

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
Universal Metering Division
59-17 Junction Blvd. - 1st Floor LR
Flushing, New York 11373-5107**

April 2010

Michael R. Bloomberg, Mayor

Cas Holloway, 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 April 2010 Edition

Addition of Sensus SR11-BA and Accustream meters and deletion of section on Remote Receptacles
Addition of Note concerning single detector check valves and removal of models

Revisions in October 2009 Edition

Addition of Sensus T2 and C2 meters
Addition to Elster Amco C4000
Addition of website list
Addition of notes concerning electronic meters being alternatives to turbines and compounds and single-jet meters being alternatives to compound meters

Note concerning RCNY Chapter 20

A new version of RCNY Chapter 20 (“Rules Governing and Restricting the Use and Supply of Water”) was promulgated in June 2009. The changes can be downloaded from the DEP website. 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, Remote Receptacles and Neptune Meters

DEP is 15% complete in deploying an Aclara RF fixed network AMR system that will be completed over the next three years. Meters installed under permit shall continue to include the installation of a remote receptacle for the present, however, licensed plumbers are reminded that **all three wires must be properly connected at the register head** to allow simple installation of an AMR box. Neptune meters must have an Autodetect register head factory programmed for use with an Aclara standard MTU. For more information on AMR: www.nyc.gov/dep

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

Backflow prevention devices: Cross Connection Control Unit (3rd Floor, 96-05 Horace Harding Expressway)

Domestic water meter settings: Borough Office of the Bureau of Customer Services as per RS-16 P107.3(c)(9)

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 require that all water meter bodies now be composed on an alloy with no more than 0.25% lead. 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.

DISPLACEMENT METERS

Elster (Amco) C700 EnviroBrass model only	5/8" to 2"
Badger Recordall with ADE register EnviroBrass II or Bialloy version	5/8" to 2"
Hersey IIS 400 and 500 Series, EnviroBrass II version with Translator Encoded Register	5/8" to 2"
Neptune T10 Autodetect or E-Coder	5/8" to 2"
Sensus SR11-BA and Accustream (BiAlloy).....	5/8" to 2"

Application Notes: Displacement meters are not to be used as the single meter on a combined service or a domestic service with fire sprinkler heads. Single-jet or electronic meters are to be used for such applications. 2" displacement meters are to be used only on domestic services for buildings run on street pressure (no pumps).

TURBINE METERS - REQUIRES APPROVED STRAINER

Elster (Amco) TS-4000, T-4000 Turbine EnviroBrass version	1 1/2" to 8"
Elster (Amco) T-4000 Turbine (Iron Body)	10"-12"
Badger Recordall II with ADE register (EnviroBrass II or Bialloy)	2" to 12"
Hersey MVR Vertical Turbine (has internal strainer) w/ Translator Encoded Register only (EnviroBrass II)	1" to 6" (Note 2)
Neptune HP Turbine w/ AutoDetect or E-Code only	1 1/2" to 10"
Neptune HP Turbine w/ AutoDetect or E-Code only	12", 16", 20"
Neptune Trident Turbine w/ AutoDetect or E-Code only	2" to 10"
Sensus Omni T2.....	1 1/2" to 6"
Sensus, DR Turbine (Iron Body)	16" Only

Application Notes: Turbine meters are to be used only for applications with a relatively high demand profile, generally only services which feed house tanks or other high-flow pumped distribution systems. Systems with intermittent operation booster or hydro-pneumatic pumps which operate primarily on street pressure shall use compound, single-jet or electromagnetic meters. Electronic meters are acceptable as an alternative to a turbine meter.

COMPOUND METERS - REQUIRES APPROVED STRAINER

Elster (Amco) C-4000 (EnviroBrass)	2" to 4"
Elster (Amco) C-3000 (EnviroBrass)	6" and 8"
Badger Recordall with ADE register (EnviroBrass II or Bialloy).....	2" to 6"
Neptune Trident TruFlo Compound w/ AutoDetect or E-Code only	2" to 6"
Neptune 6"x8" Tru/Flo Compound Assembly	8" only
Sensus Omni C2.....	1 1/2" to 6"

Compound meters are not to be used for buildings with house pumps and a roof tank and any other application where flow rate is never below 5 gpm. Single-jet and electronic meters are acceptable alternatives to compound meters.

NORMAL SIZE OF LOW FLOW SIDE ON APPROVED COMPOUNDS

Manufacturer	2"	3"	4"	6"	8"
Neptune TruFlo Compound	5/8	5/8	3/4	1	---
ABB (Kent) C-3000 Compound	5/8	5/8	3/4	1	1 1/2

NOTE 1: Turbine meters 6" to 12" must have a registration that measures in 100 cubic foot units.

NOTE 2: The Hersey MVR vertical turbine has an internal strainer and does not require an external strainer.

SINGLE-JET AND ELECTROMAGNETIC METERS

Actaris (Itron) Flostar with Cybal.....	3/4" to 6"
Elster (Amco) Aquamaster Electromagnetic	10" +
Elster (Amco) evoQ4 Electronic (Electromagnetic).....	1 1/2" – 8"
Elster (Amco) S2000 Single-Jet with Invision encoder register.....	1 1/2" – 6"
Metron-Farnier Spectrum (Hawkeye Encoded register only)	5/8" to 6"

Application Notes: A strainer is not required for single-jet or electromagnetic meters unless it is required by the manufacturer. The meter setting layout shall be the same as a compound or turbine meter, except that Actaris and Metron-Farnier single-jets do not require minimum straight pipe lengths before and after the meter. Single-jet meters must be installed in a horizontal plane. Aquamaster meters **must** be provided with a source of electric power by the property owner. Single-jet and electromagnetic meters are both acceptable alternatives to compound meters and electromagnetic meters are also an acceptable alternative to turbine meters. The terms “Electronic and Electromagnetic” are synonymous.

METERS TO USE TO AVOID “CALIBRATION IN PLACE”

Turbine and compound meters with a strainer generally require straight pipe equal to five pipe diameters upstream of the meter and three pipe diameters downstream. Installations up through 6” that do not meet this requirement shall make use of the following technologies which do not require the minimum straight pipe lengths before and after the meter:

If the application requires a turbine meter:

Hersey Vertical Turbine MVR 1” – 6”

If the application usually uses a compound meter:

Single-jet meter (Actaris, Metron-Farnier) up to 6”

FIRE SERVICE METERS - REQUIRES FM/UL APPROVED STRAINER

Elster evoQ4 (Fire Service Model)	3”to 10”
Elster Aquamaster (FM Model).....	10”+
Elster F4000.....	4” to 12”
Badger Fire Series w/ ADE register (bypass meter must not be oversized for domestic demand)	3” to 10”
Neptune HP Fire Service Turbine	3” to 10”
Neptune Trident Fire Service Turbine	3” to 10”
Neptune Trident Protectus III	4” to 10”
Sensus, DRFS Turbine	4” to 10”
Sensus, Fireline Assemblies	4” to 10”
Metron-Farnier Enduro (turbine applications only)	6”

Application Notes: Fire Service Meters are to be installed only on services 3” and larger that provide both domestic and fire service. Dedicated fire services should have a detector backflow device as approved by Cross Connections Control. Turbine FSM’s are to be used only for applications with a relatively high demand profile, generally only services which feed house tanks or other pumped distribution systems. Compound versions are to be used in applications without house pumps. The Aquamaster Fire Service Model and evoQ4 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.

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. All bypass piping, connections and fittings must comply with the specifications of and be approved by the Bureau of Customer Services. A detector assembly installed as part of a backflow prevention installation which has been reviewed and approved by the DEP Cross-Connection Control Unit (CCCU) need only have an approved meter on the by-pass line. Approval of the remainder of the assembly is by the CCCU. **CCCU is no longer approving the use of single detector check valves for any application.**

AMES Double Check Detector Assembly, Model 3000 DCDA	4" to 8"
AMES Double Check Detector Assembly, Model 3000 DCDC	10"
AMES Double Check Detector Assembly Model 3000 SE	6" to 8"
AMES Double Check Detector Assembly Model 3000 SS	2½" to 6"
AMES Double Check Detector Assembly Model 3000B.....	2"
AMES Double Check Detector Assembly Model 3000CIV.....	4" to 10"
AMES Double Check Detector Assembly Model 3001SS.....	3", 4"
CLA-VAL DD7LY.....	3" to 10"
CLA-VAL DD8LY.....	4" to 8"
CLA-VAL DD8NY – N Shape.....	4" to 8"
CLA-VAL DD8VY – Z Shape.....	4" to 8"
CMB FEBCO Reduced Pressure Detector Assembly, Model 826YD	3" to 10"
Conbraco Double Check Detector Assembly, Series 40-600	3" to 10"
Conbraco Reduced Pressure Principle Detector Assembly, Series 40-700	3" to 10"
Conbraco Model D.C. Double Check Detector Assembly	2½" to 6"
FEBCO Double Detector Check Valve, Model 806YD	3" to 10"
FEBCO Double Check Detector Assembly, Model 856 & 876	2.5" to 10"
FEBCO 876V.....	2.5" to 8"
Hersey Double Detector Check Assembly, Model DDCII	3" to 10"
Watts Reduced Pressure Detector Assembly Model 909	2 ½" to 10"
Watts Double Check Detector Valve 007 DCDA.....	2" to 3"
Watts Double Check Detector Assembly Model 709DCDA	3" to 10"
Watts Double Check Detector Assembly Model 770DCDA	4" to 8"
Watts 774 DCDA.....	3" to 10"
Watts 774XDCDA.....	6" and 8"
Watts 775 DCDA.....	3" and 4"
Watts 757a – DCDA – BF and GV.....	2.5" to 4"
Wilkins Double Check Detector Assembly Model 950DA	2 ½" to 10"
Wilkins Double Check Detector Assembly Model 975DA	2 ½" to 6"
Wilkins Double Check Detector Assembly Model 350DA	2½" to 10"
Wilkins Double Check Detector Assembly Model 350ADA	4", 6", 8" 10"
Wilkins Double Check Detector Assembly Model 450DA	4" to 10"
Wilkins Reduced Pressure Detector Assembly Models 310, 310DA and 310OSY	4" to 6"
Wilkins Reduced Pressure Detector Assembly Model 375DA	6" to 10"
Wilkins Reduced Pressure Detector Assembly Model 375 ADA	4"- 8"
Wilkins Reduced Pressure Detector Assembly Models 475, 475DAV	4" - 8"
Wilkins Reduced Pressure Detector Assembly Model 475 DA	4" – 8"

METERS APPROVED FOR COMBINED FIRE/DOMESTIC SERVICES

Where the term “combined service” is used here it describes any water service that supplies both domestic needs and any number of fire protection sprinklers.

For 1" and 1½" combined services:

- Alternate 1: Electronic meter
- Alternate 2: Single-jet meter as long as installation is completely horizontal

For 2" combined services not flowing to house pumps:

- Alternate 1: Electronic meter
- Alternate 2: Single-jet as long as the meter installation is completely horizontal
- Alternate 3: Displacement meter on domestic branch and detector check valve assembly on the fire branch.

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

For 2" and larger combined services to pumps/house tank:

- Alternate 1: Fire Service Turbine meter (3" and larger)
- Alternate 2: Electronic meter (2" or larger)

For 3" and larger combined services not flowing to house pumps:

Alternate 1: Fire service compound, FM-rated electronic or electromagnetic meter for the combined service:

Alternate 2: Double detector check valve assembly on the fire service branch and a domestic-type meter on the domestic branch.

METERS APPROVED FOR EVAPORATIVE COOLING TOWERS

Displacement, single-jet or turbine meters. Compound meters shall be used only when the engineer or designer can show that flows will be less than (approximately) 5 gpm at times but over 100 gpm at other times or otherwise why a displacement or turbine meter should not be used..

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. Make-up water meters for cooling towers which are used for direct billing by DEP are the property and responsibility of DEP. In either case, the remote receptacle must be placed in a location that is accessible to a meter reader without the need for key access.

METER STRAINERS

Only flat-plate strainers from the meter manufacturers are approved, except for products noted above which have internal strainers, or FM/UL strainers for fire service meters.

HOT WATER METERS

- Hersey Vertical Turbine (hot water version), reading in cubic feet and equipped with Translator Encoded register and remote receptacle¾" to 2"
- Master Meter Hot Water Multi-jet (with Dialog remote and check valve) ¾" to 2"
- Metron-Farnier Spectrum w/Hawkeye Register¾" to 1"

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 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 which transmit meter information to a point other than, and in addition to, our remote meter-reading receptacle. Where the installation of these products requires the meter seal to be broken, a “break seal” permit must be obtained from a DEP BCS Borough Office and a DEP inspector must be present for the installation of the attachment.

Approved Meter Attachments:

“FlowSearch,” Neptune

“Meter Master” Model 100, Model 20, Model 80 F.S. Brainard & Company (all models that do not replace the register head)

“Tricon/E,” Neptune

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. Manufacturers have begun producing these products and we’ll point them out as we become aware of them.

Metron-Farnier offers a digital register that provides dual output.
Sensus’ new Omni meters offer both encoder and pulse outputs.

AUTOMATIC METER READING

DEP began installing radio-based Aclara Systems transmitters on water meters in March 2009 and intends to be substantially complete with installations in 36 months. DEP will continue to support the operation of Reactel’s existing inbound telephone-based AMR system for the immediate future although new installations will not be supported and customers will be responsible for replacing Reactel AMR panels (probes) when their batteries run down.

For the present, only DEP inspection staff or Contractors will install the Aclara Systems 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.

Up-to-date information on the AMR program can be found at DEP’s website, www.nyc.gov/dep .

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.” Changes were implemented in June 2009 which can be downloaded from the DEP website. http://www.nyc.gov/html/dep/html/forms_and_permits/wsforms.shtml

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 - 3/4" and 1" Flexi-Setter with Ford parts
 Mueller - all models to NYC specifications, B2711R-99000, 82486-99000
 Viega ProPress 3/4" – 4" with materials and installation procedures according to manufacturer’s directions (Also applicable to outdoor pit installations) – Valves are NSF61 compliant
 Elkhart Xpress 3/4" – 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.

3/4" and 1" METER SETTERS FOR (OUTDOOR PIT) METER ENCLOSURES

A. Y. McDonald Model #32 Series, EnviroBrass version
 Ford Model CS-95374-01 and -02, #70 Series, EnviroBrass version
 Mueller Adjustable Meter Setter Model # 318H170200

All inlet and outlet valves must be complete with handles.

1 1/2" METER SETTERS FOR (OUTDOOR PIT) METER ENCLOSURES

A. Y. McDonald 20-642RNFF 660x998x400

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

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	12 1/2"	Straight Barrel Carson 00242005 #2EXTRING Extension Ring	5/8" - 1" displacement
24" x 48"	C53	12 1/2"	Bullet Enclosure Carson 00202004	1" displacement
36" x 48"	#36 Monitor Cover	21"	Straight Barrel Carson 00362004	1 1/2" and 2" single- jet, displacement

Ford Meter Box, Inc. (3/4" and 1" only)

General Foundries, Inc.

Ring Model # FNA-3H

Ring Model # 11220-AR For 1 1/2", 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 12 1/2", 14 1/2" 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 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" (NSF61-COMPLIANT) SERVICE PIPES, FITTINGS AND VALVES

All service fittings by A. Y. McDonald are NSF61-compliant.
NIBCO brass ball and gate valves (almost all, see <http://www.nibco.com/cms.do?id=2&pId=114> for specifics)
Viega valves are NSF61 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

Actaris-Itron

<http://www.actaris.com/html/eng/WATER/5.html>

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 (Data Collection)

<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)

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