

Water Specialties Flanged Main Line Flow Meters Sized 2" to 48"

Models MLG MLB MLS MLT
Sealed Meter Mechanism
Magnetic Drive
Totalizer or Indicator-Totalizer
or
Digital Indicator-Totalizer

DESCRIPTION

MODELS MLG MLB MLS MLT TUBE METERS are manufactured to the highest standards. Materials used and flow ranges meet or exceed AWWA standard C704-02. The tube design permits use in a wide range of applications with up to 150 psi working pressure. Fabricated steel meter tubes has straightening vanes and are protected internally and externally with 12-15 mils of fusion epoxy resin.

FEATURES

PROPELLER is magnetically coupled with the electronic sensor through the sealed gearbox. This completely eliminates water entering the meter assembly, and eliminates all moving parts except for the propeller. The propeller is a conical shaped three bladed propeller, injection molded of thermoplastic material resistant to normal water corrosion and deformity due to high flow velocities.

BEARING in propeller is a water lubricated ceramic sleeve and spindle bearing system with a ceramic/stainless steel spindle. Dual ceramic thrust bearings, standard on all meters, handle flows in both forward and reverse directions. The bearing design promotes extended periods of maintenance free propeller operation. Bearings within the sealed meter mechanism are shielded precision stainless steel bearings and are factory lubricated for the life of the meter.

MECHANICAL REGISTERS: INDICATOR-TOTALIZER is mechanically driven by the meter

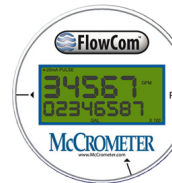
Totalizer



Indicator-Totalizer



FlowCom Register



mechanism and features a full 4" diameter, 250 degree sweep dial with a six digit, straight reading type totalizer and sweep test hand. The indicator drive mechanism is temperature compensated so the indicator will be accurate at all points on the dial when operated between 32° and 140° F. The indicator dial can be furnished in GPM, CFS, MGD or any standard liquid measuring units with choice of standard totalizer measuring units. The bonnet, with padlock hasp, is O-ring sealed to the meter head.

CHANGE GEARS may be easily exchanged in the field when changing the dial, or when recalibrating for different pipe sizes. It is not necessary to remove pressure from the line for these changes.



Specification Sheet

MLG MLB MLS MLT Tube Main Line Flow Meters

O-RING SEALS are used at the meter head and all points where seals are required, making the meter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.

DIGITAL REGISTERS: DIGITAL INDICATOR-TOTALIZER has a non-volatile EEPROM memory to store totalizer count (updated hourly while running). Features a large two line display. Five digit top line indicates flow rate, and eight digit bottom line provides volumetric flow data. Indicator is available in 22 different units, including GPM, CFS, MGD. Totalizer is available in 20 different units, including Gallons, AF, CF. Units of measurement are user-selectable. Battery life is 6 -10 years. Housing is NEMA 4X rated. Available with optional outputs: 4-20mA, pulse, Sensus, Itron, and Neptune.



McCrometer



* High temperature range is 140° - 250° F. High temperature prop meters must have at least a 12 register extension (included in price).



Specification Sheet

MLG MLB MLS MLT Tube Main Line Flow Meters

ML		XX							
CONNECTION OPTIONS:									
Grooved End (ML12)	G								
Beveled End (ML12)	B								
Smooth End (ML12)	S								
Threaded End (ML12)	T								
METER SIZE									
2" Top Plate Meter	02								
3" Top Plate Meter	03								
4" Top Plate Meter	04								
6" Top Plate Meter	06								
8" Top Plate Meter	08								
10" Top Plate Meter	10								
12" Top Plate Meter	12								
14" Top Plate Meter	14								
16" Top Plate Meter	16								
18" Top Plate Meter	18								
20" Top Plate Meter	20								
24" Top Plate Meter	24								
30" Top Plate Meter	30								
36" Top Plate Meter	36								
42" Top Plate Meter	42								
48" Top Plate Meter	48								
Tube Options									
AWWA Class (D/F) Standard Tube Length	A								
ANSI Flange (150/300) Standard Tube Length	B								
Non Standard Tube	X								
Propeller Options									
Standard	1								
High Velocity	2								



Specification Sheet MLG MLB MLS MLT Tube Main Line Flow Meters

ML	XX				-	-	-
Register Options							
Totalizer				1			
Indicator/Totalizer				2			
Output Options							
No Outputs				-			
4-20 Analog Only (TR15/TR16)				A			
Dry Contact Pulse & 4-20 Analog (TR04/TR12 + TR15/TR16)				B			
Dry Contact Pulse (TR04/TR12)				C			
Register Extension Options							
Meter Mount (Standard)				-			
6" Long Extension (Mech)				006			
7" Long Extension (Mech)				007			
8" Long Extension (Mech)				008			
1" Increments for Extensions Lengths				XXX			
144" Maximum extension length				144			
High Temp Option							
High Temp Prop and Seals							H



Specification Sheet MLG MLB MLS MLT Tube Main Line Flow Meters

SPECIFICATIONS

	Mechanical Register	Digital Register
Performance		
Accuracy	Plus or minus 2% of actual flow within the range specified for each meter size.	Plus or minus 2% of actual flow within the range specified for each meter size.
Pressure Range	Up to 150 PSI maximum working pressure.	Up to 150 PSI maximum working pressure.
Temperature Range	140° F Maximum. Consult factory for special construction for higher temperatures.	140° F Maximum. Consult factory for special construction for higher temperatures.
Minimum Flows	As shown for each meter size and construction are required for accurate registration. See flow chart. NOTE: Minimum flow will be higher when auxiliary equipment is added.	As shown for each meter size and construction are required for accurate registration. See flow chart.
Maximum Flows	As shown for each meter size and construction are required for accurate registration. See flow chart.	As shown for each meter size and construction are required for accurate registration. See flow chart.
Intermittent Flows	As shown for each meter size are rated for 10% to 15% of the total time the meter is operating. Consult factory for High Velocity construction when intermittent flows are higher than shown on flow chart and/or when longer operating periods are required.	As shown for each meter size are rated for 10% to 15% of the total time the meter is operating. Consult factory for High Velocity construction when intermittent flows are higher than shown on flow chart and/or when longer operating periods are required.

Materials

Materials used in construction are chosen to minimize the corrosive effects of the liquids measured by the meter assembly.

Magnets	Anticorrosive aluminized barrier coated magnets; Everlube 6155	Anticorrosive aluminized barrier coated magnets; Everlube 6155
Interior Bearings	Shielded stainless steel	n/a
Propeller Bearing	Ceramic sleeve type	Ceramic sleeve type
Propeller Spindle	Ceramic coated stainless steel	Ceramic coated stainless steel
Propeller	Injection molded thermoplastic	Injection molded thermoplastic
Gearbox	Stainless steel	Stainless steel
Separator	Stainless steel	Stainless steel
Shafts	Stainless steel	
Meter Head Bolts	Stainless steel (3"-20"), plated steel (24"-48")	Stainless steel (3"-20"), plated steel (24"-48")
Meter Head	Cast iron or fabricated steel, fusion epoxy coated	Cast iron or fabricated steel, fusion epoxy coated



Specification Sheet

MLG MLB MLS MLT Tube Main Line Flow Meters

Meter Tube

Fabricated steel with straightening vanes, coated inside and out with 12-15 mils of fusion epoxy by the fluidized bed method

Fabricated steel with straightening vanes, coated inside and out with 12-15 mils of fusion epoxy by the fluidized bed method

Optional Equipment

A meter mounted totalizer, totalizer extensions and a wide range of controls and instruments for indicating, totalizing and recording flow data for each meter. Special constructions and materials are available upon request.

Remote mounting kit with up to 50 feet of cable, totalizer extensions, digital transmitter, and a wide range of controls and instruments for indicating, totalizing, and recording flow data for each meter. Special constructions and materials are available upon request.

FCC CERTIFICATION: The digital indicator-totalizer has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules.

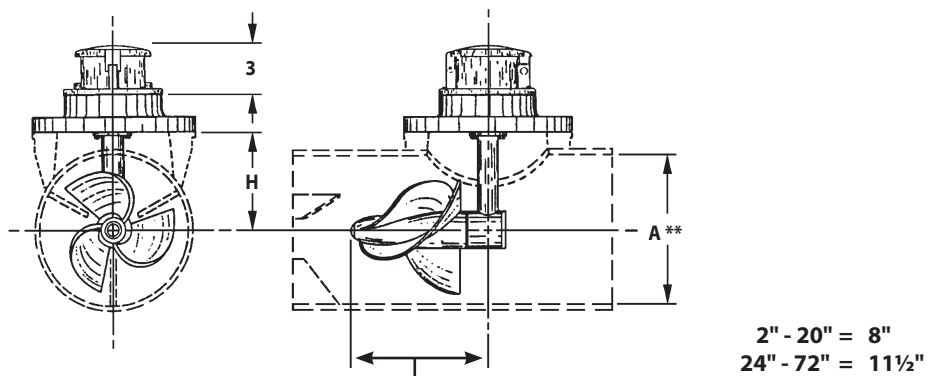
ORDERING INFO

Meters must be specified by the customer and includes:

- Meter size
- Model number
- Serial number of the meter it is replacing
- Minimum & maximum flow ranges
- Temperature of meter environment
- Indicator scale & units
- Totalizer dial units
- Type of materials and construction
- Optional equipment desired
- Specify plain, grooved, or threaded end
- Installation requirement - Horizontal or vertical

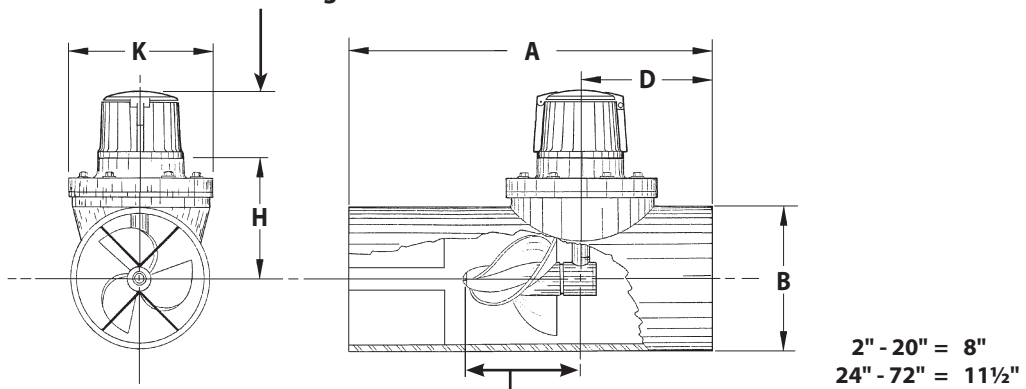
DIMENSIONS

Indicator



$4\frac{1}{2}''$ - Indicator-totalizer
 $5\frac{3}{4}''$ - FlowCom register

Indicator-totalizer



Meter & Pipe size (inches)	Flow Ranges, GPM		Dimensions					Est. Shipping Weight (lbs.)
	Standard Construction Min - Max - Int	High Velocity Construction Min - Max	A	B	D	H	K	
3	45-250-350	N/A	17	3½	6½	53/16	9	45
4	55-500-700	200-700	17	4½	6½	53/16	9	60
6	120-1200-1500	300-1500	21	65/8	8½	6¼	9	95
8	150-1500-2000	400-2500	23	85/8	8½	7¼	9	115
10	180-2000-3000	500-3500	25	10¾	9½	8¼	11	170
12	200-3000-3500	800-5000	27	12¾	9½	9½	11	195
14	300-4000-4500	1000-6000	41	14	11½	10½	13½	295
16	400-5000-6000	1200-7500	47	16	11½	11½	13½	435
18	700-6000-7500	1500-9000	53	18	14½	12½	13½	520
20	850-8000-9000	2000-12000	59	20	14½	13½	13½	610
24	1000-10000-13500	3000-15000	71	24	17½	17½	21	1010
30	1800-15000-21000	4000-25000	83	30	17½	20½	21	1660
36	2000-20000-30000	5000-35000	95	36	19½	23½	21	2290
42	3000-30000-40000	6000-50000	95	42	23½	27	32	3500
48	5500-35000-50000	7000-60000	95	48	23½	30	32	3780

Standard construction will be supplied for all main line meters unless special flow range, materials, or construction are required.

INSTALLATION

Flanged end meters: A tube is inserted into a section of open pipe and each flanged end is joined to the existing pipe using the provided gaskets and bolts.

Plain, grooved, or threaded end meters: A tube is inserted into a section of open pipe and each end is joined to the existing pipe as appropriate to its type.

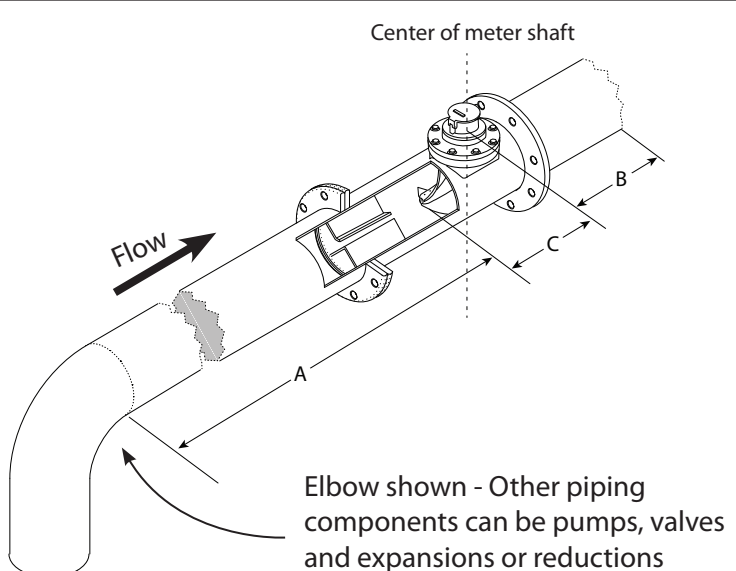
The meter can be installed horizontally, vertically, or inclined on suction or discharge lines. The meter must have a full flow of liquid for proper accuracy. Complete installation, removal, and reinstallation instructions can be found in the meter's Installation, Operation, and Maintenance Manual.

PIPE RUN REQUIREMENTS

Fully opened gate valves, fittings or other obstructions that tend to set up flow disturbances should be a minimum of ten pipe diameters upstream and two pipe diameters downstream from the meter. Installations with less than ten pipe diameters of straight pipe require straightening vanes. Meters with straightening vanes require at least five pipe diameters upstream and two pipe diameters downstream of the meter.

Configuration	A	B
Without straightening vanes	10	1
With straightening vanes	5	1

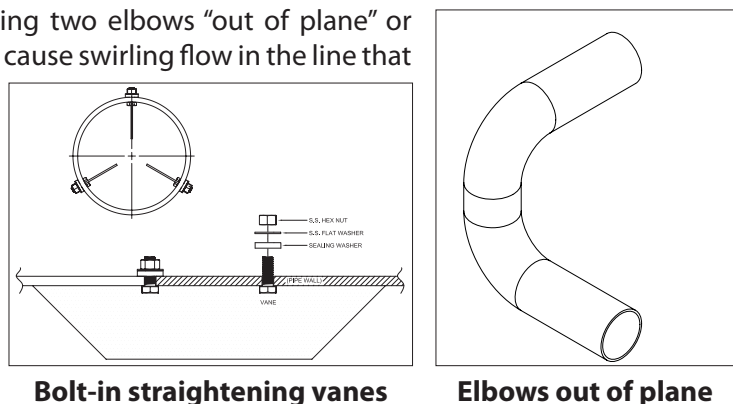
Dimension C varies depending on meter size.	
Meters 2 - 20"	8"
Meters 24" - 72"	11 1/2"



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 and bolt-in.

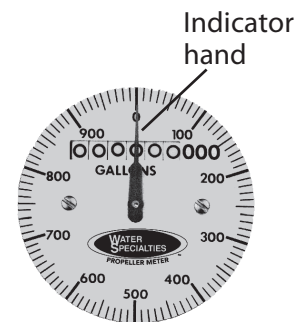
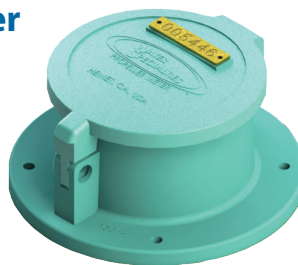


REGISTERS AND TOTALIZERS

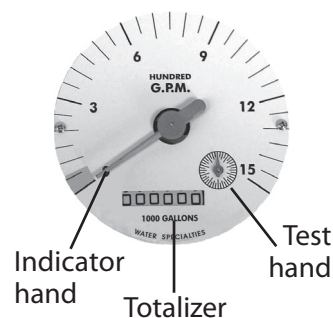
Mechanical Register and Indicator-Totalizer

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

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



Standard register

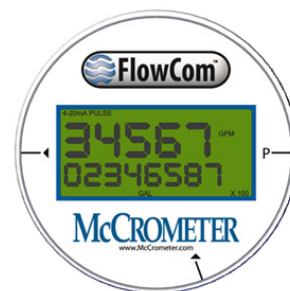


Indicator-totalizer

Digital Totalizer

The optional FlowCom register displays a flow meter's flow rate 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 flow meter.

Automated meter reading for the FlowCom register is available with the Smart Output transmitter option.



FlowCom register

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.



FlowConnect

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