The Wilkinsburg-Penn Joint Water Authority

2200 Robinson Boulevard

Pittsburgh, PA 15221

412-243-6200 Fax 412-243-5837

Service Line Specifications

For

4 inch and Larger

412-243-6200 Customer Service

412-243-6180 John Baurle

412-243-6184 Taylor Kasabian

REGULATIONS FOR NEW, REPLACED AND REPAIRED SERVICE LINES 4" AND LARGER

1) A $200.00 estimate fee and building plans must be submitted to the Authority for new service lines.

2) A service line location must be given by Authority personnel for new service lines after a footer or foundation has been installed.

3) Service lines over 100' in length must have a meter vault.

4) All service lines shall be installed from inside the building or vault out to the curb line or main line.

5) All service lines shall be installed at a depth of 54"

6) When a service line runs under apportion of the building, a minimum depth of 18" will be required.

7) All service lines must be at right angles to the street (90°)

8) All joints and fittings must be restrained by use of Field-Loc gaskets, Meg-a-lugs, and or thrust blocking.

9) All service lines must be inspected in the **open trench** by Authority personnel. Pictures or video of installed service lines are not acceptable.

10) A hydrostatic test must be performed from the curb valve to the inlet valve at 1.5 times the actual pressure and maintained for 1 hour. This test will be conducted by the installation contractor and witnessed by an Authority Representative.

11) Requests for service line inspections must be received by the Authority office prior to 11:00AM on the date of the requested inspection. Requests received after 11:00AM shall be referred to the next business day.

12) All charges must be paid and inspections completed before the main will be tapped and the service line between main and curb will be installed.

13) The Allegheny County Plumbing inspector must be contacted for inspection.

MATERIAL SPECIFICATIONS

PIPE:

Ductile iron, centrifugal cast and shall comply in all respects to ANSI Specifications A21.51, Thickness Class 52 with push-on joints. All pipe shall be cement mortar lined. 1/8 inch (double thickness) on the inside and coal tar coated on the outside, lining and coating to comply with ANSI Specifications A21.50.

FITTINGS:

All fittings shall be cast from ductile iron in accordance with ANSI/AWWA C153/A21.53 with mechanical joint bells. Glands, bolts, nuts and gaskets shall be in accordance with requirements of ANSI/AWWA C153/A21.53. The working pressure rating shall be 350 PSI. All fittings shall be cement mortar lined. Fittings shall have an asphaltic outside coating in accordance with ANSI/AWWA C153/A21.53. Fittings maybe compact or full body types.

If you have questions, please contact the Wilkinsburg-Penn Joint Water Authority offices.

Hydrostatic Pressure Testing

Overview:

Hydrostatic pressure tests are used to gauge the integrity of a pipeline following its construction or repair activities that could affect its leak-tightness. As the term implies, in hydrostatic testing of new or repaired pipelines, water in the line is pressurized beyond the maximum operating pressure, and then maintained for a predetermined amount of time to determine if there are any leaks. The operational integrity of connections and the pipe itself is assured if the hydrostatic test is successfully passed.

Testing:

The Contractor shall conduct the test. The pump, pipe connections, gauges and all necessary apparatus shall be furnished by the Contractor. The pipe shall be slowly filled with water. All air shall be expelled from the pipe as the line is filled. The line is pressurized to 1.5 times the actual pressure for a predetermined amount of time with zero pressure loss. A Water Authority Representative must witness the test. Lines, which fail to meet test requirements, shall be repaired and retested as necessary until test requirements are complied with. All pipe, fittings and other materials found to be defective under the test shall be repaired or replaced at the Contractor 's expense.

METER TYPE, SIZE AND LOCATION

1.) The meter size and type will be determined by the Authority.

2.) The meter location will be determined by the length and location of the service line.
   a.) Located inside the building if the service line is under 100' and meets all the Authority's specs
   a.) Located in a vault if the service line is over 100' or does not meet all the Authority's specs

3.) If the meter is to be located in a building :
   a.) The meter area must have a permanent heating source.
   b) The meter area must be easily accessible to Authority employees.

4.) If the meter is to be located in a vault:
   a) see vault specs

5.) The meter is to be set immediately upon entering the building .
   a.) 12 inches in height to no more than 4 feet in height from floor

6.) A backflow preventer is always required.
   a) Type to be determined by the Authority
   b) Same size as service line
   c) Must be USC, AWWA or ASSE approved

7.) The meter set up and backflow preventer must be inspected by Authority personnel.

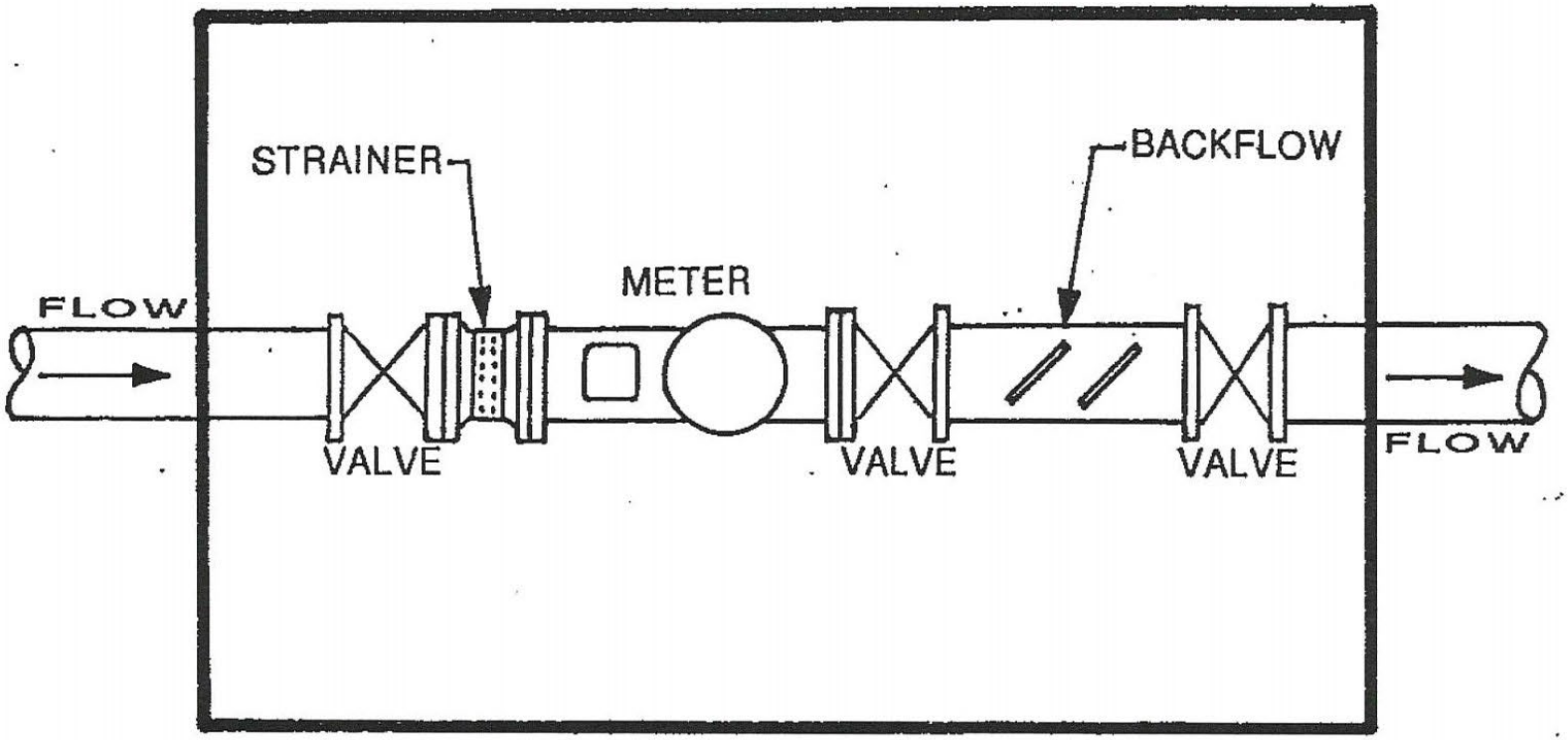
8.) The consumer will be responsible for the purchase of meters 3" and larger.

9.) Space needed for Domestic meters and meter connections:
   a.) 5/8 and 5/8 x 3/4 Meter - 11-1/2"
   b.) 3/4 and 3/4 x 1 Meter - 13-1/4"
   c.) 1 Meter - 15"
   d.) 1-1/2 Meter - 21"
   e.) 2 Meter - 26"

10.) Space needed for compound meters, combination fire/domestic meters and turbine meters:
   a.) see attached meter specs sheet.

If you have questions, please contact the Wilkinsburg-Penn Joint Water Authority offices.

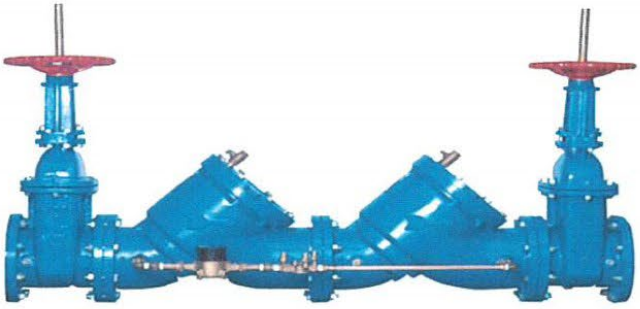
DOMESTIC SERVICE 4" AND LARGER

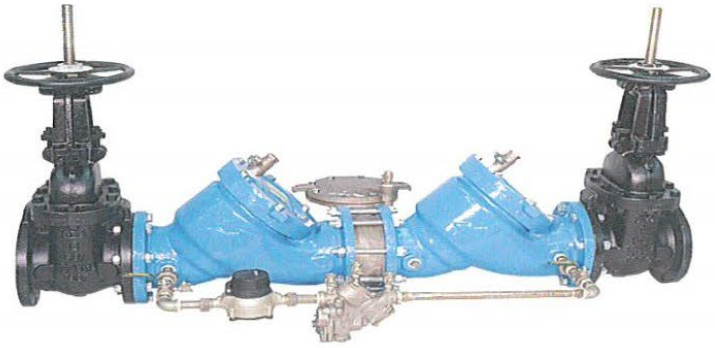


COMPOUND METER VAULT

Double Check Valve Assembly

Double Check Detector Assembly





Reduced Pressure Detector Assembly

Backflow Assemblies Must Be AWWA Approved

ARB® UTILITY MANAGEMENT SYSTEMS™

NEPTUNE TECHNOLOGY GROUP

TRU/FLO® COMPOUND METER

SIZES: 2"HP, 3", 4", 6", AND 6"X8"

TRU/FLO® meters combine the low-flow sensitivity of a disc-type meter with the high-flow capacity of a turbine-type meter.

All TRU/FLO® Compound water meters meet or exceed the latest performance and accuracy requirements set by the AWWA C702, and maximum continuous flow rates may be exceeded by as much as 25% for intermittent periods.

APPLICATION

The TRU/FLO Compound water meter is designed to register wide flow ranges where varying flow rates are typical. TRU/FLO meters combine the low-flow sensitivity of a disc-type meter with the high-flow capacity of a turbine-type meter.

OPERATION

The hydraulic valve transfers flow smoothly between the disc section and turbine section of the meter, minimizing the loss of accuracy in the crossover range. The turbine measuring element registers high flows and the disc measuring element registers low flows, ensuring accurate measurement at all flow rates.

CONSTRUCTION

The TRU/FLO consists of a durable lead free, high-copper alloy maincase, Neptune High Performance (HP) or Trident® Turbine measuring element, Neptune T-10 chamber, and two magnetic-driven, roll-sealed registers.

The 6" x 8" TRU/FLO assembly consists of two 6" x 8" concentric reducers, a 6" Neptune strainer, and a 6" Neptune TRU/FLO Compound meter.

The lead free, high-copper maincase is corrosion-resistant, lightweight, and easy to handle.

A calibration vane allows field calibration of the UME to lengthen service life and to ensure accurate registration.

The two magnetic-driven, roll-sealed registers simplify the meter's design and reduce long-term maintenance by eliminating complicated combining drive mechanisms. For reading convenience, the registers can be mounted in any one of four positions on the meter.

WARRANTY

Neptune provides a limited warranty with respect to its TRU/FLO Compound water meters for performance, materials, and workmanship.

When desired, owner maintenance is easily accomplished by in-line replacement of major components, or a factory-calibrated UME.

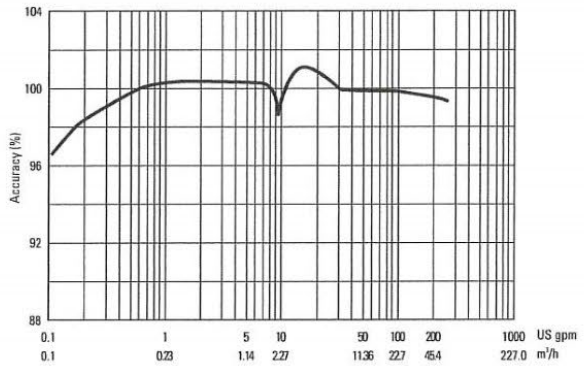
KEY FEATURES

- Minimum loss of accuracy in the crossover range increases revenue
- Spring-loaded valve eliminates need for frequent adjustment and service
- Combined turbine and disc measuring elements
  - Industry-leading flow ranges at 98.5%–101.5% accuracy ensure maximum revenue
  - Direct coupling of rotor to gear train ensures accurate registration
  - Unitized Measuring Element (UME) makes maintenance easier and faster with less downtime
  - Calibration vane allows in-line service to extend life and ensure accurate registration
- Compact maincase
  - Made from lead free, high-copper alloy
  - NSF/ANSI 372 certified and NSF/ANSI 61 compliant
  - Lifetime guarantee
  - Compact, lightweight design provides for easy installation and in-line serviceability

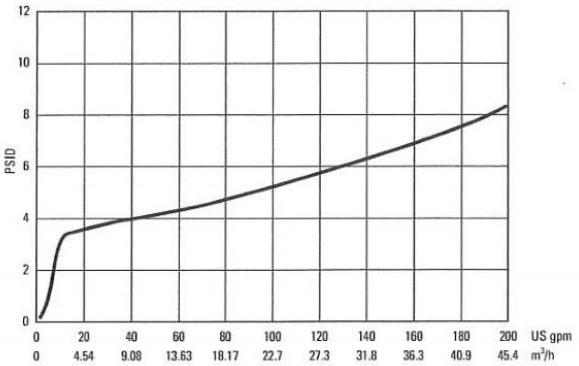
SYSTEMS COMPATIBILITY

Adaptability to all present and future systems for flexibility.

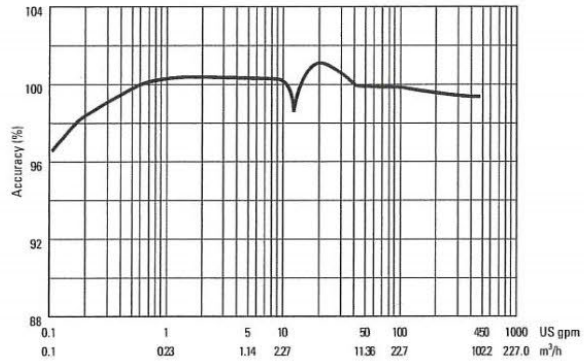
2" ACCURACY



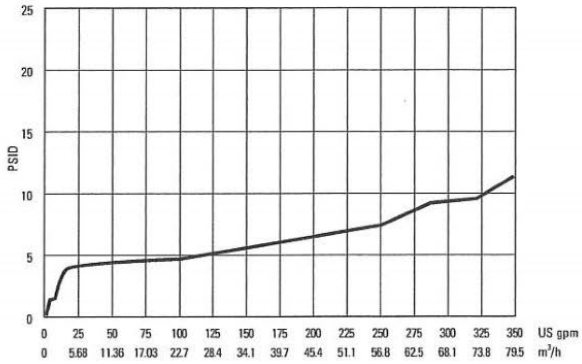
2" PRESSURE LOSS



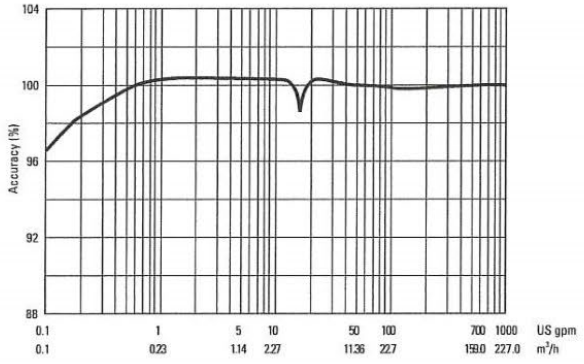
3" ACCURACY



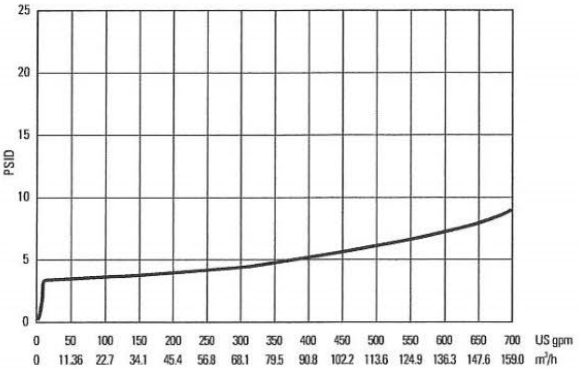
3" PRESSURE LOSS



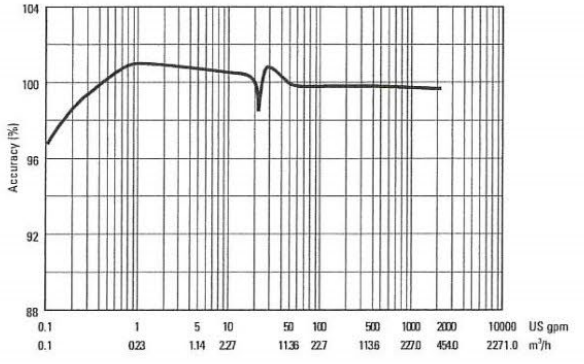
4" ACCURACY



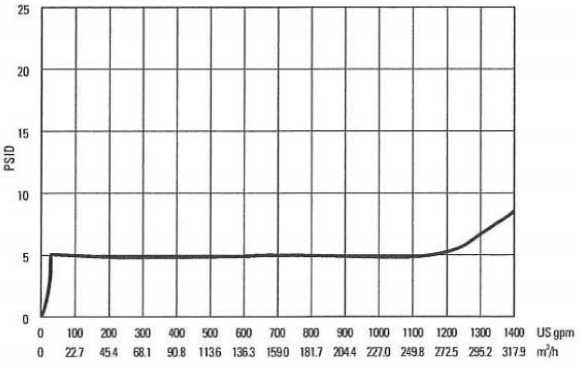
4" PRESSURE LOSS



6" ACCURACY



6" PRESSURE LOSS

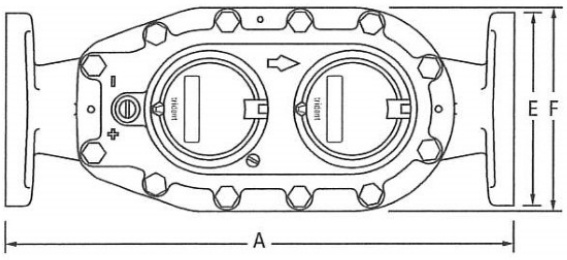


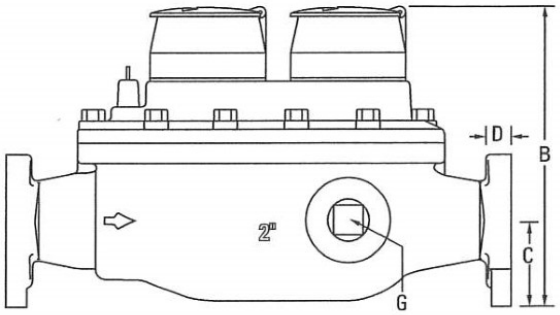
OPERATING CHARACTERISTICS

Meter Size	Normal Operating Range @100% Accuracy (±1.5%)	AWWA Standard	Low Flow @ 95% Accuracy
2"	½ to 200 US gpm 0.11 to 45.4 m³/h	1 to 160 US gpm .227 to 36.34 m³/h	⅛ US gpm 0.03 m³/h
3"	½ to 450 US gpm 0.11 to 102.2 m³/h	2 to 350 US gpm .454 to 79.5 m³/h	⅛ US gpm 0.03 m³/h
4"	1 to 1000 US gpm 0.23 to 227.1 m³/h	3 to 600 US gpm .68 to 136.3 m³/h	½ US gpm 0.11 m³/h
6"	1 ½ to 2000 US gpm 0.34 to 454.2 m³/h	5 to 1350 US gpm 1.14 to 306.6 m³/h	¾ US gpm 0.17 m³/h
6" x 8"	1 ½ to 2000 US gpm 0.34 to 454.2 m³/h	16 to 1600 US gpm 3.63 to 363.4 m³/h	¾ US gpm 0.17 m³/h

DIMENSIONS

		B									
Meter Size	A in/mm	E-Coder® in/mm	ProRead™ in/mm	E-Coder®) R900*i*™ in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G in/mm	Flange Type	Weight lbs/kg
2" HP	15 ¼ 387	9 ⅜ 238	9 9/16 243	9 ⅜ 238	2 ½ 64	13/16 21	5 ⅞ 149	6 152	1 ½ NPT 38	2" Oval 150 lb	32 14.5
3"	17 432	11 ½ 292	11 ¾ 298	11 ½ 292	3 ¾ 95	⅝ 16	7 ½ 191	8 ½ 216	1 ½ NPT 38	3" ANSI 150 lb	72 32.7
4"	20 508	13 ⅜ 340	13 9/16 345	13 ⅜ 340	4 ½ 114	1/16 17	9 229	9 ⅛ 232	2 NPT 51	4" ANSI 150 lb	100 45.4
6"	24 610	16 ⅜ 416	16 9/16 421	16 ⅜ 416	5 ½ 140	1 25	11 279	12 ¾ 324	2 NPT 51	6" ANSI 150 lb	208 94.3
6" x 8"	55 ⅜ 1407	16 ⅜ 416	16 9/16 421	16 ⅜ 416	5 ½ 140	1 25	11 279	12 ¾ 232	2 NPT 51	8" ANSI 150 lb	460 208.50





GUARANTEED SYSTEMS COMPATIBILITY

All Neptune TRU/FLO Compound meters are guaranteed adaptable to our ARB®V, ProRead™ (ARB VI), E-Coder®, E-Coder®)R900*i*™, E-Coder®)R450*i*™, TRICON®/S, TRICON/E®3, and Neptune meter reading systems without removing the meter from service.

REGISTRATION

	Turbine Side		Disc Side
Registration (per sweep hand revolution)	**2", 3", 4"**	**6", 6" x 8"**	**2", 3", 4", 6", 6" x 8"**
1,000 US Gallons		✓	
1,000 Imperial Gallons		✓	
100 US Gallons	✓		
100 Imperial Gallons	✓		
100 Cubic Feet		✓	
10 US Gallons			✓
10 Imperial Gallons			✓
10 Cubic Feet	✓		
10 Cubic Metres		✓	
1 Cubic Foot			✓
1 Cubic Metre	✓		
0.1 Cubic Metre			✓

	Turbine Side		Disc Side
Register Capacity (6-wheel odometer)	**2", 3", 4"**	**6", 6" x 8"**	**2", 3", 4", 6", 6" x 8"**
1,000,000,000 US Gallons		✓	
1,000,000,000 Imperial Gallons		✓	
100,000,000 US Gallons	✓		
100,000,000 Imperial Gallons	✓		
100,000,000 Cubic Feet		✓	
10,000,000 US Gallons			✓
10,000,000 Imperial Gallons			✓
10,000,000 Cubic Feet	✓		
10,000,000 Cubic Metres		✓	
1,000,000 Cubic Feet			✓
1,000,000 Cubic Metres	✓		
100,000 Cubic Metres			✓

SPECIFICATIONS

- Application: cold water measurement of flow in one direction
- Maximum operating pressure: 150 psi (1034 kPa)
- Maximum operating temperature: 80°F
- Register: direct reading, center sweep, roll-sealed, magnetic drive with low-flow indicator
- Measuring element:
  - AWWA Class II Turbine, hydrodynamically balanced rotor
  - Nutating disc

OPTIONS

- Sizes: 2" HP, 3", 4", 6", and 6"x 8"
- Units of measure: U.S. gallons, imperial gallons, cubic feet, cubic metres
- Register types:
  - Direct reading: bronze box and cover (standard)
  - Remote reading systems*: ProRead, E-Coder, E-Coder)R900*i*, E-Coder)R450*i*, TRICON/S, TRICON/E3
  - Reclaim
- Companion flanges:
  - 2", 3", 4" bronze or cast iron
  - 6", 6" x 8" cast iron
- Strainer: 2", 3", 4", 6" NSF/ANSI 372 and NSF/ANSI 61 lead free, high-copper alloy

** Consult factory for meter performance specifications when fitted with ARB.*

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NEPTUNE TECHNOLOGY GROUP

neptunetg.com

Neptune® Strainers

Sizes: 2", 3", 4", 6", 8", 10", 12", 16", and 20"

Features & Benefits

- Cast bronze body* ensures durability and corrosion resistance
- Low head loss
- Stainless steel strainer plate and cover bolts
- Height to center line matches Neptune Turbines for easy installation
- In-line serviceability

Application

Neptune Strainers are designed and built for long-term, trouble-free performance in water pipeline service. They are specially designed for installation with Neptune® Turbine or Tru/Flo™ Compound meters and are compatible with all other makes as well.

Schlumberger recommends that a strainer be installed with each turbine or Tru/Flo Compound meter to prevent meter damage and to ensure accurate registration regardless of the configuration of the meter installation.

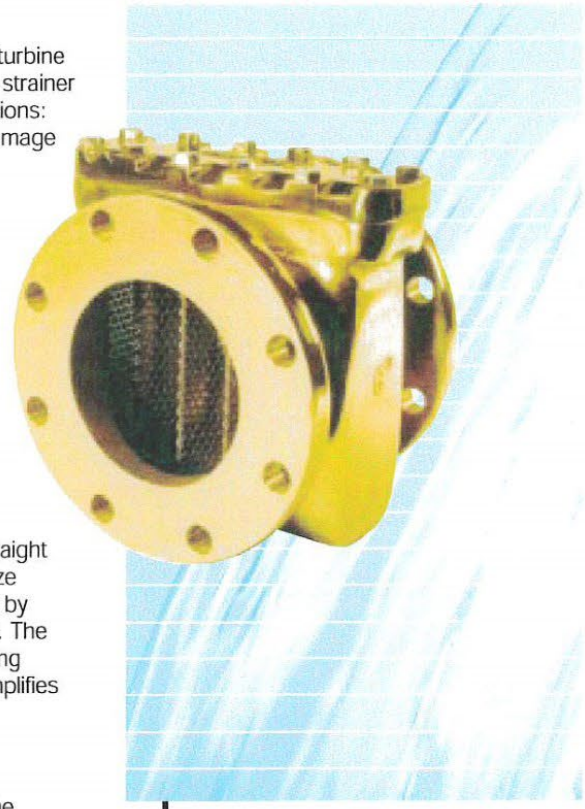
*12", 16", and 20" are epoxy-coated steel only; 8" and 10" are cast iron

Performance

When installed at the inlet of a turbine or compound meter, the Neptune strainer performs two very important functions:

I. It provides protection against damage to the turbine meter measuring element from debris or foreign material in the pipeline.

II. The stainless steel, plate-type strainer element is designed to improve the velocity profile of the flow stream entering the meter. This velocity profile improvement optimizes turbine meter performance. Good metering practice normally requires 8 to 10 diameters of straight pipe at the meter inlet to minimize velocity profile distortion caused by upstream valves or other fittings. The Neptune strainer reduces this long straight-run requirement and simplifies meter installation.



Construction

Neptune strainers are built of the highest quality, time-proven materials available for water pipeline service. Strainer bodies and covers in 2" through 6" sizes are cast bronze; 8" and 10" sizes are cast iron; and 12", 16", and 20" are epoxy-coated steel. Strainer elements and cover bolts in all sizes are stainless steel.

Neptune strainers are rated at 175 psi working pressure. Each strainer is hydrostatically tested at 300 psi before shipment to ensure hydraulic integrity.

Warranty & Maintenance

Schlumberger provides a limited warranty with respect to its strainers for performance, materials, and workmanship.

For owner maintenance purposes, Schlumberger offers a complete inventory of replacement parts. When required, maintenance is easily accomplished without removing the strainer from the service line.

Strainer Part Nos.

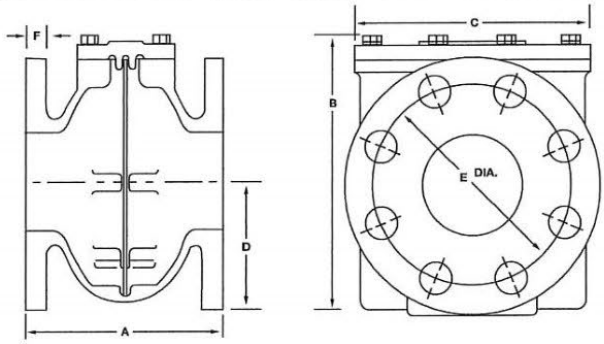
2"	53120-000	Bronze
3"	53107-000	Bronze
4"	53107-100	Bronze
6"	52000-201	Bronze
8"	52000-302	Cast Iron
10"	52000-401	Cast Iron
12"	9276-000	Steel
16"	9276-100	Steel
20"	9276-200	Steel

Maximum Operating Pressure

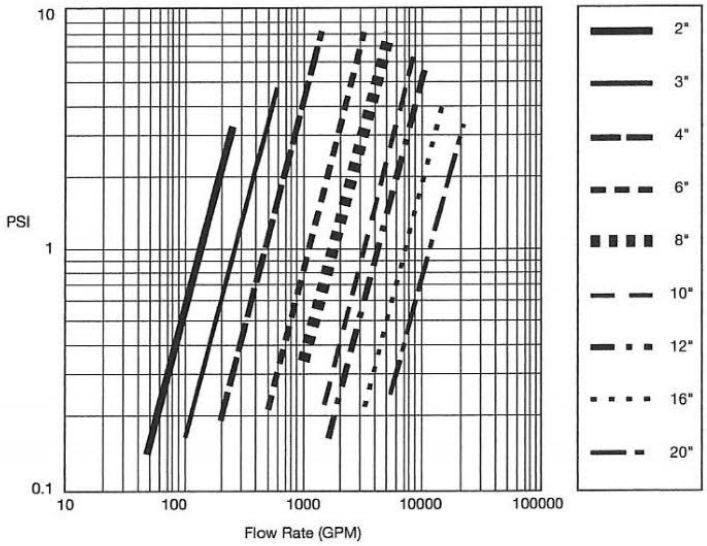
175 psi

Dimensions

Meter Size	A in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	No. of Holes	Hole Dia. in/mm	Weight lbs/kg
2"	7 178	6 152	5 1/4 133	2 1/8 54	4 1/2 114	3/4 19	2	3/4 19	16 7.3
3"	6 152	8 1/2 216	8 3/4 222	3 3/4 95	6 152	5/8 16	4	3/4 19	32 14.5
4"	7 1/2 191	9 3/4 248	10 1/2 267	4 1/2 114	7 1/2 191	11/16 17	8	3/4 19	42 19.0
6"	9 229	11 3/4 298	11 1/2 292	5 1/2 140	9 1/2 241	7/8 22	8	7/8 22	80 36.3
8"	10 254	14 356	13 1/2 343	6 3/4 171	11 3/4 298	1 1/8 29	8	7/8 22	120 54.5
10"	15 381	18 1/4 464	18 1/4 464	8 203	14 1/4 362	1 3/16 30	12	1 25	160 72.6
12"	16 7/8 429	18 7/8 479	20 1/2 521	9 1/2 241	17 432	13/16 21	12	1 25	180 81.6
16"	25 1/4 641	28 711	20 3/4 527	11 3/4 299	21 1/4 540	1 25	16	1 1/4 29	240 108.8
20"	18 5/8 473	28 711	26 1/8 664	13 3/4 349	25 635	1 1/8 29	20	1 1/4 32	300 136.0



Pressure Loss



For more free information by fax, call Schlumberger Water Division, FAX-BACK System: 1-800-823-4417 and select the document you wish to order.

Customer Service/
Direct to Factory

Your Local Schlumberger Representative:

www.FollinFlo-Controls.com
Phone: (617) 290-2134 Fax: (240) 250-8907

Meter Vault

1) Size
   a) Minimum size of vault will be 6’ x 6’ x 6’ Depth

   b) The size of the service line /fire line, meter type and backflow preventer will determine the vault dimensions

2) Vault opening:
   a) Minimum 48” x 48” Double leaf Access Hatch
   b) The placement of the vault i.e. Grass, sidewalk, road will determine Grade of hatch necessary.

3) Provisions for drainage or sump pump.

4) Ladder or steps:
   a) Directly under vault opening.

   b) Must be safe and convenient for entry.

5) Consumer to maintain vault in a safe and sanitary condition at all times.

Meter Room

1) Must have a permanent heat source.
2) Minimum of 6’-6” head clearance.
3) Provisions for drainage or sump pump.
4) Provide lighting.
5) Be easily accessible.
6) Consumer to maintain room in a safe and sanitary condition at all times.
7) The size of the service line, meter type and backflow preventer will determine the meter room dimensions