

## CERTIFIED WATER FLOWMETERS

(Implementing Kansas Administrative Regulation 5-1-12)



**August 7, 2017**

The following water flowmeters have been certified by their manufacturers to be in compliance with the Kansas specifications for water flowmeters as defined in Kansas Administrative Regulation (K.A.R.) 5-1-4. These flowmeters are acceptable for use where the Chief Engineer has required a water flowmeter pursuant to K.A.R. 5-1-7. In addition, if the Chief Engineer has required a water flowmeter, the flowmeter must be installed to conform with specifications in K.A.R. 5-1-6 and maintained in compliance (see K.A.R. 5-1-8 and 5-1-9).

Note: Certification of a water flowmeter model does not indicate endorsement by the Chief Engineer, the Division of Water Resources, or the Department of Agriculture.

| <b>Badger Meter, Inc.</b> |                                    |  |
|---------------------------|------------------------------------|--|
| Model Number              | Type and Size                      | DWR Requirements   |
| 160                       | Turbine 1½"                        |  |
| 200                       | Turbine 2"                         |  |
| 450                       | Turbine 3"                         |  |
| 1000                      | Turbine 4"                         |  |
| 2000                      | Turbine 6"                         |  |
| 3500                      | Turbine 8"                         |  |
| 5500                      | Turbine 10"                        |  |
| 6200                      | Turbine 12"                        |  |
| 6600                      | Turbine 16"                        |  |
| 10000                     | Turbine 20"                        |  |
| M1000                     | Electromagnetic (1/4" through 8")  | Meters will be shipped with a seal in place with only an administrative level password which the user will not have access to; no user or service level password. If additional setup needed, a Badger sales representative will perform and then lock with administrative password and attach seal screw kit (lead seal with wire seal). Seal kit will be easily identified as a Badger Meter product. Administrative password will be retained only by Badger Meter and will in no case be revealed to the user. |
| M2000                     | Electromagnetic (1/4" through 54") | Meters will be shipped with a seal in place with only an administrative level password which the user will not have access to; no user or service level password. If additional setup needed, a Badger sales representative will perform   |

|               |                                    |  |
|---------------|------------------------------------|--|
|               |                                    | and then lock with administrative password and attach seal screw kit (lead seal with wire seal). Seal kit will be easily identified as a Badger Meter product. Administrative password will be retained only by Badger Meter and will in no case be revealed to the user.  |
| M5000         | Electromagnetic (1/2" through 24") | Meters will be shipped with a seal in place with only an administrative level password which the user will not have access to; no user or service level password. If additional setup needed, a Badger sales representative will perform and then lock with administrative password and attach seal screw kit (lead seal with wire seal). Seal kit will be easily identified as a Badger Meter product. Administrative password will be retained only by Badger Meter and will in no case be revealed to the user. |
| Recordall 170 | Positive Displacement 2"           | w/wire seal per drawing S-907  |

| <b>Bermad, Inc.</b>                    |  |  |
|--|--|--|
| Model Number                           | Type and Size                                | DWR Requirements   |
| Euromag MUT2300 with MC406 converter   | Full-bore Electromagnetic (2" through 12")   | Shipped with a wire passed tightly around the clamp and pipe stem on the meter sensor which holds the converter to the meter sensor body. The wire will be tight enough that there is insufficient slack to be able to remove the converter from the sensor body without cutting the wire. The wire will be secured with a seal which bears the Bermad name. |
| Euromag MUT1100J with MC406 converter  | Full-bore Electromagnetic (1" through 6")    | Shipped with a wire passed tightly around the clamp and pipe stem on the meter sensor which holds the converter to the meter sensor body. The wire will be tight enough that there is insufficient slack to be able to remove the converter from the sensor body without cutting the wire. The wire will be secured with a seal which bears the Bermad name. |
| Euromag MUT2200EL with MC406 converter | Full-bore Electromagnetic (1/2" through 80") | Shipped with a wire passed tightly around the clamp and pipe stem on the meter sensor which holds the converter to the meter sensor body. The wire will be tight enough that there is insufficient slack to be able to remove the converter from the sensor body without cutting the wire. The wire will be secured with a seal which bears the Bermad name. |

| <b>Carlson Meter, Inc.</b> |                  |  |
|----------------------------|------------------|--|
| Model Number               | Type and Size    | DWR Requirements   |
| Carlson Cold Water Turbine | Turbine 2" to 8" | Register must be sealed to one of the bolts on top of the meter with a wire and lead seal. |

| <b>Elster\AMCO\ABB\Kent Water Metering Systems</b> |   |  |
|--|---|--|
| Model Number                                       | Type and Size                           | DWR Requirements   |
| Watermaster FEV111, FEV121, FEV181, FEV191         | Full-Bore Electromagnetic 1½" to 12"    | Read only MID switch set to "on"   |
| Watermaster FEW321                                 | Full Bore Electromagnetic 1 1/2" to 96" | Read Only MID switchset to "ON" by vendor. Converter/register equipped with two tabs with holes for seal wire. Replaces FEF and FEV models |
| Watermaster FEW325                                 | Full Bore Electromagnetic 1 1/2" to 96" | Read Only MID switchset to "ON" by vendor. Converter/register equipped with two tabs with holes for seal wire. Replaces FEF and FEV models |
| Watermaster FEF121, FEF181                         | Full-Bore Electromagnetic 10" to 84"    | Read only MID switch set to "on"   |
| SM700  | Fluidic Oscillator 5/8" to 1"           | Meter does not require straightening vanes and there are no upstream/downstream spacing requirements                                       |
| T-3000   | Turbine 1½" to 8"                       |  |
| T-4000   | Turbine 1½" to 12"                      |  |
| TS-4000  | Turbine 1½" to 12"                      |  |
| H-3000   | Turbine 3"                              |  |
| HT-4000  | Turbine 3"                              |  |
| C-3000   | Compound 2", 3", 6", 8"                 |  |
| C-4000   | Compound 2" to 4"                       |  |
| C-700  | Positive displacement 5/8" to 2"        |  |
| M-700  | Multijet 5/8" to 2"                     |  |
| MFE w/MRE4 register                                | Full Bore Electromagnetic ½" to 24"     | vendor provided cover bolt w/ hole   |
| MFF w/MFE4 register                                | Full Bore Electromagnetic 28" to 84"    | vendor provided cover bolt w/ hole   |
| Aquamaster Electronic Water Meter                  | Full Bore Electromagnetic 5/8" to 24"   |  |
| evoQ4  | Full Bore Electromagnetic 2" to 12"     |  |

| <b>Emerson\Dieterich Standard\Rosemount</b>  |  |  |
|--|--|--|
| Model Number                                 | Type and Size                                    | DWR Requirements   |
| Probar, PBR+25S HAMSO MP4C0 2 A 1 A M T1 QD1 | Differential Pressure Insertion tubes, 4" to 42" | Totalizer by M&D Controls, Flowtube w/ Straightening Vanes |
| Probar, PNF+10S HVMS0 FAS 2 A 1 A M T1 QD1   | Differential Pressure Insertion tubes, ½" to 2"  | Totalizer by M&D Controls, Flowtube w/ Straightening Vanes |

|  |   |   |
|--|---|---|
| ES Pro, PSR+26S MM4C0 2 2 MD4C0 QD1 QD2 QS1 T1 | Differential Pressure Insertion tubes, 4 to 42" | Totalizer by M&D Controls, Flowtube w/ Straightening Vanes                                  |
| 8700 Series w/8712 remote register             | Full Bore Electromagnetic .5" to 36"            | equipped w/ Integral Tamperproof Kit, part# 08721-0547-0001                                 |
| 8700 Series w/8732 C integral register         | Full Bore Electromagnetic .5" to 36"            | T-1non-volatile config only and equipped w/ Integral Tamperproof Kit, part# 08721-0547-0001 |
| 8700 Series w/8732 E integral transmitter      | Full Bore Electromagnetic .5" to 36"            | Equipped w/ Integral Tamperproof Kit, part# 08721-0547-0001                                 |

| <b>Endress + Hauser, Inc.</b> |                                       |  |
|-------------------------------|---------------------------------------|--|
| Model Number                  | Type and Size                         | DWR Requirements   |
| Proline Promag 50W            | Full Bore Electromagnetic 1" to 78"   |  |
| Proline Promag 50P            | Full Bore Electromagnetic 1/2" to 24" |  |
| Proline Promag 50H            | Full Bore Electromagnetic 1/12" to 4" |  |
| Promag 10W                    | Full Bore Electromagnetic 1" to 78"   | *Custody mode  |
| Promag 10P                    | Full Bore Electromagnetic 1/2" to 24" | *Custody mode  |
| Promag 10H                    | Full Bore Electromagnetic 1/12" to 4" | *Custody mode  |
| Promag 23W                    | Full Bore Electromagnetic 1" to 78"   | *Custody mode  |
| Promag 23P                    | Full Bore Electromagnetic 1/2" to 24" | *Custody mode  |
| Promag 23H                    | Full Bore Electromagnetic 1/12" to 4" | *Custody mode  |
| Promag 53W                    | Full Bore Electromagnetic 1" to 78"   | *Custody mode  |
| Promag 53P                    | Full Bore Electromagnetic 1/2" to 24" | *Custody mode  |
| Promag 53H                    | Full Bore Electromagnetic 1/12" to 4" | *Custody mode  |
| Promag D400                   | Full-bore Electromagnetic 1" to 4"    | Write-protected by internal hardware switch, cross-drilled screws to secure transmitter.   |
| Promag L400                   | Full-bore Electromagnetic 2" to 90"   | Write-protected by internal hardware switch, cross-drilled screws to secure transmitter.   |
| Promag W400                   | Full-bore Electromagnetic 1" to 78"   | Write-protected by internal hardware switch, cross-drilled screws to secure transmitter.   |
| Prosonic 92F                  | Ultrasonic (1" through 12")           | Internal switch set to Write Protection On, transmitter housing secured with tamper-evident wire seal. The wire seals must have a tag that bears the name of the vendor and the date the seal was applied. Note: These are accepted under a waiver of the requirement for straightening vanes.   |
| Prosonic 93C                  | Ultrasonic (12" through 80")          | Internal jumper positioned to Write Protection On, optical buttons hidden by paint on the display cover, display cover secured with tamper-evident wire seal, transmitter housing secured with tamper-evident wire seal. The wire seals must have a tag that bears the name of the vendor and the date the seal was applied. Note: These are |

|   |                                |  |
|---|--------------------------------|--|
|   |                                | accepted under a waiver of the requirement for straightening vanes.  |
| Prosonic 93W  | Ultrasonic (1/2" through 160") | Internal jumper positioned to Write Protection On, optical buttons hidden by paint on the display cover, display cover secured with tamper-evident wire seal, transmitter housing secured with tamper-evident wire seal. Spacing of transducers must be clearly and indelibly indicated on the pipe and transducers must be secured such that it would be obvious if someone attempted to move them. The wire seals must have a tag that bears the name of the vendor and the date the seal was applied. Note: These are accepted under a waiver of the requirement for straightening vanes. |
| * <b>Custody mode:</b> Internal jumpers placed to prevent totalizer reset. Cross-drilled screws to secure transmitters. Blanking plate inside transmitter cover to prevent access to buttons to reset totalizers. |                                |  |

| <b>Hersey Meters</b> |                                      |  |
|----------------------|--------------------------------------|--|
| Model Number         | Type and Size                        | DWR Requirements   |
| Horizon              | Turbine 1½", 2", 3", 4", 6", 8", 10" |  |
| MVR 30               | Vertical turbine ¾" x ½"             |  |
| MVR 30A              | Vertical turbine ¾"                  |  |
| MVR 30B              | Vertical turbine ¾" x 1"             |  |
| MVR 50               | Vertical turbine 1"                  |  |
| MVR 100              | Vertical turbine 1½"                 |  |
| MVR 160              | Vertical turbine 2"                  |  |
| MVR 350              | Vertical turbine 3"                  |  |
| MVR 650              | Vertical turbine 4"                  |  |
| MVR 1300             | Vertical turbine 6"                  |  |
| 430IIS               | Positive Displacement (5/8")         |  |
| 442IIS               | Positive Displacement (¾")           |  |
| 452IIS               | Positive Displacement (1")           |  |
| 562IIS               | Positive Displacement (1½")          |  |
| 572IIS               | Positive Displacement (2")           |  |
| HbMag                | Full-bore electromagnetic            | Internal register must be secured with drilled screws used on either side of the display so a seal wire can be used. Remote register must be secured with drilled screws used on either side of the display so a seal wire can be used and the display housing must be supplied with drilled screws so that a seal wire can be used to provide evidence of any attempt to unhook the cables. |

|                     |   |  |
|---------------------|---|--|
| 420 Composite       | Positive Displacement 5/8x1/2" and 5/8x3/4" | Register housing must be secured to the meter body by means of a seal wire through the register and around the meter spud.   |
| 420 Low lead bronze | Multi-jet 5/8x3/4 through 2"                | Register housing must be secured to the meter body by means of a seal wire through the register and around the meter spud. Base plate must be secured to the meter body by at least two cross-drilled bolts through which a seal wire can be passed. |

| <b>Invensys\Foxboro</b>                            |                                     |   |
|--|-------------------------------------|---|
| Model Number                                       | Type and Size                       | DWR Requirements                                  |
| 9100A w/integral or remote mount IMT25 transmitter | Full Bore Electromagnetic 1" to 78" | (ECEP 14356 configuration, sealed by FoxBoro rep) |
| 9200A w/integral or remote mount IMT25 transmitter | Full Bore Electromagnetic 1" to 78" | (ECEP 14356 configuration, sealed by FoxBoro rep) |
| 9300A w/integral or remote mount IMT25 transmitter | Full Bore Electromagnetic 1" to 78" | (ECEP 14356 configuration, sealed by FoxBoro rep) |

| <b>Kamstrup A/S</b> |                                       |  |
|---------------------|---------------------------------------|--|
| Model Number        | Type and Size                         | DWR Requirements   |
| flowIQ 2100         | Ultrasonic 5/8"x1/2", 5/8"x3/4", 3/4" | Register is integral to meter body in which transducers and electronics are installed and is factory sealed and visually tamper-evident. Software for the register is not accessible to end users so changes to calibration or totalizers cannot be made. Battery cannot be replaced without raising a tamper flag and breaking the vacuum seal. |
| flowIQ 3101         | Ultrasonic 1", 1-1/2", 2"             | Register is integral to meter body in which transducers and electronics are installed and is factory sealed and visually tamper-evident. Software for the register is not accessible to end users so changes to calibration or totalizers cannot be made. Battery cannot be replaced without raising a tamper flag and breaking the vacuum seal. |

| <b>Krohne, Inc.</b>                                   |   |  |
|---|---|--|
| Model Number  | Type and Size                           | DWR Requirements   |
| IFS 4000 KC (Environmag) w/IFC 010K signal converter  | Full Bore Electromagnetic 1" to 12"     |  |
| Enviromag 2000/IFC 100 or IFC 300                     | Full Bore Electromagnetic 1/10" to 120" | Converter housing with 2 predrilled holes and passcode protected programing.   |
| Optiflux 2000 with IFC100 and IFC300 Signal Converter | Full Bore Electromagnetic 1" to 120"    | Converter configured with forward only option. CT Lock Jumper inside register head set so that even with a password user cannot alter totalizer or any calibration factors. Vender will seal register after installation and startup. Seal tag bearing vendors name and date seal was applied will be affixed. |
| Optiflux 4000 with IFC100 and IFC300 Signal Converter | Full Bore Electromagnetic 1" to 120"    | Converter configured with forward only option. CT Lock Jumper inside register head set so that even with a password user cannot alter totalizer or any calibration factors. Vender will seal register after installation and startup. Seal tag bearing vendors name and date seal was applied will be affixed. |
| Waterflux 3070 with IFC070 Signal Converter           | Full Bore Electromagnetic 1" to 24"     | Converter configured with forward only option. CT Lock Jumper inside register head set so that even with a password user cannot alter totalizer or any calibration factors. Vender will seal register after installation and startup. Seal tag bearing vendors name and date seal was applied will be affixed. |
| Waterflux 3100 with IFC100 Signal Converter           | Full Bore Electromagnetic 1" to 24"     | Converter configured with forward only option. CT Lock Jumper inside register head set so that even with a password user cannot alter totalizer or any calibration factors. Vender will seal register after installation and startup. Seal tag bearing vendors name and date seal was applied will be affixed. |
| Waterflux 3300 with IFC300 Signal Converter           | Full Bore Electromagnetic 1" to 24"     | Converter configured with forward only option. CT Lock Jumper inside register head set so that even with a password user cannot alter totalizer or any calibration factors. Vender will seal register after installation and startup. Seal tag bearing vendors name and date seal was applied will be affixed. |

| <b>Lindsay</b>   |  |  |
|------------------|--|--|
| Model Number     | Type and Size                                  | DWR Requirements   |
| Growsmart IM3000 | Full Bore Electromagnetic 4", 6", 8", 10", 12" | Meter must be provided with two wires with seals installed on sides of the meter face plate. Meter must be supplied with battery expansion pack. |

| <b>Master Meter, Inc.</b>                |                                  |   |
|--|----------------------------------|---|
| Model Number (Beginning Catalog Numbers) | Type and Size (Body Markings)    | DWR Requirements  |
| MJ04 or B11                              | MM2, MM2FP or BL04               | Multi-jet 5/8" x 1/2"   |
| MJ05 or B12                              | MM3 or BL05                      | Multi-jet 5/8" x 3/4"   |
| MJ06 or B13                              | MM4 or BL06                      | Multi-jet 3/4" to 7 1/2" long   |
| MJ07 or B14                              | BL07                             | Multi-jet 3/4" to 9" long   |
| MJ08 or B15                              | BL08                             | Multi-jet 3/4" x 1"   |
| MJ09 or B16                              | MM5, MM5FP or BL09               | Multi-jet 1"  |
| MJ10 or E25 or M25                       | MM6T or 1-1/2"                   | Multi-jet 1 1/2" threaded end   |
| MJ11 or E21 or M21                       | MM6F or 1-1/2"                   | Multi-jet 1 1/2" flanged end  |
| MJ12 or E24 or M24                       | MM7T OK                          | Multi-jet 2" threaded end   |
| MJ13 or E23 or M23                       | MM7F OK                          | Multi-jet 2" flanged end  |
| TM11 (No longer available)               | 1 1/2" MMT (No longer available) | Turbine 1 1/2" NA   |
| TM13 or T31                              | 2" MMT, 2" MMTII OK              | Turbine 2"  |
| TM14 or T32                              | 3" MMT OK                        | Turbine 3"  |
| TM15 or T33                              | 4" MMT OK                        | Turbine 4"  |
| TM16 or T34                              | 6" MMT OK                        | Turbine 6"  |
| TM17 or T35                              | 8" MMT OK                        | Turbine 8"  |
| Octave                                   | Ultrasonic 2", 3", 4", 6" and 8" | Cross-drilled flange bolts. Note: These are accepted under a waiver of the requirement for straightening vanes. |

| <b>McCrometer</b> |   |   |
|-------------------|---|---|
| Model Number      | Type and Size                                   | DWR Requirements  |
| FC100             | Electronic Register for listed propeller meters | Must be mounted directly on the meter sensor housing and such mounting must be equipped with cross-drilled screws so that a sealing wire secured with a lead seal bearing either a Great Plains Meters stamp or a McCrometer stamp can be installed. Internal reed switch needed for programming the FC100 must be internally disabled on the FC100 circuit board. Register enclosure must be equipped with cross-drilled screws so that a sealing wire secured with a lead seal bearing either a |



|  |                                 |   |
|--|---------------------------------|---|
|  |                                 | Great Plains Meters stamp or a McCrometer stamp can be installed. Only McCrometer, Inc., or Great Plains Meters will be allowed to calibrate, repair, or otherwise work on the FC100. |
| MF100                                      | Propeller 2" to 12"             | with straightening vanes insert   |
| MG100                                      | Propeller 3" to 24"             | with straightening vanes insert   |
| ML100                                      | Propeller 6" to 12"             | with straightening vanes insert   |
| MS100                                      | Propeller 3" to 24"             | with straightening vanes insert   |
| MT100                                      | Propeller 3" to 4"              | with straightening vanes insert   |
| MO300 *(See GPM approved flowtube section) | Propeller 4" to 16"             | mounted in flowtube with straightening vanes  |
| MD300 *(See GPM approved flowtube section) | Propeller 4" to 16"             | mounted in flowtube with straightening vanes  |
| MW500                                      | Propeller 2" to 24"             |   |
| MZ500                                      | Propeller 2" to 24"             |   |
| QW500                                      | Propeller 2" to 24"             |   |
| QZ500                                      | Propeller 2" to 24"             |   |
| SW500                                      | Propeller 4" to 36"             |   |
| SZ500                                      | Propeller 4" to 36"             |   |
| MM800                                      | Propeller 3" to 24"             |   |
| MW800                                      | Propeller 3" to 24"             |   |
| MG900                                      | Propeller 2" to 24"             |   |
| MT900                                      | Propeller 2" to 24"             |   |
| MW900                                      | Propeller 2" to 24"             |   |
| M1400                                      | Propeller 18" to 36"            | Mounted in flowtube with straightening vanes  |
| V2150                                      | Differential Pressure 4" to 18" | V2-KS-Spec  |
| V2300                                      | Differential Pressure 4" to 18" | V2-KS-Spec  |

| <b>Metron-Farnier</b> |                               |  |
|-----------------------|-------------------------------|--|
| Model Number          | Type and Size                 | DWR Requirements   |
| S30D                  | Single-jet 5/8"x3/4" and 3/4" | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can |

|        |                                      |   |
|--------|--------------------------------------|---|
|        |                                      | be passed.  |
| S50D   | Single-jet 1"                        | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can be passed. |
| S88D   | Single-jet 1.5"                      | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can be passed. |
| S130D  | Single-jet 2"                        | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can be passed. |
| S175D  | Single-jet 3"                        | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can be passed. |
| 2800-D | Single-jet 6" and 8" (Enduro Meters) | OER or innov8 registers. Innov8 register must be supplied as read-only. Registers must be secured to meter bodies by means of at least two cross-drilled screws or bolts. Flanged meter bodies must contain a hole or cross-drilled bolt and the flange must contain at   |

|  |  |   |
|--|--|---|
|  |  | least two cross-drilled bolts. Threaded end meter bodies must contain a hold or cross-drilled bolt and the coupling must contain a hole through which a wire with a seal can be passed. |
|--|--|---|

| <b>Neptune Technology</b> * E-Coder Absolute Encoder. Register is an acceptable register for these models. |  |   |
|--|--|---|
| Model Number   | Type and Size                          | DWR Requirements  |
| T-10 *   | Positive displacement 5/8" to 2"       |   |
| T-10 Double Check *  | Positive displacement 5/8"             |   |
| HP Turbine *   | Turbine 1½" to 20"                     | Install with optional strainer upstream and with minimum 2 special order SB44 bolts |
| HP Fire Service Turbine *  | Turbine 3" to 10"                      | Install with optional strainer upstream and with minimum 2 special order SB44 bolts |
| TRU/FLO Compound *   | Positive displacement/turbine 2" to 8" | Install with optional strainer upstream and with minimum 2 special order SB44 bolts |

| <b>Netafim USA \ ARAD</b> |  |  |
|---------------------------|--|--|
| Model Number              | Type and Size                          | DWR Requirements   |
| WT                        | Turbine 2" to 12"                      |  |
| WMR                       | Turbine 2"                             |  |
| WST                       | Turbine 2" to 8"                       | Continuous acting air vent of proper size and type must be installed upstream of meter sensor.   |
| Octave                    | Ultrasonic 2", 3",4",6",8",10" and 12" | Cross-drilled flange bolts. Note: These are accepted under a waiver of the requirement for straightening vanes. Air relief vent must be installed upstream of the meter. |

| <b>RG3 Meter Company</b> |                           |   |
|--------------------------|---------------------------|---|
| Model Number             | Type and Size             | DWR Requirements  |
| PD15                     | Positive Displacement 1½" | Shipped with register sealed to meter body with wire passing through hole in register and hole in one of the bolts securing the top of the meter body to the lower meter body. A seal with a unique serial number will be placed on the wire. |

| <b>SeaMetrics, Inc.</b>            |  |   |
|------------------------------------|--|---|
| Model Number                       | Type and Size                              | DWR Requirements  |
| AG1000 w/built in register display | Full Bore Electromagnetic 4" to 12"        |   |
| AG1100 w/built in register display | Full Bore Electromagnetic 4" to 12"        |   |
| AG2000 w/built in register display | Full Bore Electromagnetic 4" to 12"        |   |
| AG2100 w/built in register display | Full Bore Electromagnetic 4" to 12"        |   |
| AG3000                             | Full-bore Electromagnetic (4" through 12") | Shipped pre-calibrated for the correct pipe size. Access to the converter will be secured with a wire passed through one of two holes in the converter housing and the wire will be secured with a Seametrics seal bearing a non-repeatable identifying number. |
| WMP104                             | Full Bore Electromagnetic 1" and 2"        | With tamper-evident seal and cross-drilled screws to prevent register from being removed from sensor without evidence. Must have two C lithium batteries.   |
| WMP 104                            | Full Bore Electromagnetic 1" to 3"         | With tamper-evident seal and cross-drilled screws to prevent register from being removed from sensor without evidence. Must have two C lithium batteries.   |
| MJT, MJR, MJE                      | Multi-jet, sizes 3/4", 1", 1-1/2", 2"      | Tamper-evident seal and wire between calibration plug and meter body.   |
| MJNT, MJNR, MJNE                   | Multi-jet, sizes 3/4", 1", 1-1/2", 2"      | Tamper-evident seal and wire between calibration plug and meter body.   |

| <b>Sensus Metering\Invensys\Precision\Rockwell</b> |   |   |
|--|---|---|
| Model Number                                       | Type and Size   | DWR Requirements  |
| 101  | Propeller 3" to 36"   |   |
| SRH compound                                       | Compound turbine, piston 2" to 6"   |   |
| Series W   | Turbo 1½" to 16"  |   |
| PMX  | Multi-jet 5/8" to 2"  |   |
| PMM  | Multi-jet 5/8" to 2"  |   |
| Magnum II Type-C                                   | Turbine 2" to 12"   |   |
| Magnum II Type-S                                   | Turbine 1½" to 8"   |   |
| Omni T <sup>2</sup>                                | Turbine 1½", 2", 3", 4", 6", 8", 10"  |   |
| Omni C <sup>2</sup>                                | Turbine 1½", 2", 3", 4", 6", 8", 10"  |   |
| Omni F <sup>2</sup>                                | Turbine 1½", 2", 3", 4", 6", 8", 10"  |   |
| Omni R <sup>2</sup>                                | Turbine 1½" and 2"  | Must be equipped with sealing wires and lead seals which will seal the register to the top plate and the top plate to the meter body. |
| accuMag  | Full Bore Electromagnetic 3", 4", 6", 8", 10", 12", 14", 16", 18", 20", 24" | Register capabilities locked and wire seal to prevent register from being opened without evidence.                                    |

|                      |                                   |                    |
|----------------------|-----------------------------------|--------------------|
| SR                   | Displacement 5/8" to 2"           | Drilled cap screws |
| SRII                 | Displacement 5/8" to 1"           | Drilled cap screws |
| SR accuStream (SR-A) | Displacement 5/8" to 1"           | Drilled cap screws |
| iPERL                | Electromagnetic 5/8", 3/4" and 1" |                    |

| <b>Siemens</b>                |                                     |   |
|-------------------------------|-------------------------------------|---|
| Model Number                  | Type and Size                       | DWR Requirements  |
| MAG 3100 w/5000CT transmitter | Full Bore Electromagnetic ½" to 78" | Configured in the custody transfer cold water pattern approval (PTB OIML R49) and wire sealed |
| MAG 3100 w/6000CT transmitter | Full Bore Electromagnetic ½" to 78" | Configured in the custody transfer cold water pattern approval (PTB OIML R49) and wire sealed |
| MAG 5100 w/5000CT transmitter | Full Bore Electromagnetic 1" to 48" | Configured in the custody transfer cold water pattern approval (PTB OIML R49) and wire sealed |
| MAG 5100 w/6000CT transmitter | Full Bore Electromagnetic 1" to 48" | Configured in the custody transfer cold water pattern approval (PTB OIML R49) and wire sealed |
| MAG 8000                      | Full Bore Electromagnetic 1" to 24" |   |

| <b>Sparling</b>                           |                                       |  |
|---|---------------------------------------|--|
| Model Number                              | Type and Size                         | DWR Requirements                               |
| FM 102 w/FT190, FT191 or FT193 totalizer  | Propeller 4" to 14"                   | 4" pipe size must have bolt in vanes in tube   |
| FM 103 w/FT190, FT191 or FT193 totalizer  | Propeller 4" to 14"                   | 4" pipe size must have bolt in vanes in tube   |
| FM 104 w/FT194 totalizer                  | Propeller 4" to 14"                   | 4" pipe size must have bolt in vanes in tube   |
| FM 182 w/FT190, FT191 or FT193 totalizer  | Propeller 16" to 72"                  |  |
| FM 183 w/FT190, FT191 or FT 193 totalizer | Propeller 16" to 30"                  |  |
| FM 184 w/FT194 totalizer                  | Propeller 16" to 72"                  |  |
| FM 312 w/FT190, FT191 or FT193 totalizer  | Propeller 4" to 14"                   | 4" pipe size must have bolt in vanes in tube   |
| FM 314 w/FT194 totalizer                  | Propeller 4" to 14"                   | 4" pipe size must have bolt in vanes in tube   |
| Tigermag EP FM 626                        | Full Bore Electromagnetic 0.1" to 4"  | EP models must be ordered with custom password |
| Tigermag EP FM 627                        | Full Bore Electromagnetic 1" to 4"    | EP models must be ordered with custom password |
| Tigermag EP FM 656                        | Full Bore Electromagnetic 0.5" to 72" | EP models must be ordered with custom password |
| Tigermag EP FM 657                        | Full Bore Electromagnetic 6" to 48"   | EP models must be ordered with custom password |

| <b>Toshiba</b>                               |  |  |
|--|--|--|
| Model  | Type and Size                              | DWR Requirements   |
| GF630 Detector with LF620 Integral Converter | Full Bore Electromagnetic 0.5" through 24" | Converters must be password protected (password retained solely by vendor).<br>Conveter housing secured with stainless steel |

|  |  |   |
|--|--|---|
|  |  | screws with eyelets through which a wire seal can be placed.  |
| GF632 Detector with LF622 Remote Converter   | Full Bore Electromagnetic 0.5" through 24" | Converters must be password protected (password retained solely by vendor). Converter housing secured with stainless steel screws with eyelets through which a wire seal can be placed. |
| LF654 Detector with LF620 Integral Converter | Full Bore Electromagnetic 0.5" through 18" | Converters must be password protected (password retained solely by vendor). Converter housing secured with stainless steel screws with eyelets through which a wire seal can be placed. |
| LF654 Detector with LF622 Remote Converter   | Full Bore Electromagnetic 0.5" through 18" | Converters must be password protected (password retained solely by vendor). Converter housing secured with stainless steel screws with eyelets through which a wire seal can be placed. |
| LF664 Detector with LF622 Remote Converter   | Full Bore Electromagnetic 20" through 78"  | Converters must be password protected (password retained solely by vendor). Converter housing secured with stainless steel screws with eyelets through which a wire seal can be placed. |

**Valmont Industries**

| Model Number | Type and Size                              | DWR Requirements   |
|--------------|--|--|
| Valley 3000  | Full-bore Electromagnetic (4" through 12") | Shipped pre-calibrated for the correct pipe size. Access to the converter will be secured with a wire passed through one of two holes in the converter housing and the wire will be secured with a Seametrics seal bearing a non-repeatable identifying number. Note: Same meter as Seametrics AG3000. |

**Water Specialties, Inc.**

| Model Number   | Type and Size                                   | DWR Requirements  |
|--|---|---|
| Digital Registers: Model numbers with a D at the end indicate that the meter is equipped with an FC100 digital register. | Electronic Register for Model Numbers with a D. | Must be mounted directly on the meter sensor housing and such mounting must be equipped with cross-drilled screws so that a sealing wire secured with a lead seal |

|                   |                                     |   |
|-------------------|-------------------------------------|---|
|                   |                                     | bearing either a McCrometer Great Plains stamp or a McCrometer stamp can be installed. Internal reed switch needed for programming the FC100 must be internally disabled on the FC100 circuit board. Register enclosure must be equipped with cross-drilled screws so that a sealing wire secured with a lead seal bearing either a McCrometer Great Plains stamp or a McCrometer stamp can be installed. Only McCrometer, Inc., or McCrometer Great Plains will be allowed to calibrate, repair, or otherwise work on the FC100. |
| LP-31 and LP-31-D | Propeller 4" to 20"                 | Flowtube & straightening vane insert  |
| LP-32 and LP-32-D | Propeller 6" to 20"                 | Flowtube & straightening vane insert  |
| LP-03             | Propeller 4" to 16"                 |   |
| LP-04 and LP-04-D | Propeller 4" to 16"                 |   |
| LP-11             | Propeller 4" to 12"                 |   |
| LP-12 and LP-12-D | Propeller 4" to 16"                 |   |
| ML-03             | Propeller 3" to 48"                 |   |
| ML-04 and ML-04-D | Propeller 3" to 48"                 |   |
| ML-07             | Propeller 3" to 48"                 |   |
| ML-08 and ML-08-D | Propeller 3" to 48"                 |   |
| ML-11             | Propeller 3" to 48"                 |   |
| ML-12 and ML-12-D | Propeller 3" to 48"                 |   |
| VF-29             | Propeller 4" to 20"                 |   |
| VF-30 and VF-30-D | Propeller 4" to 20"                 |   |
| UltraMag UM-06    | Full Bore Electromagnetic 2" to 48" |   |
| UltraMag UM-08    | Full Bore Electromagnetic 2" to 20" |   |

| <b>Yokogawa Corp.</b>                                    |   |   |
|--|---|---|
| Model Number   | Type and Size                           | DWR Requirements  |
| Digital Yewflo(DYxx)                                     | Vortex 0.5" to 12"                      | with straightening vanes  |
| Yewflo YF100, style E                                    | Vortex 0.5" to 12"                      | with straightening vanes  |
| Admag AE series  | Full Bore Electromagnetic 0.1" to 16"   |   |
| Admag AM series  | Full Bore Electromagnetic 0.1" to 8"    |   |
| Admag AXF w/integral or remote AXFA14 or AXF11 converter | Full Bore Electromagnetic 0.1 to 104"   | Admag AXF & SE models must be tagged and password protected by vendor   |
| Admag AXR  | Full Bore Electromagnetic 1" through 8" | Converter must have pre-drilled holes in the front and back covers to allow for a seal wire. The wire seal must have a tag that bears the name of the contractor or vendor and the date the seal was applied. The converter |

|   |  |  |
|---|--|--|
|   |  | must also be set up with both a hardware and software lock so that neither the set up parameters nor totalizer may be altered by the water user. These locks are to be applied at the factory. |
| Admag AXW w/integral or remote AXFA14 or AXFA11 converter | Full Bore Electromagnetic 20" to 72"   | Admag AXW models must be tagged and password protected by vendor   |
| Admag SE w/SE14 converter                                 | Full Bore Electromagnetic 0.5" to 104" | Admag AXF & SE models must be tagged and password protected by vendor  |

### Zenner Performance 2

| Model Number | Type and Size                            | DWR Requirements   |
|--------------|--|--|
| PMT          | Turbine 2" through 8"                    | Large mounting plate bolt cross-drilled and one of the small register retaining ring Allen Head screws cross-drilled. External measuring chamber calibration adjustment screw will have tamper wire and seal. Flange mounting hardware will have at least two bolts per flange cross-drilled.  |
| Nitro II     | Positive Displacement 5/8x3/4 through 2" | At least two bottom plate bolts cross-drilled and a standard Allen Head screw with cross-drilled head through which to run a wire to the register shroud. Oval flanges (1-1/2" and 2") will be supplied with four mounting bolts cross-drilled. Threaded couplings (5/8, 3/4 and 1") will have at least one tamper wire hole in the coupling nut through which to run a wire to one of the cross-drilled bottom plate bolts. |
| Nitro        | Multi-jet 5/8x3/4 through 2"             | At least two bottom plate bolts cross-drilled and a standard Allen Head screw with cross-drilled head through which to run a wire to the register shroud. Oval flanges (1-1/2" and 2") will be supplied with four mounting bolts cross-drilled. Threaded couplings (5/8, 3/4 and 1") will have at least one tamper wire hole in the coupling nut through which to run a wire to one of the cross-drilled bottom plate bolts. |



## FLOW TUBE MANUFACTURERS

Manufacturers approved by Great Plains Meter, Inc. (GPM) to construct **aluminum and steel** flow tubes (Measuring Chamber), conforming to GPM Specification 07/02. The following tubes have been approved for **use with McCrometer MD300 and MO300 saddle type propeller meters**. The inside diameter of the tube must match the inside diameter that the propeller meter was calibrated to. A properly located straightening vane insert is a required component of the final meter/tube assembly. The flow tube will be labeled with an identification tag indicating the manufacturer's name, direction of flow and that the tube has been constructed to meet GPM specification 07/02.

| <b>Manufacturing Company</b>     | <b>Location</b>                         |
|----------------------------------|---|
| T-L Irrigation                   | Hastings, NE                            |
| Republican Valley Irrigation     | Clay Center KS                          |
| Ace Irrigation and Manufacturing | Kearney, NE                             |
| GLB Meters                       | Hugoton, KS                             |
| Central Valley Irrigation, Inc   | Holdrege, NE                            |
| Vitus Service Center             | Hoxie, KS                               |
| Western Irrigation, Inc.         | Garden City, KS                         |
| Schumacher Irrigation, Inc.      | Platte Center, NE                       |
| Riggs Irrigation, LLC            | Sumner, KS                              |
| Farm Land Irrigation             | Grand Island, NE                        |
| The Garden City Company          | Garden City, KS (steel tubes only)      |
| ABC Welding and Fabrication      | Aurora, NE                              |
| Gus Irrigation and Excavation    | Garden City, KS                         |
| Holdrege Irrigation              | Holdrege, NE (steel tubes only)         |
| Gaylord Irrigation               | Gaylord, KS                             |
| Sargent Irrigation               | Grant, NE (galvanized steel tubes only) |

Manufacturers approved by Great Plains Meter, Inc. (GPM) to construct **PVC** flow tubes (Measuring Chamber), conforming to GPM Specification 07/02. The following tubes have been approved for **use with McCrometer MD300 and MO300 saddle type propeller meters only in situations where the water being metered would corrode a metal flow tube**. The inside diameter of the tube must match the inside diameter that the propeller meter was calibrated to. A properly located bolt-on straightening vane is a required component of the final meter/tube assembly. The flow tube will be labeled with an identification tag indicating the manufacturer's name, direction of flow and that the tube has been constructed to meet GPM specification 07/02.

| <b>Manufacturing Company</b> | <b>Location</b> |
|------------------------------|-----------------|
| Teeter Irrigation            | Garden City, KS |
| Western Irrigation, Inc.     | Garden City, KS |

## **Pivot Riser Manufacturers**

Manufacturers listed below have met Great Plains Meter, Inc. standards of quality and consistency for the construction of pivot risers. The pivot risers they manufacturer are considered acceptable for use as a GPM approved water flowmeter measurement chamber.

A **standard decal** issued by GPM must be **visibly located and permanently attached** to the pivot riser. The decal shall identify the installed vertical meter's **model and serial number**, the **outside and inside diameter** of the riser pipe, and the **pivot riser manufacturer**.

Only **bolt in style straightening vanes** are acceptable for use in these pivot riser installations and must be installed within five pipe diameters upstream of the water flowmeter sensor.

### **Pivot Riser Manufacturing Company**

Valmont Industries

Lindsay Manufacturing

Reinke Manufacturing

Pierce Corporation

Universal Irrigation

T-L Irrigation

Olsen Irrigation