1. General
   1. **Manufacture Background** 
      1. All magmeters furnished shall be manufactured by a registered ISO 9001 quality standard facility
      2. All meters are to be manufactured in the USA
      3. Meters supplied shall be from a US based company that has:
         1. Manufactured water meters for at least twenty five (25) years
         2. Distributes all types and size magnetic flowmeters as indicated in these specifications
   2. **Type**
      1. Meters shall be of the magnetic flow meter type, all of which have NSF compliance
2. Capacity
   1. **Three Inch Meter**
      1. Normal Operating Range: 3.62 - 723 gpm
      2. Maximum Continuous Flow: 723 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
   2. **Four Inch Meter**
      1. Normal Operating Range: 6.43 - 1285 gpm
      2. Maximum Continuous Flow: 1285 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
   3. **Six Inch Meter**
      1. Normal Operating Range: 14.46 - 2891 gpm
      2. Maximum Continuous Flow: 2891 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
   4. **Eight Inch Meter**
      1. Normal Operating Range: 25.70 - 5140 gpm
      2. Maximum Continuous Flow: 5140 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
   5. **Ten Inch Meter**
      1. Normal Operating Range: 40.15 - 8031 gpm
      2. Maximum Continuous Flow: 8031 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
   6. **Twelve Inch Meter**
      1. Normal Operating Range: 57.82 - 11565 gpm
      2. Maximum Continuous Flow: 11565 gpm
      3. Maximum Loss of Head at Max Cont. Flow: <1 psi
3. Size
   1. **Overview**
      1. Determined by the nominal size (in inches) of the opening in the inlet and outlet flanges
   2. **Specifications**
      1. Three Inch Meter Lay Length: 12.25”
      2. Four Inch Meter Lay Length: 10.24”
      3. Six Inch Meter Lay Length: 12.27"
      4. Eight Inch Meter Lay Length: 14.24”
      5. Ten Inch Meter Lay Length: 18.18”
      6. Twelve Inch Meter Lay Length: 19.68”
4. Product Details
   1. **Functions/Performance**
      1. Operating Temperature: 10° to 130° F (-12° to 54° C)
      2. Storage Temperature: -40° to 158° F (-40° to 70° C)
      3. EMI/RFI protection: Per EN 61326-1:2013
      4. Pressure rating: Suitable for use in water systems with up to 150 psi normal operating pressure
      5. Diagnostics: Self diagnostics with on screen display of faults
      6. Rate Display:Field configurable digital indicator displaying flow in liters, cubic meters, cubic feet, and gallons
      7. Flow Totalizer
         1. A fully configurable totalizer integral to the transmitter
         2. Totalized flow shall be displayed
         3. Flow shall be capable of being displayed in forward total, reverse total, and net total
      8. Empty Pipe Performance: Meter shall be capable of running empty indefinitely without damage to any component
      9. Empty Tube Zero
         1. The transmitter shall lock the output at zero when no flow is detected
         2. The empty tube zero feature shall be enabled automatically when the transmitter detects no flow
      10. Low Flow Cutoff: The transmitter shall automatically drop the flow rate displayed and outputs to zero when the flow rate is below the minimum rated flow range for that meter size.
      11. Data Logger
          1. The meter shall have the ability to add a data logger to collect data up to two years
          2. Data intervals as low as 15 seconds
          3. Data storage option to stop the collection of data when memory is full or automatically wrap around
      12. Low Battery Warning: The meter shall display a low battery warning when the batteries are running low
      13. All meters shall meet or exceed AWWA C701 performance standards
   2. **Physical** 
      1. Metering Spool:
         1. Epoxy-coated welded steel (4”-12”)
      2. Powder coated duxctile iron (3”)
      3. Flanges: 150 lb. ANSI pattern
      4. Liner
         1. Santoprene flange/Polypropylene liner body (4”-12”)
         2. Noryl® (3”)
      5. Electrodes: 316 stainless steel standard
      6. Housing: Meters shall be constructed of powder coated die-cast aluminum and designed to meet NEMA 6P (IP68) environmental conditions
      7. Finish: All external surfaces shall have a chemical and corrosion resistant finish
      8. Grounding: Equalization lugs will be provided as standard
      9. Transmitter shall be integral to meter
   3. **Power** 
      1. Must have battery backup for power outage
   4. **Accessories/Documentation**
      1. Factory Calibration: All meters shall be factory calibrated and a copy of the report for each meter shall be furnished with the meter
   5. **Connections**
      1. Meter body shall be flanged
      2. 3” through 12” sizes shall be round flanged 150# ANSI pattern
5. Flow Converter Details
   1. **Type**
      1. Microprocessor-based, intelligent transmitter shall be mounted integral to, and on top of, the flow tube
      2. The flow converter / transmitter housing shall be powder-coated die-cast aluminum
   2. Display
      1. Display shall be sealed, indicating flow rate and totaling any combination of cubic feet, gallons, liters, or cubic meters
      2. Display shall be integral to the converter/transmitter
   3. Transmitter Box Sealing
      1. The flow converter/transmitter cover shall have a tamper-proof seal that must be destroyed in order to remove the cover
   4. **Meter Serial Number**
      1. The meter serial number shall be imprinted on the flow converter
6. **Registration Accuracy**
   1. **Registration accuracy**
      1. Over the normal operating range shall be 99.25% to 100.75%
      2. At low flow shall not be less than 98%
7. Output Capability
   1. **All meters:** 
      1. Equipped with a 4-20mA current loop as well as an isolated current sinking and user scalabe pulse output
      2. Meet or exceed AWWA C701 performance standards

**Acceptable meters shall be Seametrics iMAG 4700 or approved equal.**

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