurate and reliable measurement. It also features anticorrosive electrodes to ensure consistently accurate performance throughout its entire life.

### Durability

The evoQ<sub>4</sub>'s tough stainless steel construction ensures a long, corrosion-free working life, while its lightweight body makes storage, transportation and installation both simpler and safer. An IP68 rating provides protection for internal electronics meaning long-term reliability.

### Maintenance Free

Designed without moving parts and a 10-year battery life, the evoQ<sub>4</sub> is maintenance free, eliminating regular battery change outs and calibration often required with mechanical and other electromagnetic meters.

### Real-time data

A large, bright and easy-to-read LCD displays volume and instantaneous flow rate for reference. The evoQ<sub>4</sub> also has alarm functions providing real time status, to ensure no loss in measuring continuity.

### Easy access

The evoQ<sub>4</sub>'s optional remote display unit provides a clear LCD for simpler access in hard-to-read applications. The unit also includes two pulse outputs for connection to ancillary devices such as AMR or process monitoring devices.

### Low pressure loss

An unrestricted flow tube ensures minimal pressure loss, even at the highest flow rates. This means that overall network system pressures can be reduced, lowering energy expenditures, reducing the occurrences of burst pipes and extending the useful life of pumping stations.



### Simple installation

Installation of the evoQ<sub>4</sub> is simple. Just fit and go, no need for grounding rings or programming with a laptop in a vault. The evoQ<sub>4</sub> comes in AWWA C701 Class II Turbine meter lay lengths. The flanges are epoxy coated cast iron to reduce weight and prevent corrosion. The 1.5" and 2" comes with an oval flange and the 3" and larger meters come with a round flange. All flanges conform to ANSI B16.1 Class 125 standards.

### evoQ4 AL (Alternate Length)

The evoQ<sub>4</sub> meter is now available in alternate lengths for 1.5 and 2" meter installations. The lengths are typical of C700, C702 and C712 lay lengths to facilitate direct replacement of mechanical meters without the added expense of makeup spool pieces. Additionally, these meters feature a shorter height dimension, fitting into tight spaces. The complete suite of output modules is available to provide remote display or AMR / AMI functionality.

### evoQ4 FSM (Fire Service Meter)

As an optional feature, the evoQ<sub>4</sub> comes with a full FM Standard 1044 approval for use as a fire service instrument. Replace those monstrous mechanical fire service assemblies with an easily fit solid state meter.



### System options

#### Pulse or encoded output meter

As above with the addition of a plug and play pulse or encoder output transmitter for connection to ancillary devices including AMR, data-loggers or remote monitoring system.



#### Meter + remote display

As in option 1 with the addition of a pulse output and remote display unit (pictured right) connected electronically to the meter. The remote display features two pulse output channels.



#### Display only

Simple, visual read meter only with no output communications. Pulse or encoder output can be easily added through upgrade in-the-field with option 2 or remote and pulse with option 3.

### Display functions

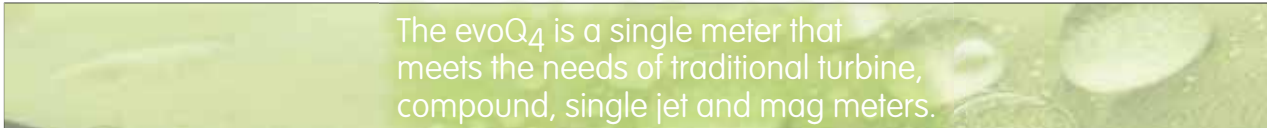
- 1 **Volume** – the net volume of water measured is displayed.
- 2 **Flow Rate** – If water is flowing in the reverse direction a minus sign is displayed to the left of the value.
- 3 **Low-Battery** – The indicator appears when the battery voltage is low and the meter should be replaced.
- 4 **No-Water** – The indicator blinks when there is an empty pipe condition in the meter.



## Comparison mechanical commercial meters

		evoQ <sub>4</sub>	AWWA C701 Turbine	AWWA C702 Compound	AWWA C712 Single Jet
1.5"	AL Low Flow (gpm)	1/2	4	N/A	1/2
	Continuous Flow (gpm)	176	80	N/A	50
	High Flow (gpm)	220	160	N/A	10
	Weight	9.5	16	N/A	12
	Lay Length	13	13	N/A	13
	Operating PSI	150	150	N/A	150
	Warranty (years)	5	2	N/A	2
2"	Low Flow (gpm)	1/4	4	1/4	1/2
	Continuous Flow (gpm)	176	100	80	90
	High Flow (gpm)	220	160	160	160
	Weight	11	21*	51*	30*
	Lay Length	10	10	17	17
	Operating PSI	230	150	150	150
	Warranty (years)	5	2	2	2
3"	Low Flow	1/2	8	1/2	1/2
	Continuous Flow	440	350	175	160
	High Flow	550	435	350	320
	Weight	22.5	37*	92*	60*
	Lay Length	12	12	17	17
	Operating PSI	230	150	150	150
	Warranty (years)	5	2	2	2
4"	Low Flow	1.7	15	3/4	3/4
	Continuous Flow	700	650	300	250
	High Flow	880	750	600	500
	Weight	35.5	50*	134*	94*
	Lay Length	14	14	20	20
	Operating PSI	230	150	150	150
	Warranty (years)	5	2	2	2
6"	Low Flow	4	30	1 1/2	1 1/2
	Continuous Flow	1100	1400	675	500
	High Flow	1400	1600	1350	1000
	Weight	55.5	113*	165*	142*
	Lay Length	18	18	24	24
	Operating PSI	230	150	150	150
	Warranty (years)	5	2	2	2
8"	Low Flow	8	50	2	N/A
	Continuous Flow	2770	2400	900	N/A
	High Flow	3500	2800	1600	N/A
	Weight	81.5	177*	523*	N/A
	Lay Length	20	20	34.5	N/A
	Operating PSI	230	150	150	N/A
	Warranty (years)	5	2	2	N/A

\* Average Weight of Each Manufacturer's Offering



The evoQ<sub>4</sub> is a single meter that meets the needs of traditional turbine, compound, single jet and mag meters.

## evoQ<sub>4</sub> Data 10" - 12"

10"	Low Flow (gpm)	32
	Continuous Flow (gpm)	3800
	High Flow (gpm)	5500
	Weight	120
	Lay Length	17.75
	Operating PSI	150
	Warranty (years)	5
12"	Low Flow (gpm)	32
	Continuous Flow (gpm)	3800
	High Flow (gpm)	5500
	Weight	159
	Lay Length	19.7
	Operating PSI	150
	Warranty (years)	5



## Traditional electromagnetic meter comparison

Specifications	evoQ <sub>4</sub>	Traditional Utility E-Mag
<b>Power Options</b>		
AC Only	No	Yes
AC Battery Back Up	No	Yes
Battery Only	Yes	Some
Battery Life	10 yrs	3 yrs (Maximum)
Reading Sample Rate	0.5 sec	15 sec
<b>Reading Options</b>		
Pulse Output	Yes	Yes
Encoder Output	Yes	Yes
4-20mA	No*	No*
<b>Meter Accuracy</b>		
Typical 4" meter		
Low Flow	1.7 gpm	5.9 gpm
Maximum Flow	880 gpm	704 gpm
<b>Dimensions</b>		
Lay Lengths	AWWA C701	Non-standard 4"
Weight	35.5 lbs	33 lbs
<b>Approvals</b>		
CE	Yes	Yes
NSF61	Yes	Yes
FM	Yes	Yes

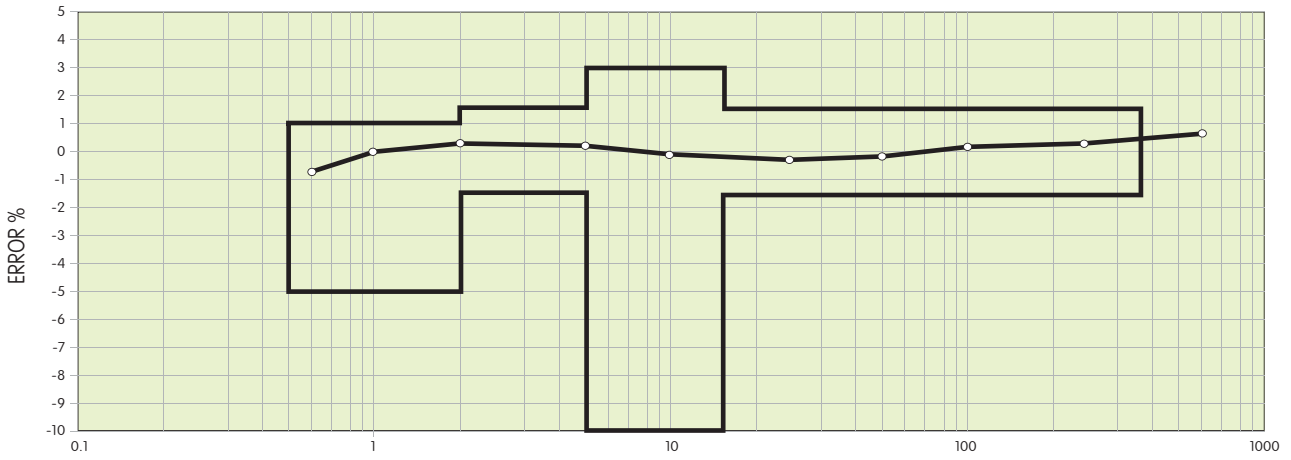
\* 4-20mA output can be achieved with a converter



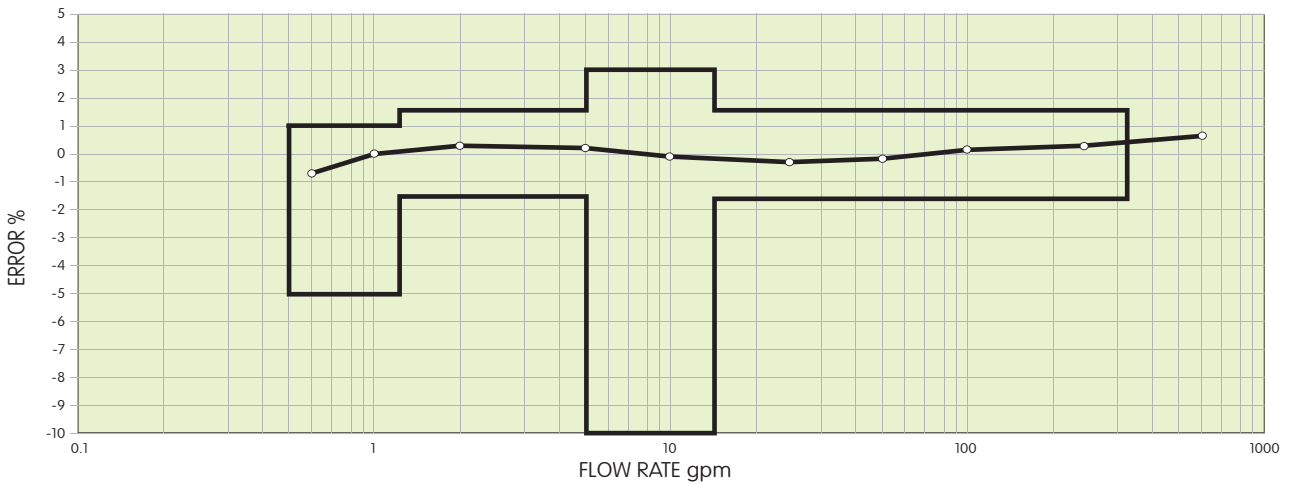
# High accuracy measurement

C702 compound accuracy limits

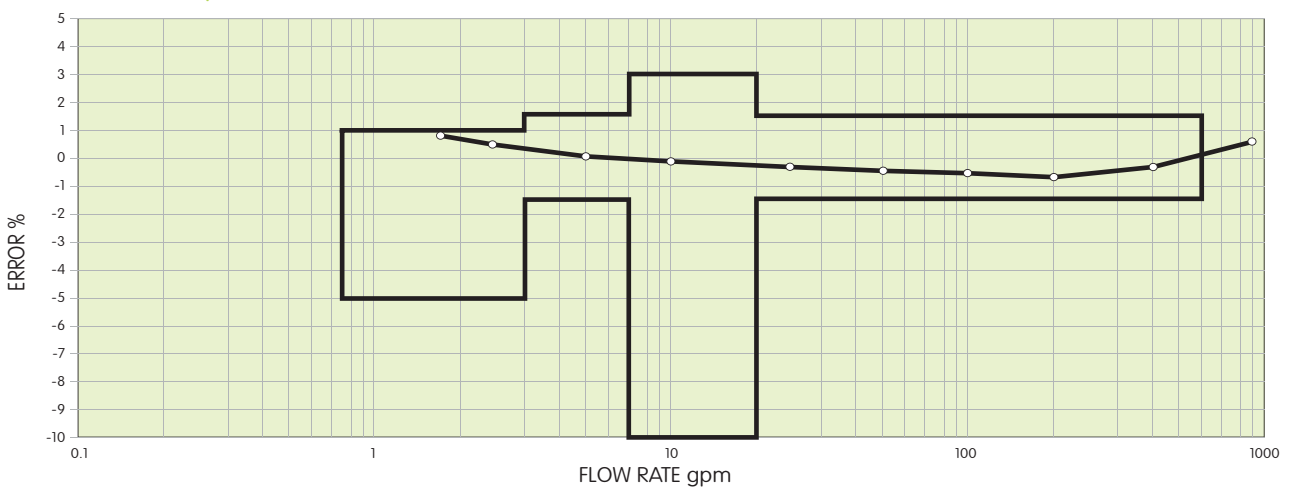
2" evoQ<sub>4</sub> vs C702 Accuracy Envelope



3" evoQ<sub>4</sub> C702 Accuracy Envelope

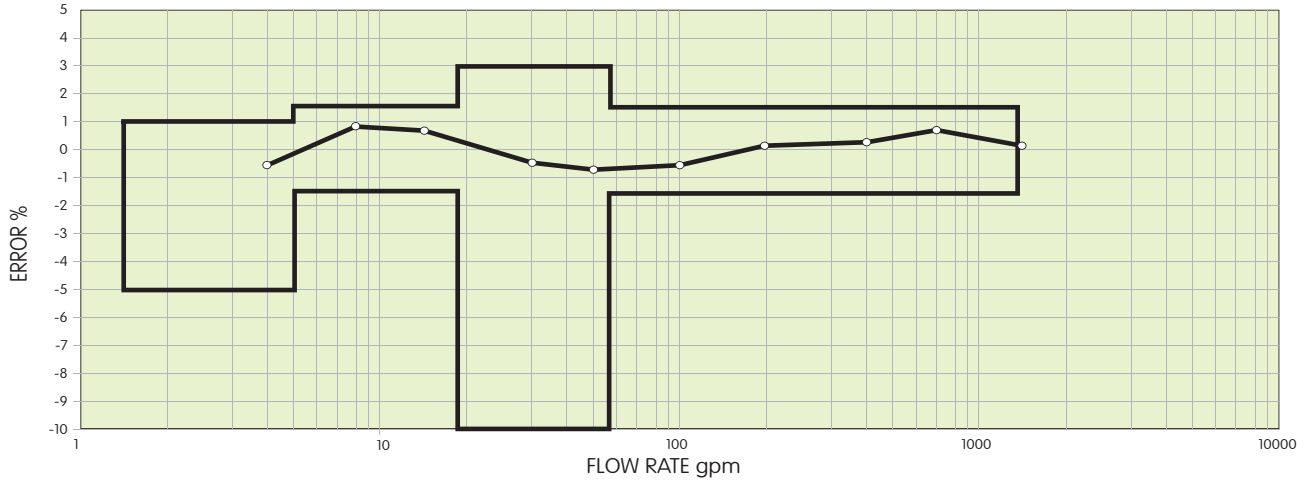


4" evoQ<sub>4</sub> C702 Accuracy Envelope

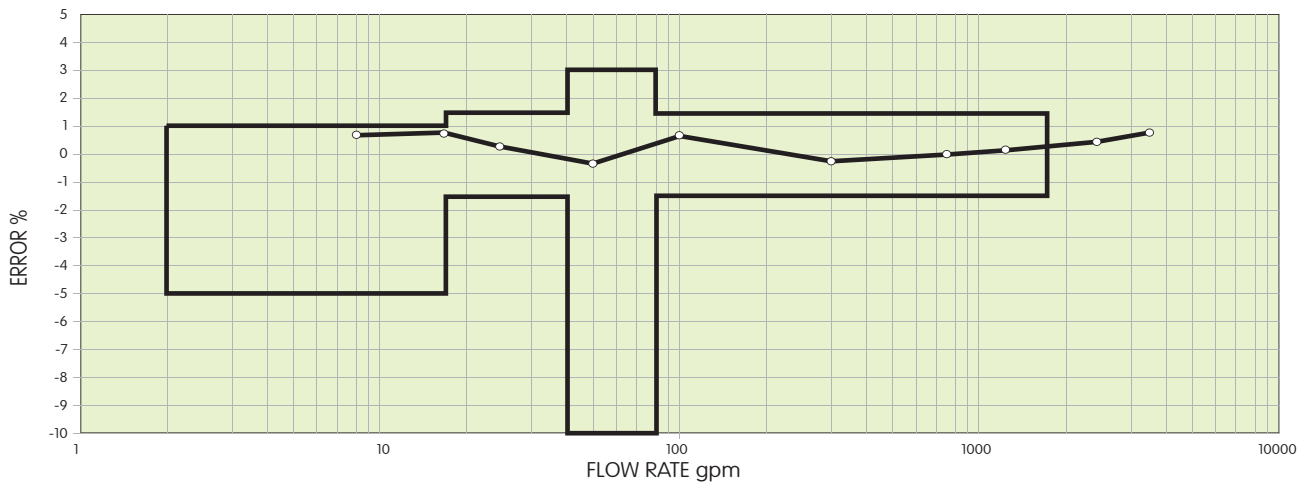




### 6" evoQ<sub>4</sub> C702 Accuracy Envelope



### 8" evoQ<sub>4</sub> C702 Accuracy Envelope



### evoQ4 pressure loss

	Units	1.5"	2"	3"	4"	6"	8"	10"	12"
Flow Rate	gpm	220	220	550	880	1400	3500	5500	5500
Pressure Loss	PSI	4.35	4.35	3.62	3.62	2.17	5.80	5.80	6.40



## About Elster AMCO Water, LLC

Located in Ocala, Florida, Elster AMCO Water is part of Elster, the world's largest metering and smart metering system solution company. Elster AMCO Water is an industry leader in the development and implementation of innovative metering and system solutions and is committed to delivering superior customer service, quality products, solutions and services to the water utility industry.

## About Elster Group

Elster has delivered over 1.5 million smart metering devices worldwide with systems located in North America, Central America, Europe, Australia, New Zealand and the Caribbean. Elster smart metering systems allow utilities to implement energy conservation measures, demand response programs, smart grid initiatives, and smart home solutions as well as achieve operational efficiencies resulting in significant value creation across the utility enterprise. Elster has over 7,500 staff and operations in 38 countries, focused in North and South America, Europe, and Asia.

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The policy of Elster AMCO Water, LLC is one of continuous improvement and the right is reserved to modify the specifications without notice.

Lit Ref: evoQ<sub>4</sub>-104/05-11

RESOLUTION NO. 13-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF  
PASO ROBLES MODIFYING WATER METER INSTALLATION FEES

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WHEREAS, fees for the installation of water meters were established by Resolution 3120 of the City Council on June 17, 1986; and

WHEREAS, General Plan policy provides that new development shall pay for its impacts on City services; and

WHEREAS, new technologies have developed larger water meters (1.5-inch and 2-inch) that accurately measure very low flows while having the capability of delivering very high flows; and

WHEREAS, the aforesaid larger water meters are more expensive than the older, less accurate models; and

WHEREAS, it is necessary to increase installation fees for larger water meters to fully recover their cost to the City.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. That the City Council of the City of El Paso de Robles finds and determines that the proposed large water meter installation fees do not exceed the reasonable cost of providing the service for which the fee is to be charged and that the meter costs reflect the actual cost of the meters to the City.

SECTION 2. The City Council of the City of El Paso de Robles does hereby approve and adopt the schedule of water meter installation fees attached hereto as Exhibit "A" and incorporated herein by reference, to become effective immediately upon adoption of this resolution.

PASSED AND ADOPTED by the City Council of the City of El Paso de Robles at a regular meeting of said Council held on the 7<sup>th</sup> day of May, 2013 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

ATTEST:

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Duane Picanco, Mayor

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Caryn Jackson, Deputy City Clerk

# EXHIBIT A

<b>Water Meter</b>	<b>3/4"</b>	<b>1"</b>	<b>1.5"</b>	<b>2"</b>
Install meter only	\$179	\$219	\$1,290	\$1,336
Tie into water main	Based on labor, equipment and parts			