



Mechanical Installation Instructions - Max Flow Meters

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| | Never run the meter dry or blow compressed air through the meter. Damage will occur. | | Read the entire manual before installing and operating the meter. |
| | Never steam clean the meter. Damage will occur. (Bypass or remove the meter if necessary). | | Purge all air bubbles from meter before operating your system. |
| | Do not run water or aqueous solutions through Max meters (except P234 & CGM). | | Verify the fluid to be measured is compatible with the flow meter. |
| | Do not disassemble the meter. No serviceable parts inside. | | Filter your fluid to prevent damage from debris and foreign materials. |
| | Do not over pressurize the meter or apply excessive differential pressure across the meter. Damage may occur. | | Install bypass plumbing around the flowmeter. |
| | Do not exceed maximum flow rates. Damage may occur. | | Remeltable solid materials must fully liquify before pumping through your meter. |
| | Do not allow materials to cure and solidify in meter. | | Follow all local regulations and your company's safety procedures when installing, operating, servicing, and maintaining your flow meter. |

For best performance:

Clean Plumbing: Before installing your Flow Meter, clean the inside of the pipe line with compressed air or steam (especially when using new pipe).

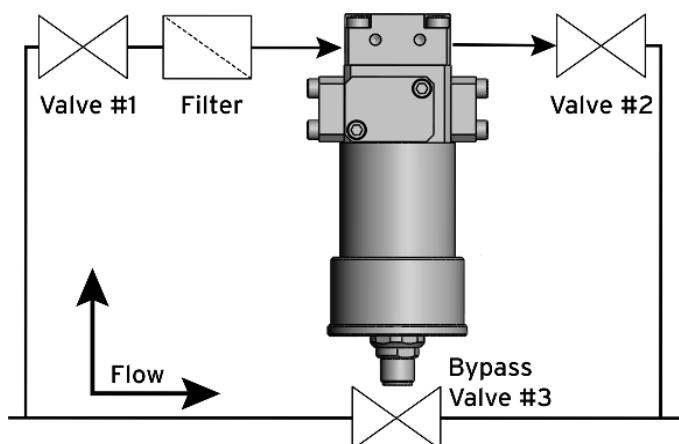
Do not use water, steam, or compressed air through the meter! (Water OK for P234 & CGM Flow Meters.)

Filters and Bypass Valves:

Max Machinery recommends installing a filter upstream of the flow meter to protect against debris:

Product	Filter
• P001:	5 µm or finer
• Other P-Series:	10 µm
• CGM-Series:	10 µm
• G-Series & VGM-Series:	10 - 30 µm depending on Flow-Meter size
• H-Series:	150 µm

If measuring bi-directional flow, a filter should be installed on both sides of the flow meter. Materials with fibrous or non-abrasive particulate matter may need to be run without filters.



Optional: Install valves to allow system start-up, filter replacement, or flow meter removal without completely shutting down the system and draining the lines. See diagram.

Failure to use a bypass at start up may lead to flow meter damage due to debris, over-speeding the meter with air in the lines, and pressure shock due to initial line surges.

Materials with fibrous or non-abrasive particulate matter may need to be run without filters.

Mechanical Installation

Use the "IN" port or follow the flow direction arrow markings for the primary flow direction. Install the meter on the discharge side of the pump whenever possible. Excessive vibration at the meter should be avoided.

Preferred mounting orientation of the meter depends on meter type. The orientation optimizes air purging and/or minimizes heat transfer to the electronics. P-Series meters with in line ports preferably mount with the transmitter on the side or alternately facing down. P001 and P002 with offset ports mount with the transmitter facing up. G-Series and H-Series meters, especially when used with thick fluids, should mount with the transmitter on the side and the plumbing oriented vertical flow up. P234 water meters must be mounted in vertical flow ↑ up ONLY. Piping diagrams are available in manuals.

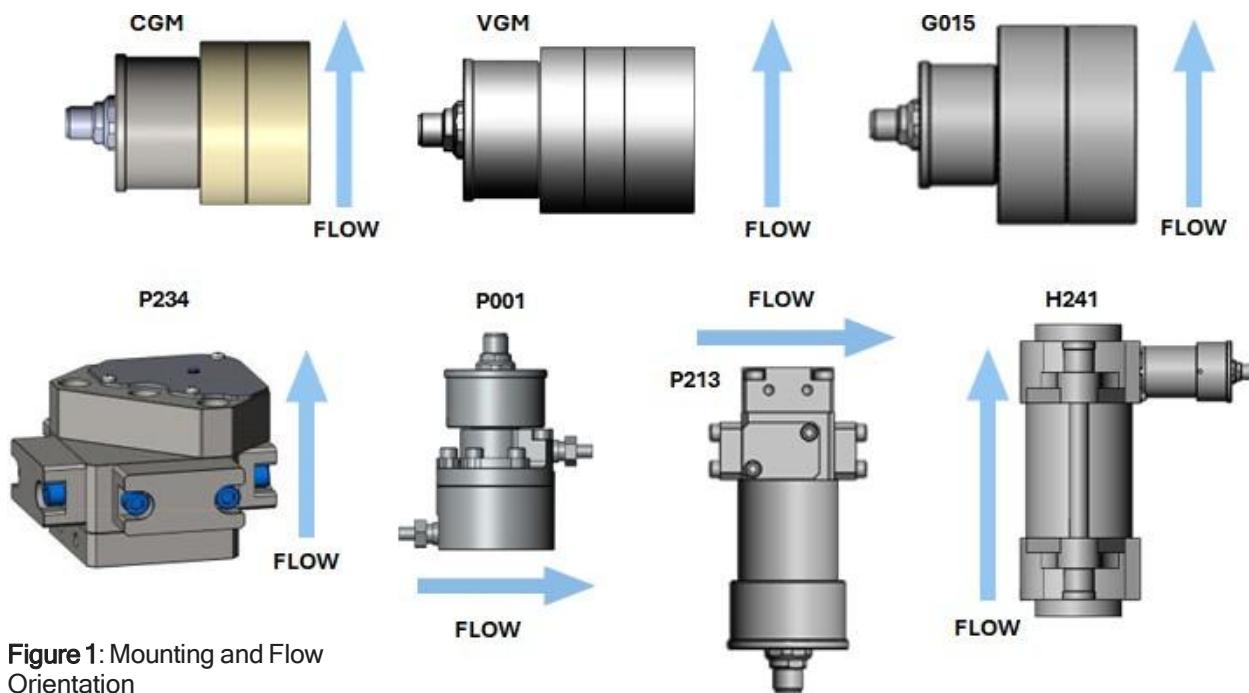


Figure 1: Mounting and Flow Orientation

NPT Fittings: Always use pipe sealant or pipe tape to install fittings and leave the first thread of pipe exposed. **Ensure the tape or sealant does not accidentally enter the meter.**

SAE / BSPP Fittings: Always use process fluid compatible lubricant on the O-ring to attach the fitting to the meter.

Model P001 Compression Fittings: P001 compression fittings are based on Swagelok style ferrules (see fig. 1). Do not use other manufacturers' parts because the sealing angle may not be the same. Fitting kits contain detailed instructions and are shipped with every meter (contact Max Machinery for spare ferrule kits). Always torque to values on fitting kit instructions. Select tubing grades that meet or exceed your system pressure requirements. If using flexible tubing, install a tubing insert to allow compression ferrules to seal (suggested inserts: Swagelok SS-405-2, SS-405-03 or SS-405-170). To reuse a tube fitting, mark the nut and meter before removal. When re-installing, tighten to align the marks then tighten a quarter turn farther.

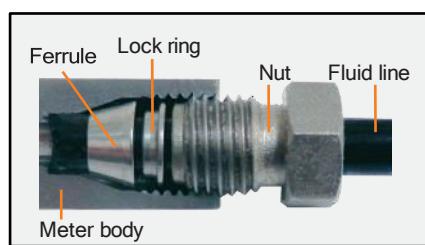


Figure 2: Compression Fitting

Helical Style Meters: When installing pipe to the flow meter, always support the nearest end cap or both end caps (such as in a vise). Do not clamp the flow meter body. This avoids misalignment of internal meter components when the pipe is tightened.

ANSI Flanges: Using H-Series meters at pressures greater than 500 psi requires flanges. Flanges are customer supplied items. Max has bolt kits available for flange installations. For details, see the specifications and bolt torque table in the helical flow meter manual.