

Idaho Department of Water Resources List of Approved Closed Conduit Flow Meters

The tables below list flow meters that have been independently tested and subsequently approved by the Idaho Department of Water Resources (IDWR) for use in closed conduit measurement applications. The approved flow meters were tested by the Utah Water Research Laboratory at Utah State University using NIST¹ traceable instrumentation and subject to IDWR testing standards. Meters on this list performed at or above the IDWR minimum acceptable standards for accuracy when installed in long-run and short-coupled pipe configurations specified by IDWR. Please note that the approved meter list is **model** specific, not manufacturer specific. Prior to selecting and purchasing a meter, consult the manufacturer's installation requirements to ensure that all installation specifications for the specific model can be achieved. The list below is subject to change as additional meters are added or removed. This is the most current list and can be found on the IDWR website at the following URL:

<http://idwr.idaho.gov/files/water-measurement/approved-flow-meter-list.pdf>

Straight Pipe Length - The minimum length of unobstructed pipe free of flow disturbers, immediately above and below the meter sensors, spool, or flow tube.

Flow Disturber - Any fitting or irregularity in the piping above or below the measuring device sensor location that affects flow patterns through the device or sensor location. Disturbers may include but are not limited to: pump discharges, elbows, check or chemigation valves, butterfly or gate valves, pipe reducers.

IDWR Installation Requirements:

Approved full profile magnetic flow meters and spooled ultrasonic flow meters must be installed with a minimum straight pipe length equivalent of three (3) pipe diameters upstream and two (2) pipe diameters downstream from the center of the meter spool.

Approved clamp-on and wetted ultrasonic flow meter transducers must be located with a minimum straight pipe equivalent of ten (10) pipe diameters upstream and five (5) pipe diameters downstream of the nearest transducer. Manufacturer specifications for upstream and downstream straight pipe requirements may be greater or less than the IDWR requirements. All other manufacturer installation specifications must be met.

¹ NIST - National Institute of Standards and Technology.

Approved Full Profile Magnetic Flow Meters*			
Manufacturer	Model/Specifications	Power Supply	IDWR-accepted Pipe Applications (Nominal Pipe Size)
Siemens	SITRANS F M MAGFLO MAG 5100W w/ 5000 converter	AC	1" to 78"
Siemens	SITRANS FM, MAGFLO 8000, model 7ME6880	DC	1" to 48"
McCrometer	Ultra Mag w/ M-Series Converter	AC	2" to 48"
Badger	M2000 Amplifier w/ M2000 Detector	AC	1/4" to 54"
Khrone	Enviromag 2000 w/ Optiflux 2000 F/G	AC	3/8" to 80"
Khrone	Waterflux 3100C/F	AC	1" to 24"
Rosemount	8705 w/ 8732E transmitter	AC	1/2" to 36"
Burkert	8054/8055 w/ Magflow transmitter	AC	1" to 80"
Seametrics†	AG 2000†	DC†	4" to 10"
Seametrics†	AG 3000†	DC†	4" to 12"
Seametrics†	iMag 4700†	DC†	4" to 12"
Sparling	Tiger Mag W/FM6561051110 Converter	AC	3/8" to 48"
Sensus	IPerl	DC	5/8"-1"
Growsmart by Lindsay	IM3000	DC	2"-12"
ABB	WaterMaster	AC	3/8" to 96"
ABB	AquaMaster 3 with FER series transmitter	DC	½" to 24"

***Installations of all approved full profile magnetic flow meters require a minimum straight pipe length of 3 pipe diameters upstream and 2 pipe diameters downstream from the center of the meter spool.**

† Seametrics AG2000, AG3000 and iMag must be installed with AC power supply and a working battery must remain in the unit

Approved Spooled Ultrasonic Flow Meters*			
Manufacturer	Model/Specifications	Power Supply	IDWR-accepted Pipe Applications (Nominal Pipe Size)
Master Meter	Octave	DC	2"-10"
Badger	E-Series	DC	3/4"-2"
Netafim	Octave	DC	2"-12"

*Installation of approved spooled ultrasonic flow meters require a minimum straight pipe length of 3 pipe diameters upstream and 2 pipe diameters downstream from the center of the meter spool.

Approved Clamp-on and Wetted Transducer Ultrasonic Flow Meters*			
Manufacturer	Model/Specifications	Power Supply	IDWR-accepted Pipe Applications (Nominal Pipe Size)
Siemens	CLAMP-ON ULTRASONIC -SITRANS FUS 1010 w/ HIGH PRECISION TRANSDUCERS	AC	14"+
Fuji	Time Delta C w/ 1MHz transducers	AC	14"+
GE Panametrics	AT868 w/ 1MHz transducers	AC	14"+

* Ultrasonic flow meter transducers must be located with a minimum straight pipe equivalent of ten (10) pipe diameters upstream and five (5) pipe diameters downstream of the nearest transducer.

**The meters on the table above may not be used on pipe smaller than 14 inches unless a variance is approved by IDWR.