

### DESCRIPTION

Model ML100 irrigation flow meter is designed to provide accurate flow measurement at moderate pressure ratings in an inexpensive package.

The impeller and drive assembly are removed and replaced through the open end of the meter tube.

The ML100 can be field-serviced without the need for factory recalibration.

### FEATURES

#### Impellers

Impellers are manufactured of high-impact plastic, capable of retaining their shape and accuracy over the life of the meter.

Each impeller is individually calibrated at the factory to accommodate the use of any standard McCrometer register.

#### Bearings

Factory lubricated stainless steel bearings are used to support the impeller shaft.

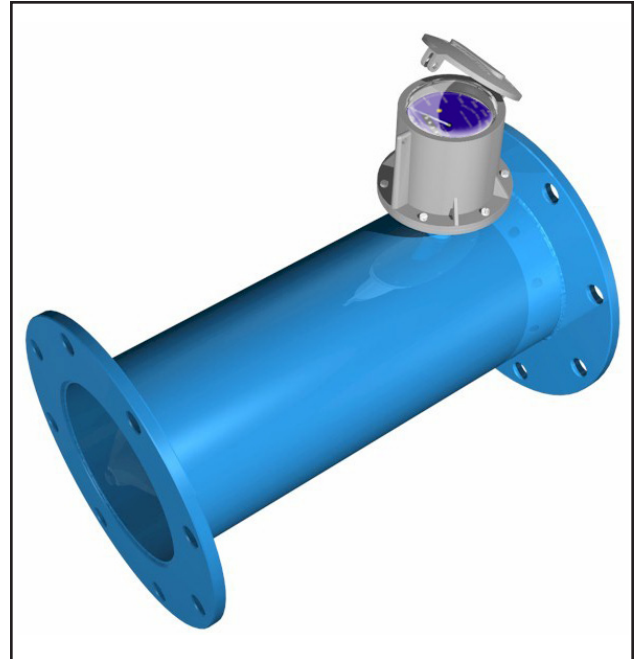
The sealed bearing design limits the entry of materials and fluids into the bearing chamber providing maximum bearing protection.

#### Register

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units.

The register is driven by a flexible steel cable encased within a protective vinyl liner.

The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.



### Typical Applications

The McCrometer propeller is the most widely used flowmeter for agricultural and turf irrigation measurement. Typical applications include:

- Center pivot systems
- Sprinkler irrigation systems
- Golf course and park water management
- Drip irrigation systems
- Gravity turnouts from underground pipelines
- Commercial nurseries

### INSTALLATION

Standard installation is horizontal mount. If the meter is to be mounted in the vertical position, please advise the factory. A straight run of full pipe the length of ten pipe diameters ahead and two diameters behind the meter is the minimum normally recommended for meters without straightening vanes. Meters with straightening vanes require at least five pipe diameters ahead and two diameters behind the meter.

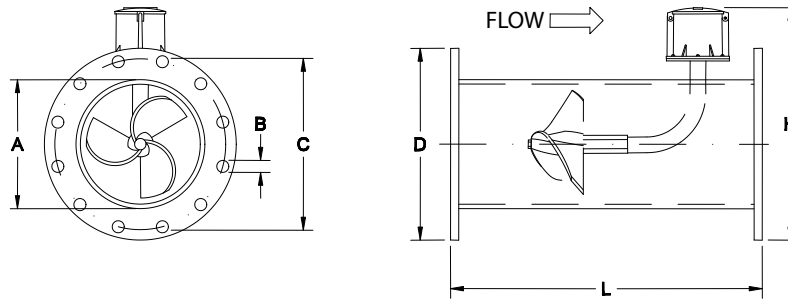
### SPECIFICATIONS

Performance	
<b>Accuracy / Repeatability</b>	<ul style="list-style-type: none"> <li>±2% of reading guaranteed throughout full range.</li> <li>±1% over reduced range. Repeatability 0.25% or better</li> </ul>
<b>Maximum Temperature</b>	See dimensions chart on next page
<b>Head Loss</b>	See graph on page 6
<b>Pressure Rating</b>	75 psi

Materials	
<b>Tube</b>	Epoxy-coated carbon steel pipe, conforming to ASA pipe standards. Lightweight irrigation flanges with 150 pound drilling
<b>Spool</b>	Carbon steel standard, stainless steel optional
<b>Coating</b>	Fusion-bonded epoxy
<b>Body</b>	Epoxy-coated carbon steel pipe conforming to A.S.A pipe schedules
<b>Bearing Assembly</b>	Impeller shaft is 316 stainless steel. Ball bearings are 440C stainless steel.
<b>Magnets</b>	(Permenant type) Alnico
<b>Bearing Housing</b>	304 stainless steel standard, 316 stainless steel optional
<b>Register</b>	An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged lens cover with locking hasp.
<b>Impeller</b>	Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter.

Options	
	<ul style="list-style-type: none"> <li>Extended warranty</li> <li>Register extensions</li> <li>Flow straightening vanes</li> <li>High temperature construction 180°F</li> <li>Marathon bearing assembly for higher than normal flowrates</li> <li>Digital register available in all sizes of this model</li> <li>A complete line of flow recording/control instrumentation</li> <li>Canopy boot</li> </ul>

## DIMENSIONS



ML100	DIMENSIONS			
Meter Size	6"	8"	10"	12"
<b>Maximum Flow U.S. GPM</b>	1200	1500	1800	2500
<b>Minimum Flow U.S. GPM</b>	90	100	125	150
<b>Approx. Head Loss in Inches at Max. Flow</b>	17.00	6.75	3.75	2.75
<b>Approx. Shipping Weight, lbs.</b>	50	61	104	125
<b>A (inches)</b>	6	8	10	12
<b>B (inches)</b>	7/8	7/8	1	1
<b>C (inches)</b>	9 1/2	11 3/4	14 1/4	17
<b>D (inches)</b>	11	13 1/2	16	19
<b>H (inches)</b>	16 1/4	18 1/2	21 3/4	24 1/4
<b>L (inches)</b>	20	20	20	20
<b>No. of Bolts Per Flange</b>	8	8	12	12

## PIPE RUN REQUIREMENTS

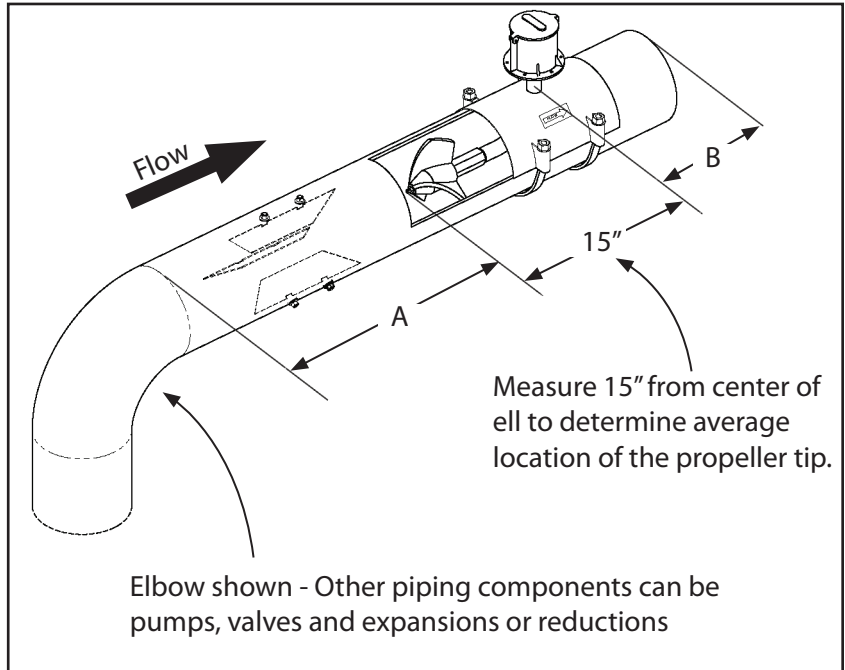
### Upstream Requirement

Mc Propeller meters should be installed a minimum of five to ten diameters downstream of any obstructions.

### Downstream Requirement

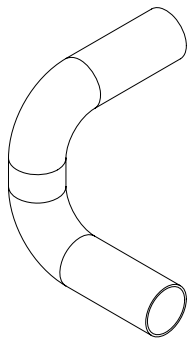
The downstream run should be one diameter of straight pipe length after the meter.

Configuration	A	B
Without straightening vanes	10	1
With straightening vanes	5	1
With FS100 Flow Straightener	1.5	1

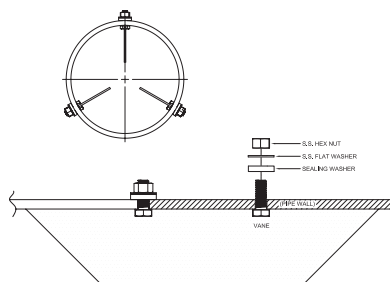


## STRAIGHTENING VANES

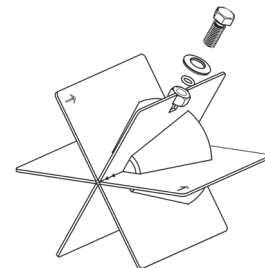
Special attention should be given to systems using two elbows “out of plane” or devices such as a centrifugal sand separator. These cause swirling flow in the line that affect propeller meters. Well developed swirls can travel up to 100 diameters downstream if unobstructed. Since most installations have less than 100 diameters to work with, straightening vanes become necessary to alleviate the problem. Straightening vanes will break up most swirls and ensure more accurate measurement. McCrometer actively encourages installing vanes just ahead of the meter. Straightening vanes are available in weld-in, bolt-in, and the FS100 Flow Straightener.



**Elbows out of plane**

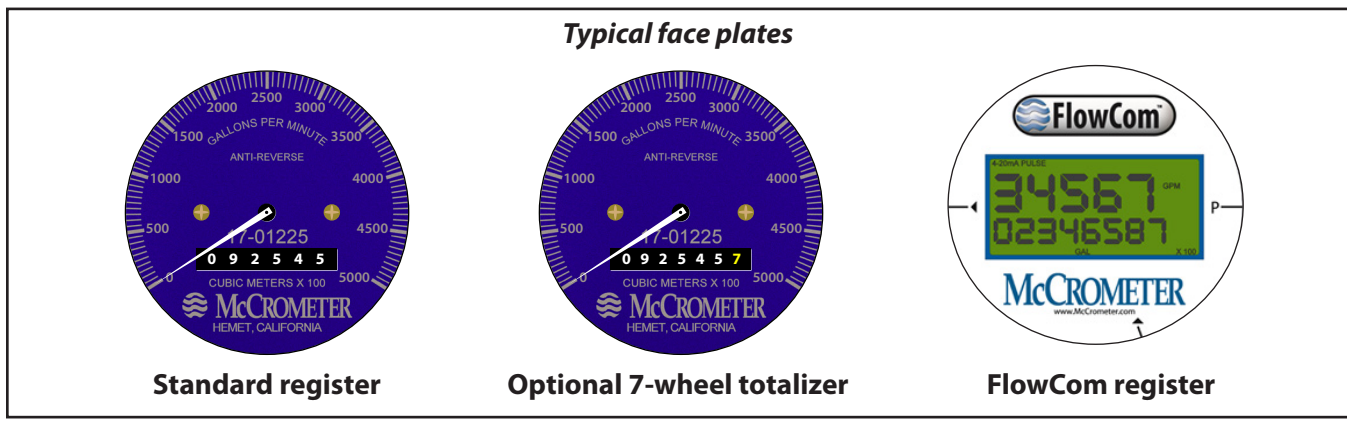


**Bolt-in straightening vanes**



**FS100 Flow Straightener**

**TOTALIZERS**



**Mechanical Totalizer**

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable encased within a protective vinyl liner. The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.



**Digital Totalizer**

The optional FlowCom register displays a flowmeter's flowrate and volumetric total. Available are optional outputs: scaled pulse and/or industry standard 4-20mA signal. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.



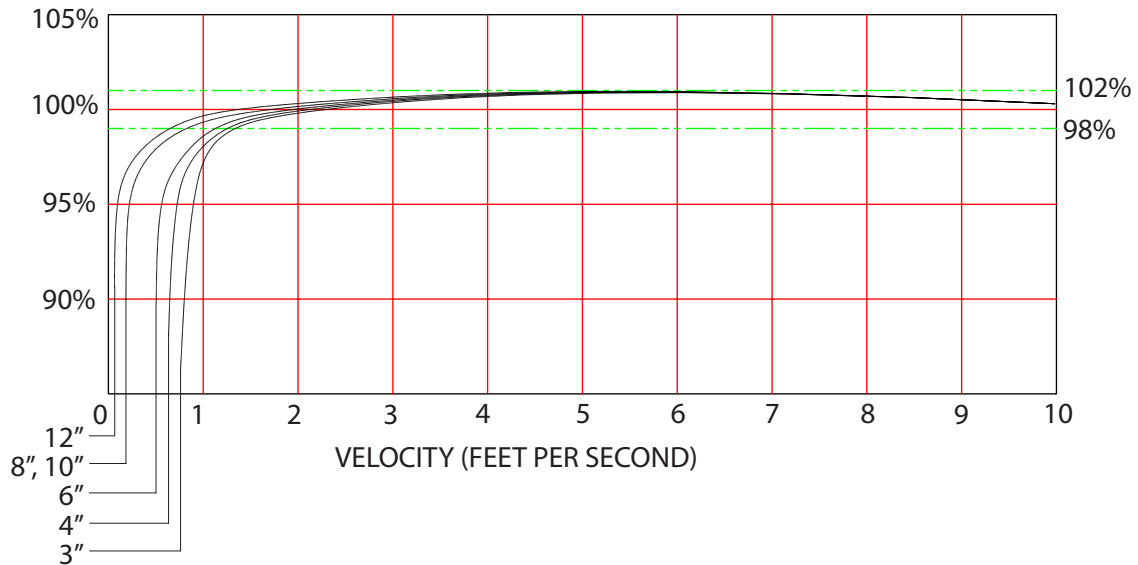
**Wireless Telemetry**

The optional FlowConnect is designed specifically for wireless telemetry via either satellite or cellular data service. Manual meter reading is never required. It uses either the mechanical register or the digital register (both shown above).

You can determine how often readings are made and transmitted to the cloud database, which you can view on a PC or on a cell phone. The viewing utility provides data tools that can analyze flow rate, consumption, and possible anomalies in an irrigation system.

### Accuracy

ACCURACY CHART



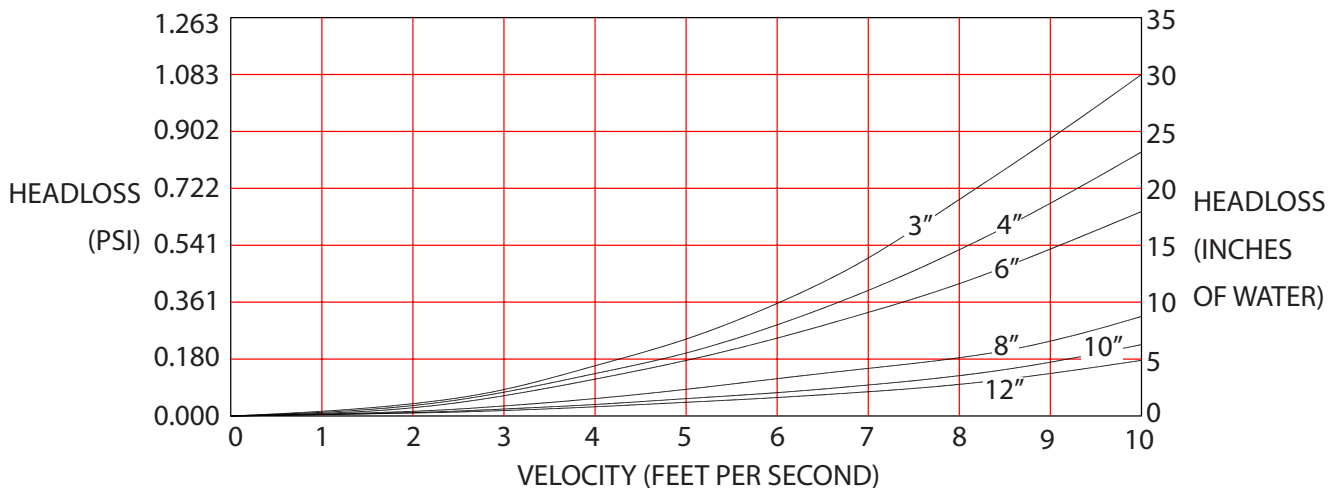
Standard flowrates for McCrometer propeller meters are shown below. Readings are guaranteed accurate within  $\pm 2\%$  in these flowrates. Please note that over 80 percent of the meter's flow range, the accuracy is better than  $\pm 1\%$ .

Nominal Meter Size	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Minimum Flow(U.S.GPM)	40	40	40	50	90	100	125	150	250	275	400	475	700
Maximum Flow(U.S.GPM)	250	250	250	600	1200	1500	1800	2500	3000	4000	5000	6000	8500
Dial Face Range	250	250	250	800	1300	2500	3000	4000	6000	8000	10000	10000	15000

### Headloss

Headloss refers to the fluid pressure lost due to the meter. Propeller meters have very low permanent headloss as seen in the chart below.

HEADLOSS CHART



Nominal Meter Size	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Max. Headloss (in. H <sub>2</sub> O column)	30	23	17	7	4	3	2	2	2	1	1

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