

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**List of Approved Water Meters
and Related Equipment**

Maintained under the authority of RCNY §20-05(d)(1)

**Bureau of Customer Services
Technical Services Division
59-17 Junction Blvd. - 1st Floor LR
Flushing, New York 11373-5107**

October 2017



Bill de Blasio, Mayor

Vincent Sapienza, P.E., Commissioner

Please discard any earlier versions of this list that are in your possession.

If you have questions about this list, or wish to submit products for approval, please email or write:

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Revisions in the October 2017 Edition

Addition of meter attachments: EtherMeter and Smart Meter Master. Update of pit setter model numbers.
Correction for Neptune HP Fire Service Turbine.

RCNY Title 15 Chapter 20

RCNY Chapter 20 (“Rules Governing and Restricting the Use and Supply of Water”) is the agency Rule covering connections to the water system, backflow prevention, water use and metering. The Rule should be available for download from the DEP website. Follow this sequence of menu selections from the DEP Home Page: Forms and Permits > Water and Sewer Forms and then scroll almost to the bottom.
http://www.nyc.gov/html/dep/html/forms_and_permits/wsforms.shtml

Note Concerning AMR Development and Remote Receptacles

DEP uses an Aclara RF fixed network AMR system for meter reading. Meters installed under permit shall continue to include the installation of a remote receptacle. Licensed plumbers must connect **all three wires properly at the register head** to allow simple installation of an AMR box. DEP will install the AMR box. For more information on AMR: www.nyc.gov/dep

General Note to Engineers About Filing Plans for New Construction: Two Submissions Are Required

Cross Connection Control Unit (3rd Floor, 96-05 Horace Harding Expressway)
Borough Office of the Bureau of Customer Services as per PC and RCNY §20-05(b)(4)
Manhattan: 1250 Broadway – 8th Floor
Bronx: 1932 Arthur Avenue – 6th Floor
Brooklyn: 250 Livingston Street – 8th Floor
Queens: 96-05 Horace Harding Expressway, 1st Floor
Staten Island: 60 Bay Street – 6th Floor

Note on “No Lead” Alloys

DEP rules and now Federal law require that all water meter bodies be composed of an alloy that meets current NSF61G/372 standards. Meter manufacturers may use more than one alloy to accomplish this purpose and the mention of a specific alloy in this document does not preclude a manufacturer from using another equal or superior alternative.

**Table 1
METERS FOR SERVICES 2" AND SMALLER WITHOUT FIRE PROTECTION SPRINKLERS**

Meter Model	Register Model	Sizes
Badger Recordall EnviroBrass II or Bialloy version	HRE	5/8" - 2"
Elster evoQ4 Electronic	Scancoder emulation	1 1/2" and 2"
Mueller/Hersey IIS 400 and 500 Series, EnviroBrass II version	Translator Encoder (NOT Solid State Register)	5/8" - 2"
Metron-Farnier Spectrum (composite body for 5/8" and 3/4")	Innov8	5/8" - 2"
Neptune T10	E-Coder	5/8" - 2"
Sensus Accustream (composite body)	ECR	5/8" - 1"
Sensus OMNI R2	Electronic register	1 1/2" and 2"

**Table 2
DOMESTIC METERS FOR USE WITH ROOF TANKS AND HOUSE PUMPS OR OTHER HIGH FLOW RATE PUMPED SYSTEMS**

Meter Model	Register Model	Sizes
Badger Recordall Turbo II turbine (EnviroBrass II or Bialloy) – Requires external strainer	HRE	1 1/2" - 12"
Elster evoQ4 Electronic Meter	Scancoder emulation	1 1/2" - 12"
ABB Aquamaster III Electronic (AC-powered)	Aquamaster III	10" +
Mueller/Hersey MVR Vertical Turbine (has internal strainer) (EnviroBrass II)	Translator Encoder (NOT Solid State Register)	1" - 6"
Neptune HPT	E-Coder	2" - 10"
Sensus OMNI T2	Electronic register	2" - 8"
Sensus Series W Turbine (Iron Body) – Requires external strainer	ECR	16"

Notes: (1) Turbine-type meters must have a separate OEM strainer unless the meter is supplied with an integral or internal strainer. (2) Strainers are optional with electronic meters. (3) Meters associated with roof tank downfeed systems should be sized based on the flow rate (gpm) of the pump(s). (4) The ABB Aquamaster requires an AC power supply.

**Table 3
VARIABLE FLOW METERS – BUILDINGS SERVED BY STREET PRESSURE OR BOOSTER PUMP SYSTEMS – NO FIRE PROTECTION SPRINKLERS**

Meter Model	Register Model	Sizes
Elster evoQ4 Electronic Meter	Scancoder emulation	1 1/2" to 12"
Metron-Farnier Spectrum	Innov8	5/8" to 6"
Sensus OMNI C2	Electronic register	2" - 8"

**Table 4
METERS FOR SMALLER DOMESTIC SERVICES WITH FIRE PROTECTION SPRINKLERS**

Meter Model	Register Model	Sizes
Elster evoQ4 Electronic LF FSM	Scancoder emulation	1 1/2" and 2"
Metron-Farnier Spectrum	Innov8	1 1/2" and 2"

**Table 5
OPTIONS FOR “COMBINED” SERVICES” 2” AND LARGER**

For services 2” and larger where the fire protection branch and domestic branch separate near the point of entry there are two options:

- (1) A domestic meter shall be installed on the domestic branch and a detector backflow prevention device shall be installed on the fire protection branch. (Recommended)
- (2) A Fire Service Meter shall be installed at the head of the service for both the domestic and fire protection branches (Not Recommended)

Note: 2½” combined services shall use upsized equipment and shall adhere to the requirements for 3” combined services.

**Table 6
FIRE SERVICE METERS (FSM) – 3” AND LARGER**

Meter Model	Register Model	Sizes
ABB Aquamaster III (FM/UL Model) (Requires AC power supply)	Aquamaster	10”+
Badger FSMA (Requires FM/UL strainer)	ADE or HRE	3” to 10”
Elster evoQ4 FSM	Scancoder emulation	3”to 8”
Metron-Farnier Enduro (requires FM/UL strainer)	Innov8	6” and 8”
Neptune HP Fire Service Turbine	E-Coder	3” to 10”
Sensus OMNI F2	Electronic register	3” – 6”

Application Notes: Fire Service Meters (FSM) are to be installed on services 3” and larger that provide both domestic and fire service through one meter. Dedicated fire services shall have a detector backflow device as approved by DEP Cross Connections Control and not a full-size meter. The Aquamaster III Fire Service Model and evoQ4 FSM do not require a strainer. Aquamaster meters **must** be provided with a source of electric power by the property owner. The evoQ4 and Aquamaster can substitute for turbine-type and compound-type FSM’s. Fire-rated electronic meters can be installed on domestic services without fire sprinklers.

DETECTOR ASSEMBLIES

An approved displacement meter with an encoding register and remote receptacle is required on the bypass and shall be 3/4" in size. Lists of approved backflow equipment can be found in the “Revised New York City DEP Supplement to the New York State Department of Health (DOH) Handbook for Cross Connection Control”

http://www.nyc.gov/html/dep/html/forms_and_permits/backflow.shtml

STRAIGHT PIPE REQUIREMENTS AND OTHER INSTALLATION LIMITATIONS

New plumbing designs should allow for straight pipe equal to five pipe diameters before the meter and three pipe diameters after the meter (“Five and three”), with fully open valves and strainers included in the measurement of “straight pipe”. This provides the greatest flexibility in choice of meter technology. Unless noted here the professional shall assume that “five and three” are required for all meter installations in new construction except for positive displacement meters, which do not require straight pipe runs or very extreme pre-existing conditions. Retrofit installations are subject to less stringent requirements but no less than listed in Table 7.

Table 7			
Horizontal and Vertical Installation Limitations			
Meter Type	Models Represented	Vertical Limitations	Horizontal Limitations
Positive displacement	Badger Recordall, Neptune T10, Mueller/Hersey 400/500	Inclined and vertical upflow installations are supported as well as horizontal installations but the register must face outward	Straight pipe is not required before/after the meter
Single-Jet	Metron-Farnier Spectrum	No more than a 10 degree incline is supported	Straight pipe is not required before/after the meter but the meter shall not be installed directly at an elbow
Turbine	Badger Recordall, Neptune HPT, Sensus OMNI	Horizontal installation only	Sensus OMNI: 2.5 pipe diameters of straight pipe before and after. Other models: 5 before/3 after pipe diameters. Straight pipe includes a strainer and open valves.
Electronic	Elster evoQ4	Vertical as well as horizontal installations are supported but vertical configurations must be in a pipe with upward flow. The register must face “up”.	“5 and 3” diameters of straight pipe recommended for evoQ4 but not required in retrofit applications.

METERS APPROVED FOR EVAPORATIVE COOLING TOWERS

Displacement, single-jet, electronic or turbine meters. Make-up water meters for evaporative cooling towers that are used for the calculation of a wastewater allowance are the property and responsibility of the property owner or their agent. The remote receptacle must be placed on an exterior building wall for placement of an AMR MTU. Owners who wish a separate pulse output should consider Metron-Farnier Spectrum, Neptune T10 or HPT or Sensus OMNI which are available with dual output registers or attachments.

METER STRAINERS

Only flat-plate or “z plate” strainers from the meter manufacturers are approved, except for products noted above which have internal strainers, or FM/UL-rated strainers for fire service meters. Y-type strainers are not permitted.

HOT WATER METERS

Hersey Vertical Turbine (hot water version), reading in cubic feet and equipped with Translator Encoded register and remote receptacle ¾" to 2"

Metron-Farnier Spectrum w/Innov8 Register (Rated to 140°).....¾” to 2”

Application notes: Hot water meters shall be approved for billing purposes **only** under the following conditions:

1. Large consumers (over 200 gpd) of hot water from a central boiler plant (e.g., laundries or food establishments) which are located in residential buildings which are billed on an unmetered or flat rate schedule.
2. Large consumers of hot water from a central boiler plant (e.g., laundries or food establishments) which are located in residential buildings which are subject to metered billing but which have been approved by DEP for continued separate billing for the commercial tenant.

In most cases, commercial tenants consuming domestic hot water should be encouraged or required by the Owner to install their own separate domestic hot water heater. If a hot water meter is used for DEP billing purposes, DEP has maintenance responsibility. All hot water meters not used for DEP billing purposes or used to qualify for the Multifamily Conservation Program are the property and responsibility of the owner.

METER ATTACHMENTS

The New York City Department of Environmental Protection (“DEP”) has reviewed and approved for use several devices that transmit meter information to a point other than, and in addition to, our AMR system. A no-cost “break seal” or meter relocation permit is required from a DEP BCS Borough Office. DEP does not provide maintenance support for these devices. The output of meter attachments is not recognized for billing purposes. Meter attachments shall not be configured to interrogate the meter more than once every 60 minutes.

Approved Meter Attachments:

- F.S. Brainard & Company: Smart Meter Master and Meter Master Model 100, Model 20, Model 80, (all models that do not replace the register head)
- Neptune Tricon
- Reactel Teleprobe (existing installations only with switch to allow parallel operation with AMR system)
- SCADAMetrics EtherMeter, RRF-W Radio-Read Filter
- Sensus OMNI and Metron register heads that provide dual output.

Any device is solely the responsibility of the customer. The Department shall not be liable for any maintenance or replacement of any approved attachments to the meter, and shall not perform any additional steps to salvage the devices should the meter require replacement. Meter attachments are not a source of data for billing purposes. Connections between DEP’s meter and the Smart Meter Master or SCADAMetrics products and between those devices and DEP’s AMR MTU must use Nicor Hydroconn connectors for easy connection/disconnection.

For more information please refer to “Water Meter Data Output to Building Management Systems” available in the “Property Managers and Trade Professionals” section of the DEP website. Owners interested in the EtherMeter or Smart Meter Master should notify DEP-BCS’s Technical Services Division: Michael Roach mroach@dep.nyc.gov or Barron Manning BarronM@dep.nyc.gov along with the vendor.

METERS WITH DUAL DATA OUTPUT

Engineers and plumbers have inquired about meters that can be read by DEP but also provide a pulse or 4-20 ma output to a facilities or energy monitoring system. DEP has published a Technical Note on this subject that is available on our website.

Currently, Sensus Omni series meters and Metron-Farnier Innov8 single-jet meters are available with a dual output option. Neptune Technology offers the Tricon device which is installed between the meter body and the register head.

AUTOMATIC METER READING

DEP has been using an Aclara Star fixed-network AMI system since 2009. Reactel's existing inbound telephone-based AMR system has been phased out for billing purposes but customers can continue using Reactel's equipment as a "meter attachment" as long as Reactel installs a switch that allows parallel operation of their system and DEP's. For the present, only DEP inspection staff or Contractors will install the Aclara RF Meter Transmitter Units ("MTU's"). Licensed plumbers installing or replacing meters shall install meters with all three wires connected at the register head and a remote receptacle mounted in an appropriate location. DEP will replace the remote receptacle with an MTU during inspection of the installation. The wire from the meter register to any remote unit shall be 22 gauge, three conductor wire, red-black-green.

WATER METER INSTALLATION REQUIREMENTS

The installation of water meters shall comply with RCNY Title 15, Chapter 20, "Rules and Regulations Governing and Restricting the Use and Supply of Water." The current edition dated February 2014 is available for download from the DEP website.

INDOOR METER SETTERS/RESETTERS AND MECHANICAL FITTINGS

AY McDonald - all models to NYC specifications, EnviroBrass Models
Ford - all models with "NYC" model prefix, EnviroBrass Models
Meter Rite - ¾" and 1" Flexi-Setter with Ford parts
Mueller - all models to NYC specifications, B2711R-99000, 82486-99000
Viega ProPress ¾" – 4" with materials and installation procedures according to manufacturer's directions (Also applicable to outdoor pit installations) – Valves are NSF61 compliant
Elkhart Xpress ¾" – 4" with materials and installation procedures according to manufacturer's directions (Also applicable to outdoor pit installations)

Application Note: Valves on setters must have handles with at least a 3" grip.

¾" and 1" METER SETTERS FOR (OUTDOOR PIT) METER ENCLOSURES

A.Y. McDonald Model #715 Series, EnviroBrass version, no bypass, inlet and outlet ball valves, support bar
Ford Model CS-95374-01 and -02, #70 Series, EnviroBrass version
Mueller Adjustable Meter Setter Model # 318H170200

All inlet and outlet valves must include handles.

1½" and 2" METER SETTERS FOR (OUTDOOR PIT) METER ENCLOSURES

A.Y. McDonald 720-642WWFF 660, 720-742WWFF 770 or approved equal

WATER METER ENCLOSURE (PIT) AND RING (COLLAR) FOR 3/4" - 2" METERS

Table 8 Pit Enclosures and Rings Carson/Pollard as Standard				
Pit Enclosure "Barrel"	Pit Collar "Frame"	Pit Lid	Standard Products	Meter Sizes/Types
24' x 48"	C53	12½" 14½"	Straight Barrel Carson 00242005 #2EXTRING Extension Ring	⅝" - 1" displacement
24" x 48"	C53	12½" 14½"	Bullet Enclosure Carson 00202004	1" displacement
36" x 48"	#36 Monitor Cover	21"	Straight Barrel Carson 00362004	1½" and 2" single- jet, electronic

Ford Meter Box, Inc. (¾" and 1" only)

General Foundries, Inc.

Ring Model # FNA-3H

Ring Model # 11220-AR For 1½", Item 5MC30

Note: GMI Composites, Inc. lids made of a non-metallic material will be available through DEP's Meter Testing Facility beginning in November 2009 in 12½", 14½" and 21" sizes individually at DEP's cost. If a project requires a lid or sidewalk door of a larger size order an H-20 highway load rated composite lid from GMI, Nicor, Carson Industries, Armorcast or approved equal with mounting screws or bracket underneath for Aclara Star MTU. Submitted lids, doors, etc. must meet loading requirements and either certified by Aclara or have been used in Aclara AMI systems. DEP can provide a sample design drawing.

Ford Plastic Pitsetters, ¾" - 2". This product can be used in front yards and on sidewalks, but not at curb sides or driveways since it is not structurally qualified for significant traffic loads. If this product is used the manufacturer's detail drawings shall be used in lieu of Figures 11-15 from RCNY Chapter 20 except that a base layer of stone is still required. A "centering" or "anti-sway" bar is not required since this product holds the meter in position.

Ford Meter Box, Model A3H-T-NYC

"NO LEAD" (NSF61G-COMPLIANT) SERVICE PIPES, FITTINGS AND VALVES

All service fittings by A.Y. McDonald are NSF61G-compliant.

NIBCO brass ball and gate valves (see <http://www.nibco.com/cms.do?id=2&pId=114> for specifics)

Viega valves are NSF61G compliant.

METER MANUFACTURER WEBSITES AND OTHER USEFUL ONLINE RESOURCES

Most of the water meter manufacturers have websites that offer downloadable specifications, parts lists and installation instructions.

Meter Manufacturers

Elster-Amco

<http://www.elsteramcowater.com/en/>

Badger

<http://www.badgermeter.com/>

Hersey Meters

<http://www.herseymeters.com/>

Metron-Farnier

<http://www.metronfarnier.com/>

Neptune Technology Group

<http://www.neptunetg.com/>

Sensus Metering Systems

<http://www.sensus.com/index.xml>

Related Businesses

Ames Fire and Water (Backflow Devices)

<http://www.amesfirewater.com/>

A.Y. McDonald (Setters and Valves)

<http://www.aymcdonald.com/>

Armorcast (Composite Plastic Pit Lids and Covers)

http://www.armorcastprod.com/products_amrcovers.htm

Carson Industries (Composite Plastic Pit Lids and Covers)

<http://www.carsonind.com/utilwater.asp>

CLA-VAL (Backflow Prevention Devices)

<http://www.cla-val.com/>

Febco (Backflow Prevention Devices)

<http://www.febcoonline.com/>

Ford Meter Box

<http://www.fordmeterbox.com/>

F.S. Brainard Company (Meter Master)

<http://www.meter-master.com/>

GMI (Composite Plastic Pit Lids and Covers)

<http://www.gmi-covers.com/?page=home>

Nicor, Inc. (Composite Pit Lids and Covers)

<http://www.nicorinc.net/>

Watts Regulator

<http://www.watts.com/>

Wilkins (Backflow Prevention Devices)

<http://www.zurn.com/operations/wilkins/pages/home.asp>

DEP Resources

List of Approved Meters

Water Meter Permit Application Form

(scroll to bottom of page)

Guide to Water Submeters – Technical Note

Guide to Water Meter reading with Building Computer Systems – Technical Note

http://www.nyc.gov/html/dep/html/water_and_sewer_bills/propmgmt.shtml

RCNY Chapter 20: Water Use Rules

RCNY Chapter 23: Private Sewer Rules

Sewer Design Standards

Backflow prevention manuals

Other water connection and sewer documents

http://www.nyc.gov/html/dep/html/forms_and_permits/wsforms.shtml

Scroll toward the bottom of the page at this link.