



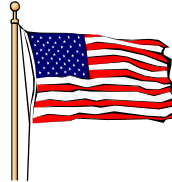
Quality Products are our Business, Quality Service is our Ethic

Great Plains Meter inc.

To: Great Plains Meter Customers

From: Mel Noffke, Great Plains Meter, Inc.

Subject: Water Meter Installations



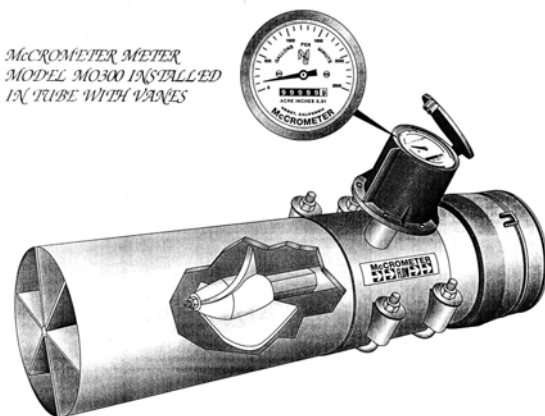
**IMPORTANT
INFORMATION!!**

Correct meter installation is important for a **successful water measurement** program. The adoption of mandatory water metering or monetary incentives to install meters has prompted me to write this letter to point out some important facts concerning water meter installations. By following strict installation guidelines one can provide both the measurement accuracy and the longevity of meters needed by the users and the agencies requiring these meters.

In your binder is a white sheet with blue headings that explains correct meter installations. This sheet is my revision of an original McCrometer version and is somewhat more restrictive as to suggested straight run distances. Please take the time to thoroughly review this information. It will save you time and possibly expense in the future.

I recommend the use of **straightening vanes** in **all** meter installations. The use of vanes provides the benefits of accuracy and meter longevity. Vanes are available in two styles, bolt-in tri-vanes that can be installed in the customers' pipe by drilling 2 holes for each vane and then inserting the vanes through the meter hole to install. Weld-in 6-vanes units are also available and are tack welded in the pipe just upstream of the propeller. We also have aluminum and steel tubes available with factory installed vanes. ***Purchasing meters with tubes enable you to stock meters and may eliminate the need for a special trip to the field to measure the customers' pipe.***

Aluminum and Steel Tubes w/vanes available from Great Plains Meter.



Meters on **Vertical Installations** require 5 pipe diameters also. On pivot risers, the center of the hole should be located 55" above the end of the elbow.

I also recommend the use of **overrun bearing** assemblies in most installations. Overrun bearing assemblies have 3 bearings in the forward housing and should be recommended to customers if their flow rates are 4 or 5 feet per second or more. Meters generally operate in the range from 1 to 10 feet per second water velocity. At 5 fps an 8" meter is flowing about 740 gpm; a 6" meter about 560 gpm and a 10" about 1150 gpm. The \$43 additional list price for an overrun bearing is well worth the money for extra bearing assembly longevity. When saddle meters are used and installed in the customers' pipe we need to know the **outside diameter** of the pipe to fit the saddle and the **inside diameter or wall thickness** to calibrate the meter accuracy. This is extremely important. This information is then put on a tag on the meter so you and your customer know exactly what the meter was calibrated for.

Full pipe flow is another must consideration for accurate measurement. If you are installing a meter on a gravity system where the well is higher than the pipeline or the pipeline goes downhill, chances are the pipe will not be full. The meter measures velocity of the water and so it will read high in these situations. The easiest remedy is to build a slight hump in the pipeline immediately downstream from the meter.

Upstream and downstream distance requirements are discussed in detail in the installation sheets. Distances vary according to the type of turbulence and flow rate velocities. Always take the greatest distance possible that is available. Where adequate straight run unobstructed distances are not available, vanes are necessary and you may be subject to installation restrictions by the regulating agency. Please check with both that agency and us before making that type of installation. Do not install meters directly downstream from a chemigation check valve. Jetting flow may occur from these valves and 10 to 20 unobstructed pipe diameters may be needed before flow settles down.

In closing I suggest you use the bolt-on saddle meter model MO300 with either a steel flow tube or aluminum flow tube available from us and shown previously in this letter. These meter/tube combinations make excellent installations.

Thanks for doing business with us and always feel welcome to call us if you have any questions or concerns on any installation.

Sincerely,
GREAT PLAINS METER, INC.



Milvern H. Noffke
President