GEOFLOW SUBSURFACE DRIP

Lockslip Drip Fittings

Lockslip Fittings

The lockslip fittings shall be molded of high grade plastic. Wasteflow drip tubing shall be pushed over a barb end, then secured with a locking nut. The fitting shall have the ability to be removed and reapplied with the locking nut. The fitting shall be sized to match Geoflow Wasteflow tube. Standard size is 16mm and standard adapters are 600 series.
Available preassembled on 18" flexible PVC riser (LTFLEXR-18) and flexible PVC loop (LTFLEXL-36).

Lockslip Slip Adapters

The slip adapter is used to connect Wasteflow drip tubing to a PVC fitting. The adapter glues into a 3/4" slip fitting. The drip tubing end requires no glue. The lockslip adapter shall be Geoflow part number LTSLIP-600

Lockslip Threaded Adapters

The threaded adapter is used to connect Wasteflow drip tubing to a PVC fitting. The adapter has 3/4" MPT fitting on one side a dripline adapter on the other side. This fitting requires no glue. The lockslip adapter shall be Geoflow part number LTMPT-600

Lockslip Couplings

The coupling is used to connect Wasteflow drip lines together. The adapter glues into a 3/4" slip fitting. This fitting requires no glue. The lockslip coupling shall be Geoflow part number LTC-600

Lockslip Elbows

The elbow is used to connect Wasteflow drip lines or Wasteflow plain tube together in a 90 degree configuration. This fitting requires no glue. The lockslip elbow shall be Geoflow part number LTEL-600

Lockslip Tees

The tee is used to connect Wasteflow drip lines or Wasteflow plain tube together in a tee degree configuration. This fitting requires no glue. The lockslip tee shall be Geoflow part number LTTEE-600

The PVC Glue / Cement:

Saddle to PVC manifold	IPS # 719
Flex PVC to Saddle or Fitting	IPS # 795
If the fitting is made of PVC	IPS # 711
ABS fittings into PVC Fittings (i.e. compression adapters)	IPS # 793

Instructions for solvent welding PVC fittings please visit http://www.weldon.com/howtovideo

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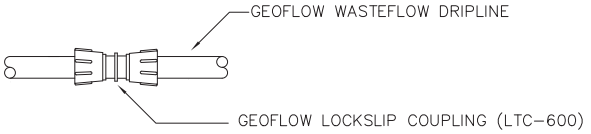
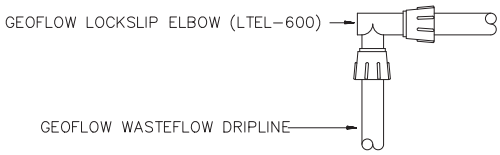
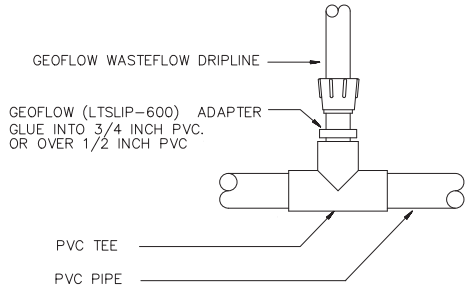


501LS GEOFLOW LOCKSLIP COUPLING (LTC-600)
SECTION
Not To Scale
06-08 GEOFLOW ?



502LS GEOFLOW LOCKSLIP ELBOW (LTEL-600)
SECTION
Not To Scale
06-08 GEOFLOW ?



504LS GEOFLOW MANIFOLD CONNECTION (PVC TO ADAPTER)
SECTION
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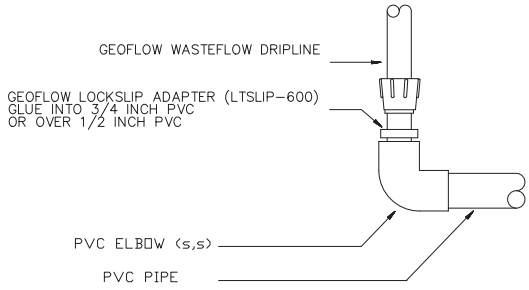
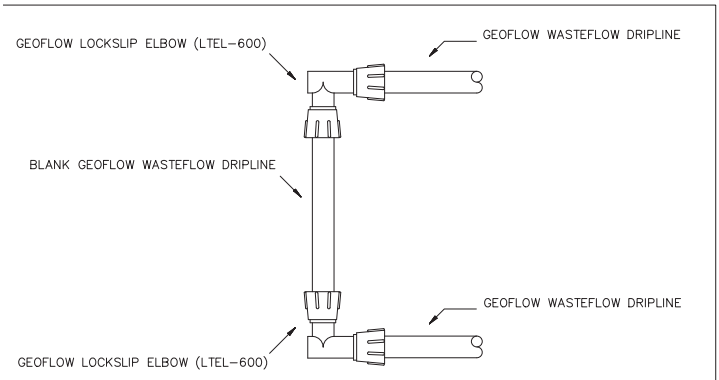
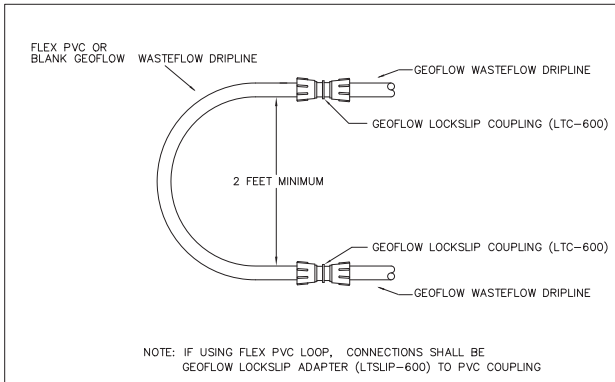
06-08 GEOFLOW ?



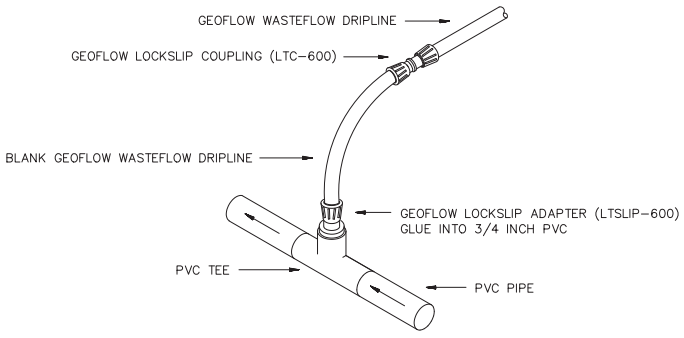
506LS GEOFLOW MANIFOLD CONNECTION (PVC TO ADAPTER)
SECTION
Not To Scale
06-08 GEOFLOW ?



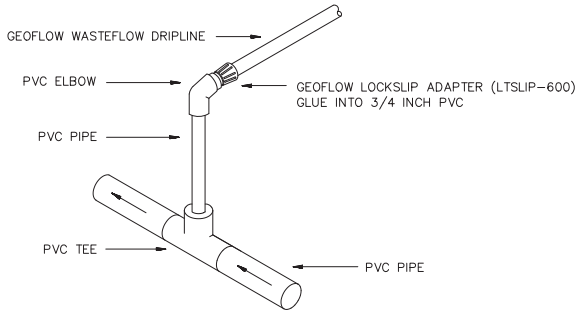
507LS A GEOFLOW LOCKSLIP ELBOW LOOP
SECTION
Not To Scale
06-08 GEOFLOW ?



507LS B GEOFLOW LOCKSLIP COUPLING LOOP
SECTION
Not To Scale
06-08 GEOFLOW ?



511 GEOFLOW MANIFOLD CONNECTION (END FEED)
SECTION
BLANK GEOFLOW WASTEFLOW DRIPLINE RISER
Not To Scale
06-08 GEOFLOW ?



512 GEOFLOW MANIFOLD CONNECTION (END FEED)
SECTION
PVC RISER
Not To Scale
06-08 GEOFLOW ?

GEOFLOW SUBSURFACE DRIP

Saddle Fittings

Saddle Tees

Item	Pipe Size	Outlet Size	Color
SaddleTee150	1.5" saddle	Fits .75"spigot or .5"socket	Black
SaddleTee200	2" saddle	Fits .75"spigot or .5"socket	White
SaddleTee250	2.5" saddle	Fits .75"spigot or .5"socket	Grey
SaddleTee300	3" saddle	Fits .75"spigot or .5"socket	Brown
SaddleTee400	4" saddle	Fits .75"spigot or .5"socket	Green
SaddleTee600	6" saddle	Fits .75"spigot or .5"socket	Blue

- Use a 15/16" or 1" drill bit to drill the pipe.

Dimensions

- ½" socket by ¾" spigot
  0.848" entrance - 0.836" socket bottom (+ or -) .004" total out of round tolerance (+ or -) .008", Spigot 1.050" (+ or -) .005" total out of round tolerance (+ or -) .010"--- socket depth 1.10"(+ or -) .020"
- 3/4" socket by 1" spigot
  0.1.058" entrance-1.046" socket bottom (+ or -) .004" total out of round tolerance (+ or -) .008", Spigot 1.315"(+ or -) .005" total out of round tolerance (+ or -) .010"---socket depth 1.100" (+ or -) .020
- 1" socket by 1-1/4" spigot
  0.1.325" entrance-1.310" socket bottom (+ or -) .005" total out of round tolerance (+ or -) .010", Spigot 1.660"(+ or -) .005" total out of round tolerance (+ or -) .010"---socket depth 1.20: (+ or -) .020"

PVC Saddle Specification

Material:	Rigid PVC	
Specific gravity:	ASTM D-792….....	1.39
Shore "D" hardness:	ASTM D-2240…….	81
IZOD Impact Strength, Notched, Ft-lb/in 73^F:	ASTM D-256……..	75
Tensile Strength, PSI:	ASTM D-638..……	7,000
Tensile Modulus, PSI:	ASTM D-638…...…	425,000
Flexural Strength, PSI:	ASTM D790…...…	13,000
Heat Deflection Temperature 264 PSI:	ASTM D-648……..	166
Flammability:	Meets UL-94 V-O Classification	
Contact surface area:	7.8 square inches	
Pipe hole size:	1.000"	

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Bonding Saddles to PVC Pipe

These are recommended instructions to properly join Saddles to PVC Pipe. Care must be taken when installing Saddles since pipe manufacturing tolerances vary widely.

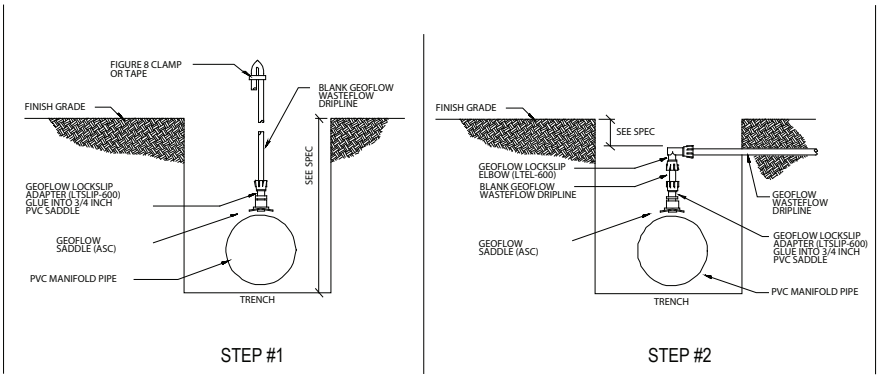
Procedure:

- The surfaces of the PVC pipes and saddles to be joined must be clean and dry.
- Drill 15/16th or 1 inch hole on the PVC pipe. Clean hole edges (no rough edges), clean pipe (make sure a smooth surface)
- Use the appropriate sized applicator of the primer and cement
- Apply two coats of primer to the surfaces to be joined on the saddle and pipe.
- Immediately apply generous coating of solvent cement to saddle inner (radial) surface, then to the pipe surface, covering an area slightly larger than the saddle, and then another coat to the saddle inner (radial) surface.
- Immediately place the saddle onto the pipe. Press and hold saddle very firmly, rotating slightly to spread cement and hold firmly for a minimum of 30 seconds This will help distribute the cement evenly on the effective gluing area.
- Clamps or strapping devices, such as rubber bands, are highly recommended to further aid in the securing of the join as the cement cures. Removal of these clamps or strapping devices is at the discretion of the user.
- Immediately apply straps or clamps around the pipe and fitting near each end of the saddle connection to continue to secure the joint until set (30 minutes if ambient temperature is above 60 ºF or up to two hours for ambient temperatures 40 ºF to 60 ºF). Do not pressurize for 24 hours if more than 60 ºF (48 hours if 40-60 ºF).
- Allow cement to cure according to the cement manufacturer's recommendations. The integrity of glue-on saddle connections is dependent on the solvent cement process used during installation. Exercise care during assembly to insure that a secure joint is obtained.
- Do not bond hose or pipe to socket or spigot for 24 hours, allow cure and drying time of 24 hours. Attaching to socket or spigot before 24 hours may cause failure of saddle bond to pipe.
- Geoflow, Inc. and it's affiliates are not responsible for product that has not been assembled as per these minimum recommendations.

The PVC Glue / Cement:

Saddle to PVC manifold	IPS # 719
Flex PVC to Saddle or Fitting	IPS # 795
If the fitting is made of PVC	IPS # 711
ABS fittings (i.e. compression adapters) into PVC Fittings	IPS # 793

Instructions for solvent welding PVC fittings please visit http://www.weldon.com/howtovideo



GEOFLOW SUBSURFACE DRIP

Pressure Regulators

Description

The regulators are preset to regulate pressure in the field. These are recommended with Wasteflow Classic and optional with Wasteflow PC. Under normal operating conditions the pressure in the dripline should be:
10 - 45 psi for Wsteflow Classic and Wasteflow PC

Pressure Regulator Specification

Geoflows pressure regulator shall be designed to handle steady inlet pressures of ___ psi and withstand severe water hammer extremes. It shall handle flow rates between ___ gpm and ___ gpm. Flow restriction shall be negligible until the factory preset pressure is reached. Regulatory accuracy shall be within +/- 6%. Inlet and outlet size shall be ¾" FIPT. The body shall be constructed of high impact engineering grade thermoplastics. Regulation shall be accomplished by a fixed stainless steel compression spring enclosed in a chamber separate from the normal water passage. Each regulator shall be water tested for accuracy. Pressure regulator shall be Geoflow model number PMR- ____ - _ F

Low, Medium and High Flow Regulator

Extra flow regulator- Flows up to 90 gpm

Item No.	Outlet Pressure	Flow Range	Max. Inlet Pressure	Inlet / Outlet
PMR-20-LF	20 psi	1/8-8 gpm	150 psi / 347ft	¾" / ¾" fipt
PMR-20MF	20 psi	2-20 gpm	150 psi / 347ft	1" / 1" fipt
PMR-20-HF	20 psi	10-32 gpm	100 psi / 231ft	1.25" / 1" fipt
PMR-20-XF	20 psi	20-90 gpm	90 psi / 208 ft	3" / 3" ID slip
PMR-30-LF	30 psi	1/8-8 gpm	150 psi / 347 ft	¾" / ¾" fipt
PMR-30MF	30 psi	2-20 gpm	150 psi / 347 ft	1" / 1" fipt
PMR-30-HF	30 psi	10-32 gpm	100 psi / 231 ft	1.25" / 1" fipt
PMR-30-XF	30 psi	20-90 gpm	100 psi / 231 ft	3" / 3" ID slip
PMR-40-LF	40 psi	1/8-8 gpm	150 psi / 347 ft	¾" / ¾" fipt
PMR-40-MF	40 psi	2-20 gpm	150 psi / 347 ft	1" / 1" fipt
PMR-40-HF	40 psi	10-32 gpm	100 psi / 231 ft	1.25" / 1" fipt
PMR-40-XF	40 psi	20-90 gpm	125 psi / 289 ft	3" / 3"ID slip
PMR-50-MF	50 psi	2-20 gpm	150 psi / 347 ft	1" / 1" fipt
PMR-50-HF	50 psi	10-32 gpm	100 psi / 231 ft	1.25" / 1" fipt
PMR-50-XF	50 psi	20-90 gpm	125 psi / 289 ft	3" / 3" ID slip

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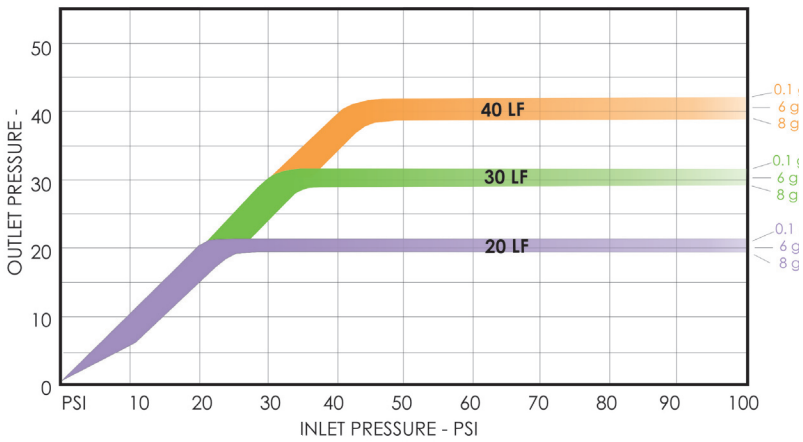
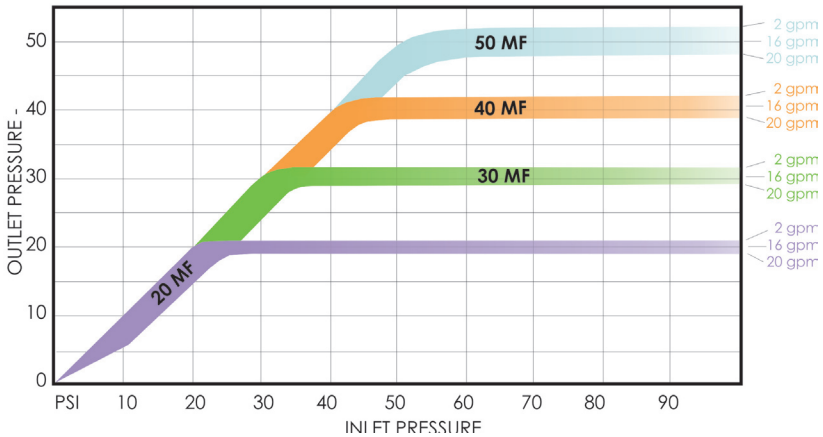
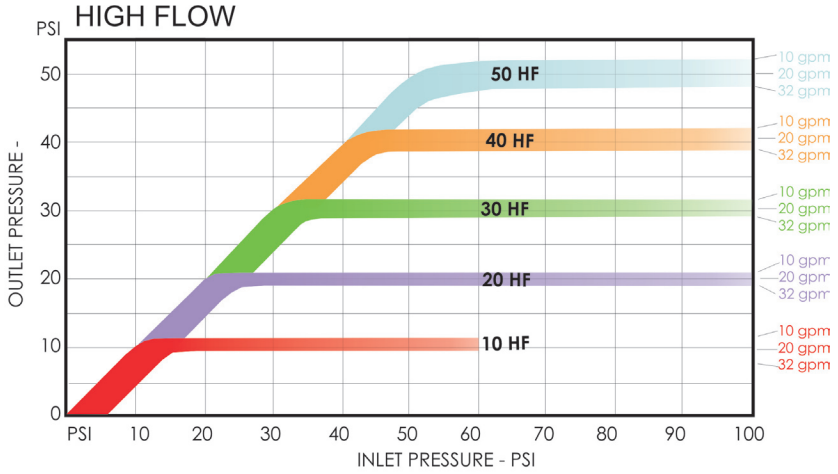
LOW FLOW



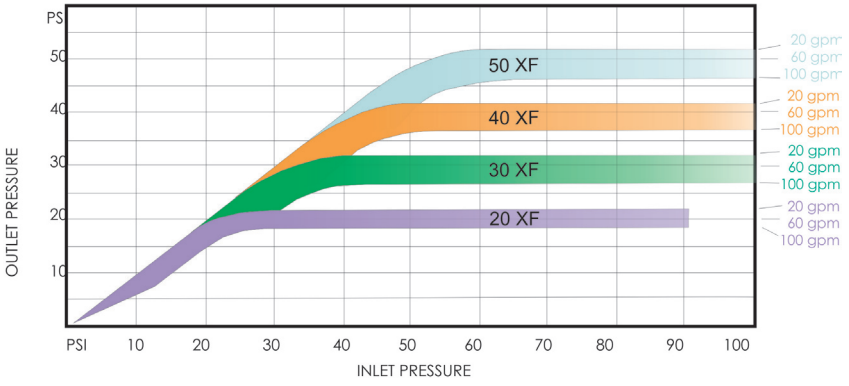
MEDIUM FLOW



HIGH FLOW



EXTRA FLOW



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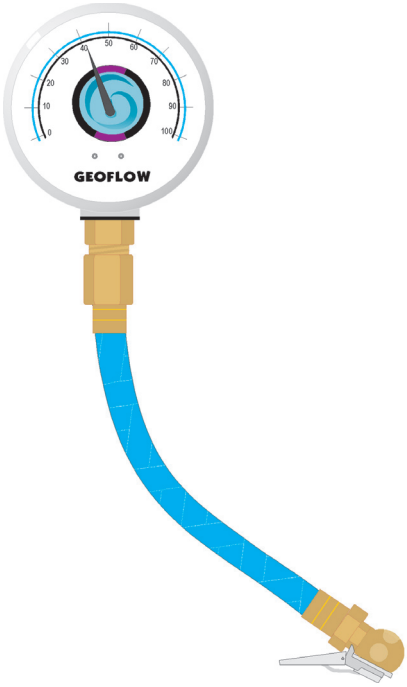
GEOFLOW SUBSURFACE DRIP

Pressure Gauge

Description

Geoflow's 2.5 inch glycerine filled pressure gauges are used to indicate if the dripfield is operating as designed. Once a system is installed, check pressure at multiple locations in the field and at the headworks, then compare the readings to design pressure. Higher than design pressure is likely a sign of flow obstruction and lower than design pressure is likely a break. Record startup pressures to use as a benchmark for comparison every time the site is serviced.



Geoflow's gauges have a 1/4" thread that can be permanently attached or are available with a lead that is used to reach equipment and measure pressure from a schrader valve. Geoflow filters and airvents are usually outfitted with shrader valves for this purpose.

Standard Features

Pressure range	0 - 100 psi / 0-700kPa
Diameter	2.5 inch
Operating temperature	-4°F to +140°F (-20°C to +60°C)
Movement	Copper alloy
Dial	White ABS
Pointer	Black aluminum
Case	304 stainless steel with vent plug and stainless steel crimp ring
Case O ring	EPDM O-ring
Window	Polycarbonate with Buna-N gasket
Fill	Glycerine 99.7% - Type 213.53
Pressure connection	Copper alloy. Lower mount
Accuracy class	± 2/1/2% of span (ASME B40.100 Grade A)

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GEOFLOW
SUBSURFACE DRIP

FLOW METERS - PLASTIC
FM MJP Series

FM MJP meter with optional Reed Switch attached

Description

Water flows through the meter's strainer (inlet and internal) and into the measuring chamber where it drives the impeller. A driving magnet transmits the movement of the impeller to a driven magnet located within the sealed register. The magnet is connected to a gear train which translates the impeller rotations into volume totalizers displayed on the meter's register dial face.

The WM-PC Series water meter is top loaded and consists of three basic components: main case, measuring chamber, and head ring.

All meters include pipe adapters (2 gaskets, 2 couplings, and 2 nuts).

The FM-MJP Series plastic multi-jet style meters are designed to meet AWWA C708.

Features:

- Extra filter at the inlet of the meter body permits cleaning without having to open the meter
- Impeller is the only moving part in contact with water, giving the meter long life and consistently reliable operation
- Optional pulse output - contact reed switch and cable
- Lightweight
- Corrosion-resistant materials
- Reinforced Plastic Body

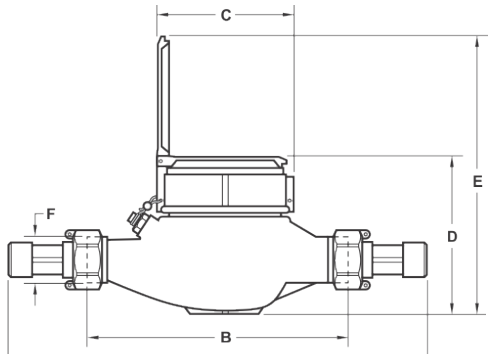
Optional Pulse Output Specifications

Simply screws onto the face of the meter.

Sensor:	Reed switch
Pulse Rates:	075 & 100: 1 pulse/1 gal. 150: 1 pulse/10 gal.
Maximum Current:	20 mA
Maximum Voltage:	24 VAC/VDC4.63
Cable Length:	4.5' standard. Can be extended.

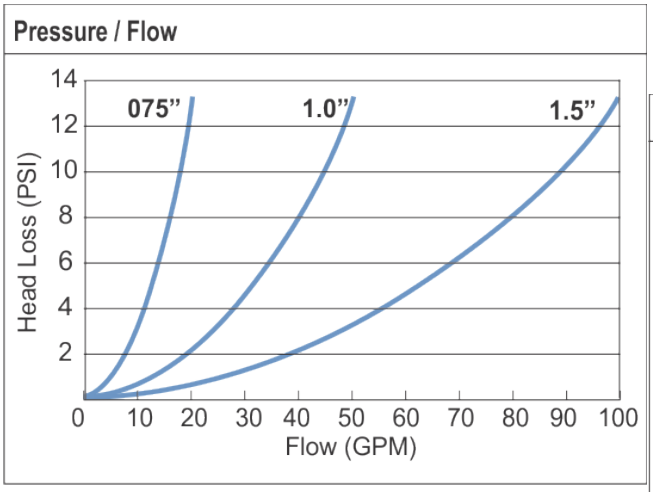
Part No.	FM MJP075	FM MJP100	FM MJP150
Inlet/Outlet	0.75 in. MPT	1.0 in. MPT	1.5 in. MPT
Flow Range	1-20 gpm	3 – 50 gpm	5 – 75 gpm
Max. Temp.	105 °F / 40.5 °C	105 °F / 40.5 °C	105 °F / 40.5 °C
Max. Pressure	150 psi / 270 ft. 10.34 bar	150 psi / 270 ft. 10.34 bar	150 psi / 270 ft. 10.34 bar
Accuracy – Normal flow Low flow	+ / - 1.5% +/- 3%	+ / - 1.5% +/- 3%	+ / - 1.5% +/- 3%
Weight	2 lbs.	3 lbs.	5 lbs.

Dimensions

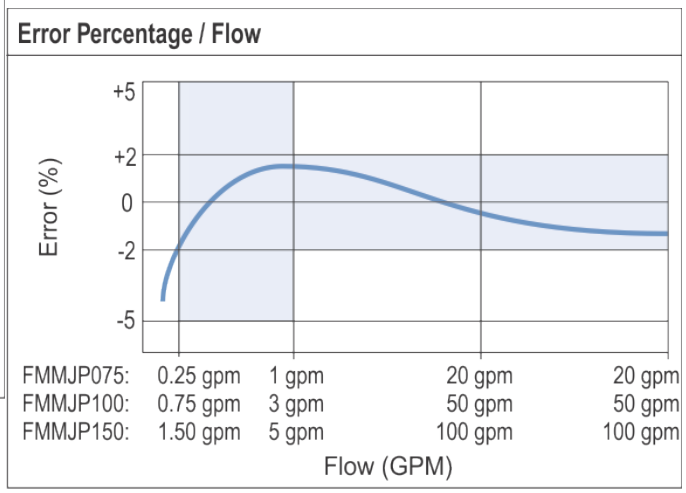


A = Total Length including connection & gasket without compression

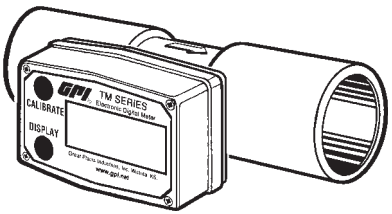
Head Loss Curve



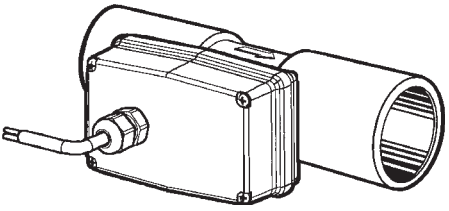
Accuracy Curve



FLOW METER
FMDDS DIGITAL DIPLAY



FM-DDS
TM Meter with Computer Display



FM-PLS
TM Digital Pulse Meter

Geoflow's standard TM flow meters measure:

- Total accumulated flow "Total 1"
- Batch flow "Total 2 Batch"
- Flow rate "Flow rate/m"

All flows are measured in gallons, indicated with a "GL in top left corner. Rate is measured in gallons per minute, indicated with a "m" on the rate screen.

IMPORTANT NOTICE

Use TM Series meters with water and other chemicals compatible with wetted components. Do not use to meter fuel or incompatible chemicals. TM Series meters are available with either a computer for local electronic display, or a conditioned signal output module to provide a digital signal to customer interfacing equipment. TM Series meters with computer display measure in gallons or litres. Refer to the Calibration Section for details.

These meters are not legal for trade applications.

TM Series meters are very sensitive to electric noise if operated within 1 to 2 inches of some electric motors or other sources of electronic noise.

INSTALLATION

Connections

Install your meter in-line either horizontally or vertically or at the end of the hose adjacent to the nozzle. Installation to metal connections is not recommended. Install as follows:

1. Plan to install turbine with a minimum straight pipe length as follows:
   - Upstream from the turbine, allow a minimum straight pipe length of 10 times the internal diameter of the turbine.
   - Downstream from the turbine, allow a minimum straight pipe length of 5 times the internal diameter of the turbine.
2. For Spigot (Pipe) End use only primer and solvents approved for PVC gluing.

For NPT Fittings wrap all connections with 3 to 4 wraps of thread tape. Make sure the tape does not intrude into the flow path.

3. Attach meter with arrow pointed in the direction of flow.
4. For NPT Fittings - Hand tighten the meter at the housing ends. Do not use a wrench or similar tool to tighten. This can damage the housing.

Conditioned Signal Output Module Wiring

This conditioned signal output module can be wired to provide an open collector signal output

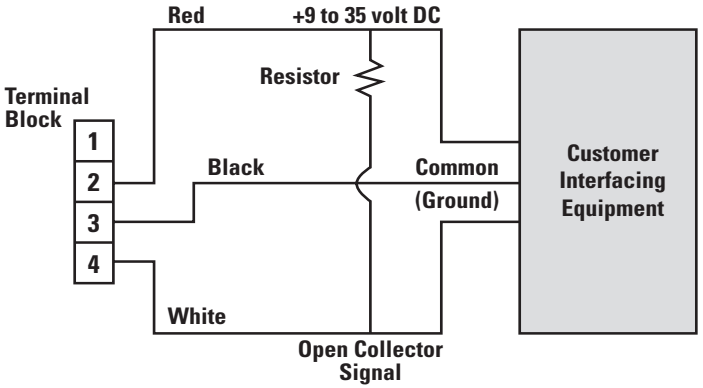
Open Collector Signal Output

To achieve an open collector signal output, reference Wiring Diagram 1. The terminal block is located on the back side of the module. The module is factory assembled for open collector signal output. Please provide the (820 ohm minimum) resistor.

Ten feet (3 m) of cable is provided with the module. Trim it to desired length or extend it as necessary. Distances up to 5,000 feet (1,524 m) can be achieved for open collector signal output.

Wiring Diagram 1

OPEN COLLECTOR SIGNAL OUTPUT



The terminal block is identified as follows:

Pin #1 6 volt square wave (not used)
Pin #2 +9 to 35 volt DC Input
Pin #3 Common Ground
Pin #4 Open Collector signal Output

When fluid is flowing through the meter, a small propeller icon is highlighted.

NOTE: Totalization counts total units without differentiating between gallons, litres or field calibrated units.

Flowrate Feature

To use this feature, press and release DISPLAY button until FLOWRATE icon appears. The factory set time base will be highlighted to the right of FLOWRATE (M = minutes, H = hours, D = days). When FLOWRATE is invoked, the display will be indicating rate of flow.

Geoflow default setting is gallons / minute.

Activate the Meter

Computer is on continuously and always ready to perform. The computer is powered by field replaceable batteries. When display becomes dim, faded or the low battery message appears (see below), the batteries need to be replaced. Reference the Maintenance Section for details.

Factory and Field Calibration

All calibration information is visible to the user as icons on the top line of the display, above the numeric digits.

All units are configured with a "factory" calibration. Both gallons and litres are available ("GL" or "LT" will be displayed). While holding the CALIBRATE button, briefly press DISPLAY to toggle between gallons and litres. This factory calibration (indicated with FAC) is permanently programmed into the computer and is not user adjustable.

NOTE: Your computer may have other units of measure programmed into it. If so, holding the CALIBRATE button and momentarily pressing the DISPLAY button will toggle through all factory set units. Other possible units are: IGL (imperial gallon), QT (quart), CF (cubic feet), CM (cubic meter), BL (42 gal. barrel), CC (cubic centimeter) or OZ (ounce).

Switching between different units will not corrupt the Total's contents. For example, in GL mode, the computer totalizes 10.00 gallons, if the user switches to LT mode, the display will read 37.85 litres (the same volume, different unit).

The "field" calibration may be set by the user, and can be changed or modified at any time using the calibration procedure described in the Calibration Section. Totals or flowrate derived from the field calibration are invoked when the FAC icon is no longer visible on the top line of the display.

CALIBRATION

Verify Accuracy Before Beginning Field Calibration

For the most accurate results, dispense at a flowrate which best simulates your actual operating conditions. Avoid "dribbling" more fluid or repeatedly starting and stopping the flow. This can result in less accurate calibrations.

Make sure you meet the meter's minimum flowrate requirements:

TM Series Meters

1/2 inch meter	1 GPM (3.8 LPM)
3/4 inch meter	2 GPM (7.5 LPM)
1 inch meter	5 GPM (18.8 LPM)
1-1/2 inch meter	10 GPM (37.5 LPM)
2 inch meter	20 GPM (75 LPM)

The use of a uniformly dependable, accurate calibration container is recommended for the most accurate results. Due to high flowrate, it is strongly recommended that calibration be completed with a combination of volume and weight using fine resolution scales.

For best results, the meter should be installed and purged of air before field calibration.

Field Calibration with Computer Display

Field Calibration and Factory Calibration are defined in the Operation Section. Factory calibration settings are programmed into each computer during manufacturing, using water at 70° F (21° C). Readings using the Factory Calibration (FAC) may not be accurate in some situations, for example, under extreme temperature conditions, non-standard plumbing configurations or with fluids other than water.

SPECIFICATIONS

Inlet and Outlet

NPT Models:

TM050-N/TM050-N-P	1/2 inch NPT
TM075-N/TM075-N-P	3/4 inch NPT
TM100-N/TM100-N-P	1 inch NPT
TM150-N/TM150-N-P	1-1/2 inch NPT
TM200-N/TM200-N-P	2 inch NPT

Design Type: Turbine

Wetted Components:
Housing: PVC
Journal Bearings: Ceramic
Shaft: Tungsten Carbide
Rotor and Supports: PVDF
Retaining Washer: Stainless Steel

Fitting Types: Spigot - Schd. 80 or NPT (female)

Max. Working Pressure: 225 PSIG @ 73° F

U.S. Measurement

Unit of Measure: Gallon

Flow Range:

1/2 inch	1 - 10 GPM
3/4 inch	2 - 20 GPM
1 inch	5 - 50 GPM
1-1/2 inch	10 - 100 GPM
2 inch	20 - 200 GPM

Accuracy with Computer: ± 3.0% of reading (Accuracy can be improved with field calibration)

Operating Temperature: +32° to +140° F (Do not allow fluid to freeze inside meter.)

Storage Temperature: –40° to +158° F

Product Weight:*

	NPT
1/2 inch	.55 lbs.
3/4 inch	.67 lbs.
1 inch	.84 lbs.
1-1/2 inch	1.38 lbs.

Dimensions - Inches (W x H x L):**

	Without Fitting	With Fitting
1/2"	2.0 x 2.6 x 3.8	2.0 x 2.8 x 5.5
3/4"	2.0 x 2.7 x 3.8	2.0 x 2.9 x 5.5
1"	2.0 x 3.1 x 4.1	2.0 x 3.3 x 6.2
1-1/2"	2.1 x 3.7 x 5.4	2.3 x 3.9 x 7.6
2"	2.4 x 4.2 x 5.5	3.5 x 4.5 x 7.9

* Weight with computer display. Conditioned signal output module adds .30 lbs.

** Dimensions with computer display. Conditioned signal output module adds 1.1 inch to height.

Metric Measurement

Unit of Measure: Litre

Flow Range:

1/2 inch	3.8 - 38 LPM
3/4 inch	7.6 - 76 LPM
1 inch	19 - 190 LPM
1-1/2 inch	38 - 380 LPM
2 inch	76 - 760 LPM

Accuracy with Computer: ± 3.0% of reading (Accuracy can be improved with field calibration)

Operating Temperature: 0° to +60° C (Do not allow fluid to freeze inside meter.)

Storage Temperature: –40° to +70° C

Product Weight:*

	NPT
1/2 inch	.249 kg
3/4 inch	.304 kg
1 inch	.381 kg
1-1/2 inch	.626 kg
2 inch	.807 kg

Dimensions - cm (W x H x L):**

	Without Fitting	With Fitting
1/2"	5.0 x 6.6 x 9.6	5.0 x 7.1 x 13.9
3/4"	5.0 x 6.8 x 9.6	5.0 x 7.3 x 13.9
1"	5.0 x 7.8 x 10.4	5.0 x 8.3 x 15.7
1-1/2"	5.8 x 9.3 x 13.7	5.8 x 9.9 x 19.3
2"	6.0 x 10.6 x 13.9	8.8 x 11.4 x 20.0

* Weight with computer display. Conditioned signal output module adds .14 kg.

** Dimensions with computer display. Conditioned signal output module adds 2.8 cm to height.

GEOFLOW SUBSURFACE DRIP

Magnetic Flow Meter

Description

The AWP-Series flow meter is a full-bore, plastic-bodied electromagnetic flow meter designed for flow and usage monitoring applications in 2 and 3 inch pipe. The polypropylene flow tube offers corrosion resistance to a wide range of chemicals and fertilizers. It is light weight and easy to install or remove from the pipe for inspection.

With no moving parts, the magmeter permits unobstructed flow, minimizing flow disturbances and straight pipe requirements. The AWP-Series can be used in piping configurations where there is little space between the meter and an elbow or valve. The AWP-Series is resistant to wear from sand and debris found in ground or surface water. Since there are no bearings or propeller to wear out, maintenance and repair costs are kept to a minimum and it tolerates high flows without damage.

A hinged polyethylene cover is included that protects from dust and UV rays, while permitting easy access to the flow rate and total display. The AWP-Series is used for tracking flow rate and total flow. In the event of DC power loss, the AWP will retain internal settings and flow total.

The meter is externally powered via a 5-pin connector cable which also provides pulse output.

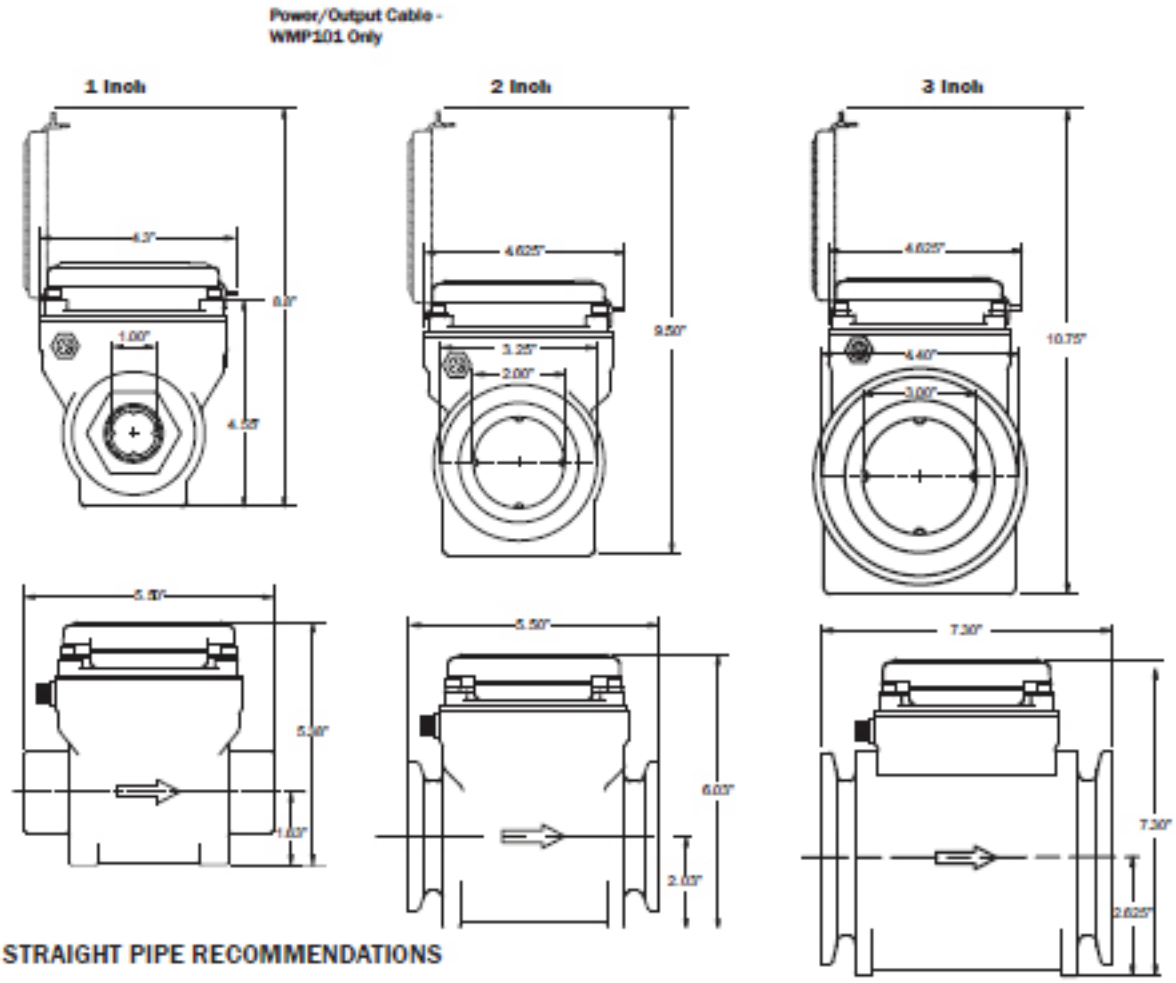
The AWP flow meter is externally powered via a 5-pin connector cable which also provides pulse output for remote reading.

Unobstructed Flow

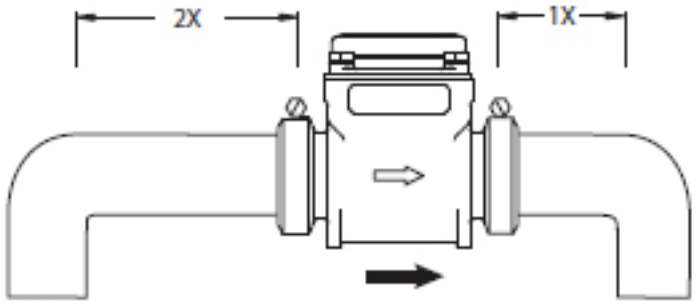
Specification Magnetic Flow Meter

The commercial rated flow meter shall be electromagnetic and it shall monitor both flow rate and total flow. The flow meter shall have an unobstructed flow passage with no moving parts. The body shall be made of glass filled polypropylene. The electrodes shall be made of 316 stainless steel and housed in powder coated die cast aluminum. The flow tube shall be made of polypropylene for flow corrosion and chemical resistance. A hinged polyethylene cover shall be included for protection against dust and UV rays. In the event of power loss, the commercial flow meter shall retain internal settings and flow total. The flow meter shall be externally powered via a 5-pin connector cable that shall also provide a pulse output. The inlet and outlet ports shall be flanged connections. The flow meter shall be Geoflow model number FMMAGM-200 or FMMAGM-300.

Dimensions



STRAIGHT PIPE RECOMMENDATIONS



Minimal straight pipe required between elbows. For other piping configurations, consult factory.

FLOW RANGE

	1"		2"		3"	
	Gal/Min	Liter/Sec	Gal/Min	Liter/Sec	Gal/Min	Liter/Sec
Minimum	2.3	.145	6	.38	14	.88
Maximum	110	6.84	300	18.9	670	42.3

	Description
Flow Range	2 “ 6-300 gpm 3” 14-670 gpm
Material Body Electrodes Electronics housing Display Cover	 Glass-filled polypropylene 316 stainless steel Die-cast aluminum, powder coated Polyethylene
Fittings	Flange
Max. Pressure	150 psi / 10.3 bar
Operating Temp Non-Operating Temp	10 - 130 F / -12 - 54 C -40 - 176 F / -40 - 80 C
Accuracy	+/- 1% of reading between 10% & 100% of max. flow. +/- 3% of reading between cutoff & 10% of max. flow.
Electrical Connection	5-pin male circular connector, mates to industry standard cable. Note: Cable is ordered separately. Battery model available upon request.
Power	10-30 Vdc @ 60 mA max (15 mA average
Display Rate Total	 6 digits in gallons/min 8 digits in gallons
Pulse Signal	Current sinking pulse, opto isolated, 32 Vdc max at 100 mA max
Pulse Rate	1 unit / pulse out
Straight Pipe	Incoming - at least 2 x pipe diameter Outgoing - at least 1 x pipe diameter
Conductivity	>20 microSiemens/cm
Environmental	NEMA 4X standard
Dimensions Flange to Flange Height	 2” = 5.5 in. 3” = 7.3 in. 2” = 6.1 in. 3” = 7.3 in.

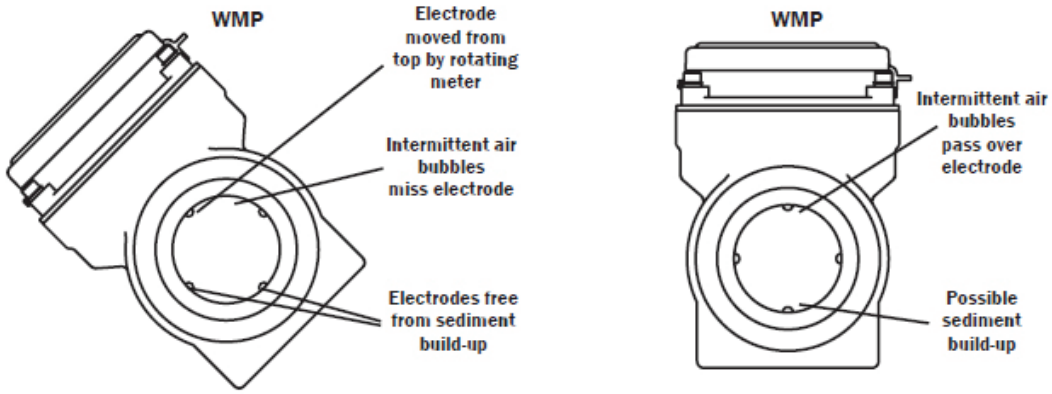
INSTALLATION

Piping Conditions. Installing the meter with a length of straight pipe at least two times the diameter upstream and one diameters downstream is highly recommended. Some piping conditions require more than this. See chart for recommendations.

End Connections. The meter comes with Banjo™ union-type flange connections for ease in servicing the meter. To connect these to piping ends, a variety of kits are available from any Banjo dealer or from Seametrics.

Follow the diagram below to make the connections.

Position. This is an all position meter which can be installed either vertically or horizontally, register up, down or angled. However, entrained air or solids may make some positions preferable to others. See the position diagram for guidance.



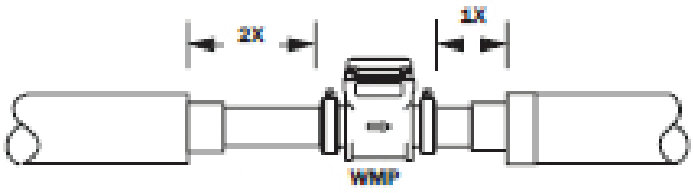
Recommended:
May prevent sediment or bubble problems

Less Ideal:
Air bubbles and sediment on the electrodes can affect accuracy

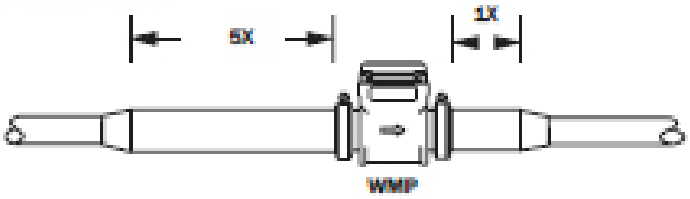
STRAIGHT and FULL PIPE RECOMMENDATIONS

(X = diameter)

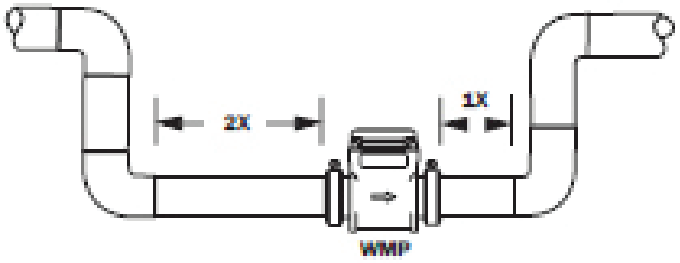
Reduced Pipe



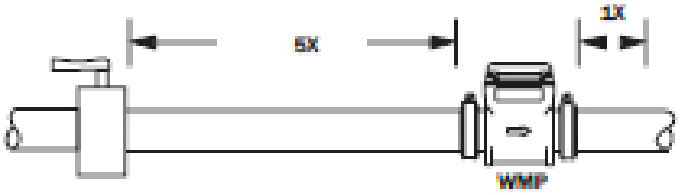
Expanded Pipe



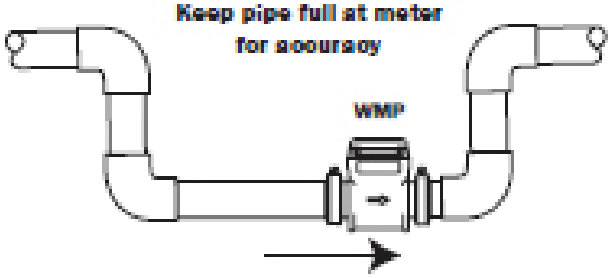
Elbows

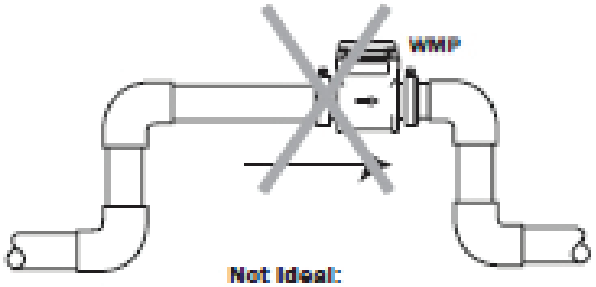


Swirling Flow: Partially Open Butterfly Valve

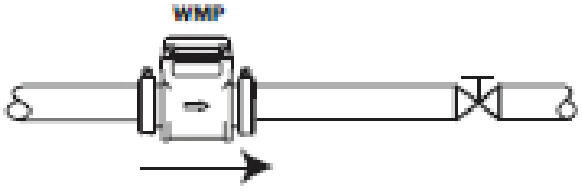


Recommended:
Keep pipe full at meter for accuracy

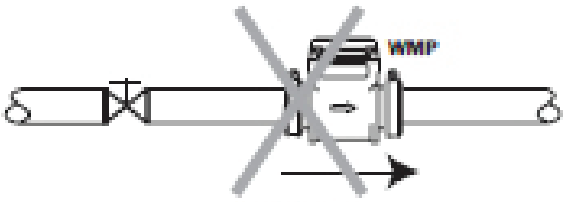




Not Ideal:
Allows air pockets to form at meter

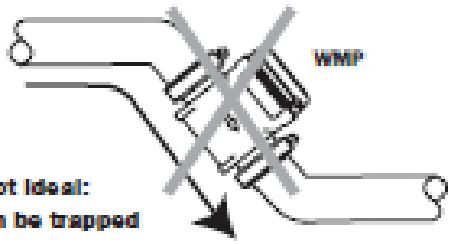


Recommended:
Keeps pipe full at meter for accuracy



Not Ideal:
Post-valve cavitation can create air pocket

Recommended:
Allows air to bleed off



Not Ideal:
Air can be trapped

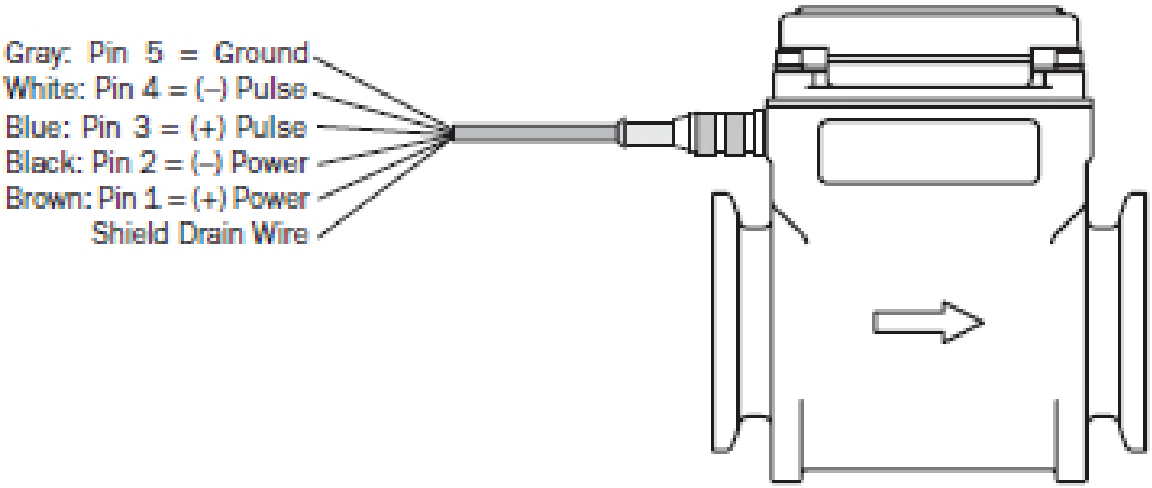
ELECTRICAL CONNECTIONS, CABLE CONNECTIONS and OPERATION

ELECTRICAL CONNECTIONS

WMP104. The WMP104 is battery-powered totally self-contained and does not require any electrical connections (there is no output on the WMP104 model).

WMP101. A connector is provided on the outside of the WMP101. To connect to the meter, plug the cable in and hand tighten the retaining threads. Follow the diagram to make connections. If you are using the pulse output, connect power first and determine that the meter is working properly by observing the display. Then connect the pulse output.

CABLE CONNECTIONS



OPERATION

Grounding (WMP101). For best performance, especially in chemically noisy environments, the gray ground wire and the bare drain wire should be connected together and to a good earth ground as close to the meter as possible. Metal pipe and fittings in contact with the fluid should also be bonded to the same earth ground with corrosion-resistant connections.

Display. The display reads flow rate and accumulated total, in the units for which it was ordered. The top line is total, the bottom line is rate, and indicators give the units (ac-ft, GPM for instance.) Empty or partially-full pipe is automatically detected and is indicated by a reading of " – EP – ".

Battery. The standard batteries are user replaceable with an approximate 1-2 year life depending on usage. An extended battery life option offers an estimated 2-4 year life depending on usage. On the battery-powered WMP104 there is a low-battery indicator ("low bat") when the battery voltage drops below a certain point. Batteries should be changed within four weeks of the appearance of this indicator.

Drip Plow

Description

The drip plow is a state of the art direct burial plow that pulls dripline below ground with minimum disturbance to the soils. Developed by an industry professional who formerly installed industrial cable and drip irrigation lines, this plow is built with meticulous care to details for ease of use.

Features

- Heavy duty. Solid parts are carefully welded and worked for a clean, professional plow that is built to last for many years.
- Large chute that easily allows fittings to slide through
- Two levelers mounted on the assembly to easily make alignments as needed
- Shank drafts down and lifts soil up so there is little damage to the structure. The angle of the shaft does not wedge sideways and compress or smear the soil.
- Sod cutter included
- Unique tubing hold to keep coils from slipping off the reel
- Mounts to toolbar. Gang one, two three or four in a row for multi-row installations.
- Tubing reel has tension setting.
- Depth control.
- Articulates. Hinges to make tight curves.