

1.0 GENERAL

1.1 Scope

1.1.1 This section provides specifications for the supply of 16 mm (5/8") to 50 mm (2") water meters with encoder registers for the measurement of cold water flowing in one direction that will be used for water billing purposes.

1.1.2 This section applies to water meters are located within the City of Regina City Limits as well as connected to the Buffalo Pound Water Treatment Supply lines, or other rural water mains operated and maintained by the City of Regina.

1.2 Related Sections

1.2.1 Section 15407 Installation of Water Meters and Meter Interface Units

2.0 PRODUCTS

➤ Use only those products in the Approved Products List, Product ID:

- WP – 21: Water Meters
- WP – 22: Complementary Metal Oxide Semiconductor (CMOS) Meter interface units

2.1 Water Meters

2.1.1 Water meters to conform to AWWA C700 latest revision and ANSI/NSF 61.

2.1.2 Water meter outer case to be non-corroding waterworks, thermal plastic, bronze with synthetic polymer or cast iron bottom plates and stainless steel bolts threaded into the body of the water meter. Bottom plate to be designed to break under normal freezing conditions when subjected to freezing pressure of 85 to 125 kPa. Water meters with frost plugs will not be accepted.

2.1.3 Water meters 16 mm to 25 mm to have externally threaded ends. Water meters 40 mm and 50 mm to have flanged ends.

2.1.4 Water meters to have a serial number permanently stamped on either the inlet or outlet port side or on either side of the body. Maincase markings to be raised and include the size, model and "IN" on the top of the inlet port. On the maincase outlet port an arrow shall be affixed on top of the maincase to indicate the outlet port.

2.1.5 Measuring chamber to be made of corrosion resistant thermoplastic material suitable for service in aggressive water conditions.

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- 2.1.6 The manufacturer or vendor shall furnish a certificate showing that each meter was tested for accuracy of registration and that it complies with the accuracy and capacity requirements of AWWA C700.
 - 2.1.7 The City of Regina retains the right to test all meters submitted to confirm operating characteristics and to approve those that meet the City's specifications.
 - 2.1.8 Water meters shall be from the approved manufacturers in the approved products list and shall be supplied with an encoder type register as specified in this section.
- 2.2 Encoder Registers
- 2.2.1 Encoder registers to conform to AWWA C707 latest edition, and will be an integral part of the water meter.
 - 2.2.2 Water meter register to be hermetically sealed to eliminate dirt and moisture contamination, tampering and lens fogging. Register to include a straight reading from a digital reader or an odometer type totalization display of 360° test circle with center sweep hand and a low flow leak detector. Gears to be self-lubricating molded plastic for long life and minimum friction. Registers to be equipped with a press fit plastic seal pin and have provision for seal wires to prevent tampering.
 - 2.2.3 Registers must continuously encode the eight most significant digits of the volume registration in digital format compatible with remote interrogation or automatic meter reading. The most significant meter registration digits are defined as those digits on the register wheels that denote the highest recorded values of water consumption. A quick referencing mechanism shall be employed to prevent ambiguous readings.
 - 2.2.4 All number wheels used in the register assembly shall be provided with bifurcated spring type meter contacts.
 - 2.2.5 Measurement and registration to be in cubic metres.
 - 2.2.6 The operation of the unit shall not induce drag that causes accelerated wear of the meter, volume registration below the accuracy requirements of the applicable AWWA standard or excessive head loss.
 - 2.2.7 The materials used in the construction of the register shall be compatible with the normal water meter environment and with each other.
 - 2.2.8 The operation of the register shall not be affected by temperature variations from 0° to 55 °Celsius.
 - 2.2.9 Registers using pulse generation or conversion of pulses to digital output are not permitted.

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- 2.3 Meter Interface Units
 - 2.3.1 Meter interface units (MIU) shall be compact data collector and radio units in a plastic case complete with mounting brackets and tamper pins. MIU will be installed by the City of Regina.
 - 2.4 Electrical Cable
 - 2.4.1 Electrical cable for connecting the meter encoder register to the MIU shall be solid wire, three conductor, #22 AWG with coloured wires being black, green and red.
 - 2.5 Copper Wire
 - 2.5.1 Copper seal wire to be AWG 20.
 - 2.6 Washers
 - 2.6.1 Washers for water meters to be 3 mm thick leather or rubber suitable for potable water systems.
 - 2.7 Specialty Tools and Materials for Invensys MIU Installation
 - 2.7.1 SR11 security screw socket, supplied by Invensys.
 - 2.7.2 Must be a terminal strip with set screws or water proof connection.
 - 2.8 Electrical Construction
 - 2.8.1 The materials employed in contacts and connections shall inhibit corrosion and shall suffer minimal effect from any environmental conditions to which they may be exposed.
 - 2.8.2 The grounding of one conductor shall not affect the unit's electrical performance.
 - 2.8.3 A custom-programmed CMOS (Complementary Metal Oxide Semiconductor) chip shall be used to effect parallel to serial signal conversion for meter reading data transmission. The encoder register must utilize CMOS circuitry fully compatible with Meter Interface Units.
 - 2.8.4 Encoder register shall have three screw type terminals welded to the top of the register cover. The three terminals are to be labeled "B", "G", and "R". A polycarbonate port cover will be installed after the wiring to the terminals is completed.

3.0 EXECUTION

None in this section