



Southeast Morris County Municipal Utilities Authority

19 SADDLE ROAD • CEDAR KNOLLS, NEW JERSEY 07927 • TEL 973-326-6880 • FAX 973-326-9521

TECHNICAL REQUIREMENTS

GENERAL

The Southeast Morris County Municipal Utilities Authority (referred to herein as the “Authority”) is subject to the standard terms and conditions set forth by the Authority’s Rules and Regulations, pursuant to N.J.S.A. 40:14B.

As a public water supply, the Authority is required to protect and provide safe drinking water to consumers in accordance with the N.J.A.C. 7:10 Safe Drinking Water Act Rules.

The Authority is committed to providing an efficient process for developers to achieve their project goals in accordance with the Authority’s Rules and Regulations.

Developers interested in conducting business with the Authority shall comply with the standard terms and conditions mandated by the Authority’s Rules and Regulations.

Developer shall mean applicant responsible for application, fees and contract agreement with the Authority.

REFERENCE

ANSI/AWWA	American National Standards Institute/American Water Works Standards
C104/A21.4-13	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
C110/A21.10-12	Ductile-Iron and Gray-Iron Fittings
C111/A21.11-12	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
C151/A21.51-09	Ductile-Iron Pipe, Centrifugally Cast
C502-05	Dry-Barrel Fire Hydrants
C509-09	Resilient-Seated Gate Valves for Water Supply Service
C511-07	Reduced-Pressure Principle Backflow Prevention Assembly
C651-05	Disinfecting Water Mains
C700-09	Cold-Water Meters – Displacement Type, Bronze Main Case
C702-10	Cold-Water Meters – Compound Type
C703-11	Cold-Water Meters – Fire-Service Type
ASTM	American Society for Testing and Materials
ASTM B88	Standard Specification for Seamless Copper Water Tube
N.J.S.A. 40:14B	New Jersey Statutes – Title 40 Municipal and County Utilities Authorities Law
N.J.A.C. 7:10	New Jersey Administrative Code – Title 7 Safe Drinking Water Act Rules
NSF	National Sanitation Foundation International Standard
NSF/ANSI 61	Drinking Water System Components – Health Effects
Rules and Regulations	The Southeast Morris County Municipal Utilities Authority’s Rules and Regulations

REQUIREMENTS

1. Developers shall verify that all submittals conform to local, county and state ordinances.
2. Road opening permits on local roads shall be obtained by the developer. County and state road opening permits shall be obtained by the Authority at the developer's expense.
3. All excavation and backfill shall be the responsibility of the developer.
4. Only authorized personnel of the Authority will be permitted to make connections to the water mains of the Authority, access and operate curb stops, hydrants and valves as mandated by the Rules and Regulations.
5. All proposed materials shall be submitted for approval. Failure to submit information shall cause the Authority to reject work and deny water service.
6. All materials submitted for approval shall be of first-class high-grade quality, clean and sound and conform to the latest revisions of ANSI/AWWA Standards. No inferior or low-grade materials will be approved or accepted.
7. All materials shall be approved for NSF/ANSI 61 for potable drinking water.
8. All materials shall be manufactured in the United States of America.
9. As-built drawings shall be prepared and submitted to the Authority on a CD in Pdf and CAD format, indicating the location of all facilities installed.

MATERIALS

Concrete Thrust Block:

All ductile iron fittings shall be braced and anchored by using concrete thrust blocks. Concrete thrust block shall be a minimum of class C (2500 lbs.) concrete, at minimum. Fittings and bolts shall be protected from actual contact of concrete thrust blocks

Gate Valve:

1. Gate valves shall be in compliance with ANSI/AWWA C509-09.
2. Mechanical joints shall be in conformance with ANSI/AWWA C111/A21.11-07.
3. Gate valves shall be required to meet the following:
 - a. Iron body, inside screw, fully bronze mounted, resilient seated;
 - b. Adapted to working water pressure of 175 psi;
 - c. Open right, clockwise with a non-rising stem;
 - d. Stem sealing shall be double o-ring stem seal type for non-rising valve;
 - e. On flanged of operating nut, casted with arrow showing the direction of opening and the word "OPEN";
 - f. Vertical and provided with mechanical joint ends;
 - g. Equipped with test plugs;
 - h. Factory tested of at least 325 psi;

- i. MEGALUG retainer glands; and
 - j. Manufactured by the Mueller Company or approved equal.
4. Example provided in **Appendix A**.

Fire Hydrant: (see Section 14 of the Rules and Regulations)

- 1. Fire hydrants shall be in compliance with ANSI/AWWA C502-05.
- 2. Fire hydrants shall be required to meet the following:
 - a. Meet all test requirements and listed by Underwriters Laboratories Inc.;
 - b. Meet all test requirements and have full approval of Factory Mutual;
 - c. Compression type, opening against the pressure and closing with the pressure;
 - d. 5-1/4" main valve opening;
 - e. Open left, counterclockwise;
 - f. 1-1/8" pentagon caps and operating nut;
 - g. Painted red with white bonnet and caps;
 - h. Three-way design – one (1) 5" Storz pumper nozzle, two (2) 2-1/2" NST hose nozzles;
 - i. 6" ductile iron mechanical joint shoe with a minimum of six (6) bolts and nuts to fasten the shoe to the lower barrel; and
 - j. MEGALUG style retainer glands.
 - k. "Traffic-model" having upper and lower barrels joined at ground line by a separate and breakable "swivel" flange providing 360° rotation of upper barrel for proper nozzle facing; and
 - l. Shall be Mueller A-423 Super Centurion 250 Fire Hydrant or approved equal.
- 3. Example provided in **Appendix B**.

Meter: (see Section 11 of the Rules and Regulations)

A certificate of occupancy shall be submitted to the Authority prior to the meter installation.

Water services to individual customers shall have separate shut offs at the curb and only one (1) meter set for each service.

The owner shall be held responsible for the protection of the water meter and automatic meter reading equipment.

Remote radio system shall be installed at the time the meter is set, at no cost to the owner.

Meters shall be on support which is free from appreciable vibration. Meters shall be supported firmly, not less than 12" or more than 18" above the level of the floor in accordance with Section 11.5 of the Rules and Regulations.

- A. Meters up to 2"
 - 1. Meters up to 2" shall conform to ANSI/AWWA C700-09 and NSF/ANSI 61.

2. The Authority shall furnish, install and maintain meters up to 2" as manufactured by Neptune Technology Group and in accordance with the Rules and Regulations.
 3. The owner shall furnish, install and maintain pressure reducing valve between the inlet stop valve and meter to safeguard plumbing. The pressure reducing valve shall conform to ANSI/AWWA C511-07.
 4. The owner shall furnish, install and maintain ball valves at the inlet side and outlet side of the meter, each not more than 3 ft. from the meter.
 5. Example provided in **Appendix C**.
- B. Meters larger than 2"
1. Meters for domestic service and fire service shall conform to the following standards: ANSI/AWWA C702-10 and NSF/ANSI 61.
 2. The owner shall furnish, install and maintain meters larger than 2" as manufactured by Neptune Technology Group or approved equal.
 3. At the owner's expense, meters larger than 2" shall be tested annually by a qualified inspection agency. Test reports shall be submitted to the Authority within 15 days after the inspection as specified in Section 11.22 of the Rules and Regulations.
 4. Example provided in **Appendix C**.

Meter Housing: (see Sections 11.7-11.10 of the Rules and Regulations)

1. Where it is not accessible to set a meter inside a building, a meter shall be placed in a meter housing. The installation is subject to the approval of the Authority.
2. All chambers shall be precast reinforced concrete. Design drawings shall include reinforcing details, penetrations, and concrete mix design.
3. Chambers shall not be installed in paved areas or anywhere that may experience vehicular traffic.
4. Outside of chamber shall be thoroughly treated with waterproofing compound.
5. Finished grade of the top of the chamber shall be above ground elevation to prevent inflow of surface water.
6. Access cover shall be 4 sq. ft. BILCO 50-2AL aluminum frame and cover.
7. Access to chamber shall be provided by a fixed ladder in accordance with CFR Title 29 OSHA standards. Steel or aluminum rungs for access are not acceptable. Grab posts shall be provided for ingress and egress of the chamber.
8. Chambers shall be provided with sump pit and electrified sump pump or a discharge to an open drain. Sump pit shall be located away from access ladder.
9. Chambers shall be vented. Vent shall be hooded and screened to prevent the entrance of precipitation, insects and/or animals. Vent opening shall be located on opposite side of chamber from access opening.
10. Example provided in **Appendix D**.

Service Pipe and Fittings (see Section 7 of the Rules and Regulations)

A. Service Pipes up to 2"

1. The Authority shall furnish, install and maintain service pipes up to 2" and appurtenances from the distribution main to the curb stop.
2. The owner shall furnish, install and maintain service pipe from the curb stop to owner's premise.
3. The service pipe supplied by the Authority shall be copper material, conforming to ASTM B88.

B. Service Pipes larger than 2" (generally Ductile Iron pipe)

1. The owner shall furnish, install and maintain service pipes greater than 2" and appurtenances.
2. All service pipes greater than 2" shall be ductile iron pipe as manufactured by U.S. Pipe and Foundry or approved equal, and conform to ANSI/AWWA C151/A21.51-09.
3. The materials, information, specifications, verification and testing for service pipes shall conform to ANSI/AWWA C151/A21.51-09.
4. The interior of ductile iron pipe shall be Class 52, cement mortar lined and seal coated in compliance with ANSI/AWWA C104/A21.4-13.
5. All ductile iron pipe joints shall be push-on and mechanical joint type as manufactured by U.S. Pipe and Foundry or approved equal, and shall conform to ANSI/AWWA C111/A21.11-12.
6. All mechanical joint fittings shall be provided with ductile iron retainer glands. Retainer glands shall be Megalug Series as manufactured by EBAA Iron, Inc., or approved equal.
7. All ductile iron fittings shall be manufactured by U.S. Pipe and Foundry or approved equal, and shall conform to ANSI/AWWA C110/A21.10-12.
8. All compact fittings must comply with ANSI/AWWA C153/A21.53-06, complete with standard accessories which include glands, rubber gaskets and the appropriate number of bolts.
9. Fire line service and domestic service shall be independent lines and in no way shall be interconnected.

Tapping Sleeve:

1. Tapping sleeves shall be caulk type or mechanical joint type and hydraulically sealed at each end.
2. Tapping sleeves shall be suitable for 250 psi working pressure.
3. Prior to cutting pipe, sleeves shall be air tested.
4. All tapping sleeves shall be manufactured by the Mueller Company or approved equal.
5. Example provided in **Appendix E**.

Tapping Valve:

1. Tapping valves shall be in compliance with provisions of **Gate Valves** with the exception that tapping valves shall be provided with flanged inlet-mechanical joint outlet ends.
2. Mechanical joint outlet shall be provided with MEGALUG Ductile Iron Retainer Glands, as manufactured by EBAA Iron Company.
3. All tapping valves shall be manufactured by the Mueller Company or approved equal.
4. Example provided in **Appendix F**.

Valve Box:

1. Valve boxes shall be in compliance with ANSI/AWWA standards.
2. Valve boxes shall meeting the following requirements:
 - a. Cast iron, two-piece;
 - b. Slide type with 5-1/4" shaft with a round base;
 - c. Extra deep covers with the word "WATER" cast on and an arrow indicating direction of opening;
 - d. Be adjustable up to 5-ft. trench with two (2) piece round head;
 - e. Suitable for use with valves from 4" to 12"; and
 - f. Manufactured by Tyler Company or approved equal.
3. Example provided in **Appendix G**.

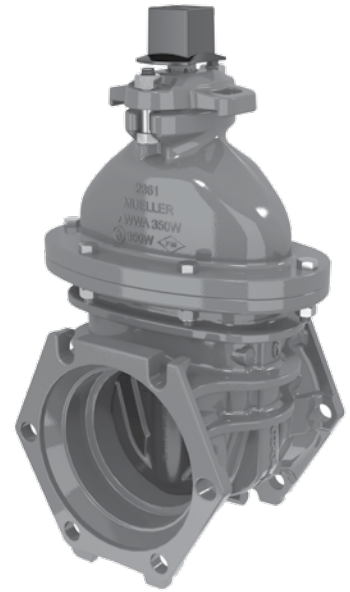
VERIFICATION

1. The water service will be shut off at the curb until the meter is installed.
2. The water service pipe and appurtenances shall be tested and conform with ANSI/AWWA C651-05.

APPENDIX A

Rev. 4-14

- ☐ Catalog number—
A-2361-20 Mechanical joint ends (with accessories unassembled)
A-2361-23 Mechanical joint ends (less accessories)
A-2361-25 Mechanical joint ends (with transition gaskets accessories unassembled)
- ☐ Sizes – 4", 6", 8", 10", 12"
- ☐ Meets or exceeds all applicable requirements of ANSI/AWWA C515 Standard, UL Listed, FM Approved, and certified to ANSI/NSF 61.
- ☐ Standard mechanical joint ends comply with ANSI/AWWA C111
- ☐ Iron body with nominal 10 mils MUELLER® Pro-Gard® Fusion Epoxy Coated interior and exterior surfaces
- ☐ Epoxy coating meets or exceeds all applicable requirements of ANSI/AWWA C550 Standard.
- ☐ Iron wedge, symmetrical & fully encapsulated with molded rubber; no exposed iron
- ☐ Non-rising stem (NRS)
- ☐ Triple O-ring seal stuffing box (2 upper & 1 lower O-rings) with fourth o-ring serving as dirt seal
- ☐ 2" square wrench nut (optional handwheel available)—open left or open right
- ☐ 350 psig (2400 kPa/24 barg) maximum working pressure, 700 psig (4800 kPa/48 barg) static test pressure
- ☐ UL Listed, FM Approved: 350 psig (2400 kPa/24 barg)
- ☐ Mueller valves are designed for potable water application

**A-2361-20****Options****See page 10.46 for more information on Resilient Wedge Gate Valve options**

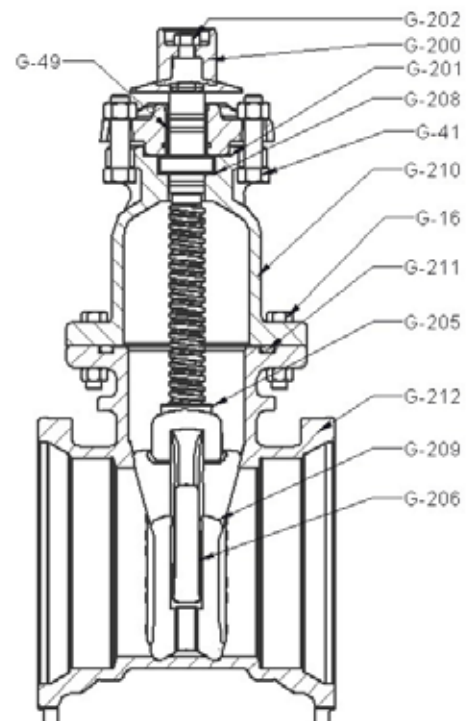
- ☐ Position indicators
- ☐ Stainless steel fasteners: Type 316
- ☐ Stainless steel stem: Type 304, Type 316
- ☐ ASTM B98-C66100/H02 stem
- ☐ Handwheel
- ☐ EPDM Disc and o-rings

Resilient wedge gate valve parts

Catalog Part No.	Description	Material	Material Standard
G-16	Bonnet Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-41	Stuffing Box Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-49	Stem O-rings (3)	Nitrile	ASTM D2000
G-200	Wrench Nut Cap Screw	304 Stainless Steel	ASTM F593
G-201	Stuffing Box O-ring	Nitrile	ASTM D2000
G-202	Wrench Nut	Ductile Iron	ASTMA536 ▼
G-203	Stem	Bronze	ASTM B138
G-204	Hand Wheel (not shown)	Cast Iron	ASTMA126 CL.B
G-205	Stem Nut	Bronze	ASTM B584
G-206	Guide Cap Bearings	Acetal	-
G-207	Stuffing Box with dirt seal	Ductile Iron Nitrile	ASTMA536 ▼ ASTM D200
G-208	Anti-friction Washers (2)	Acetal	-
G-209	Wedge, Rubber Encapsulation	Ductile Iron* SBR	ASTMA536 ▼ ASTM D2000
G-210**	Bonnet	Ductile Iron	ASTMA536 ▼
G-211**	Bonnet gasket	Nitrile	ASTM D2000
G-212**	Body	Ductile Iron	ASTMA536 ▼

*Fully encapsulated in molded rubber with no iron exposed

▼ Material strength ASTM A536 65-45-12 minimum

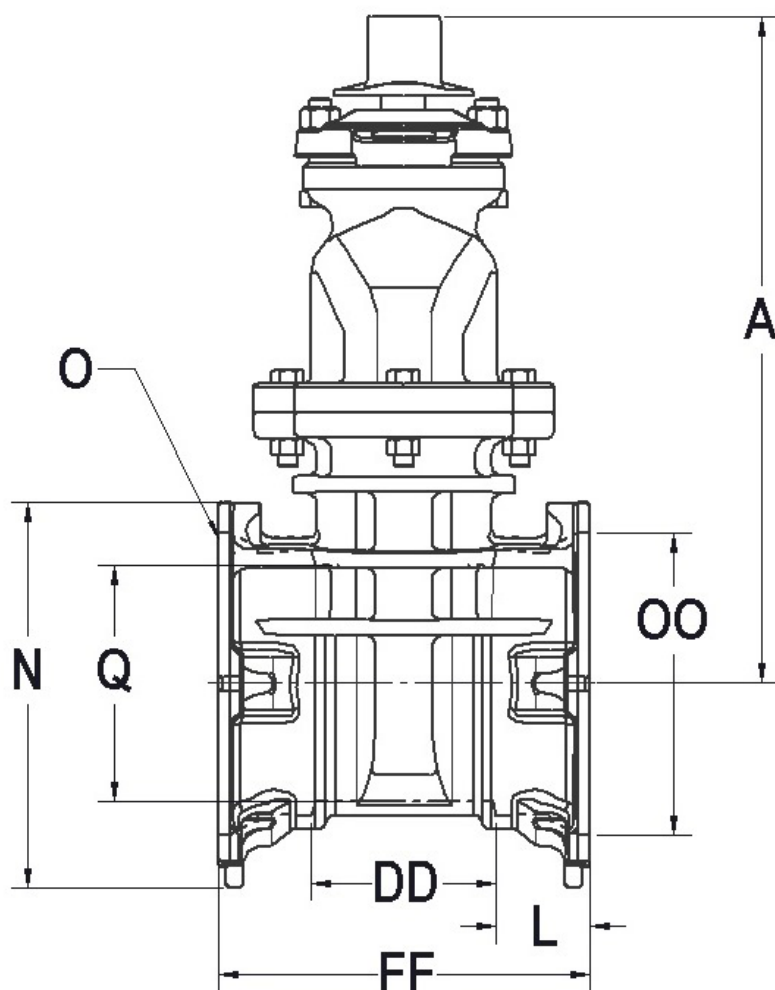


4"- 12" A-2361 RESILIENT WEDGE GATE VALVES - M.J. x M.J.

Mueller Co.

10.5

Shaded area indicates change Rev. 11-14



Dimensions

Dimension	Nominal Size				
	4"	6"	8"	10"	12"
A	14.19	18.00	21.50	25.50	28.62
FF	9.50	10.00	10.50	11.50	12.00
L	2.50	2.50	2.50	2.50	2.50
N	8.40	10.41	12.68	15.24	18.024
O (number and size of holes)	4--.88	6--.88	6--.88	8--.88	8--.88
DD	4.50	5.00	5.50	6.50	7.00
Q	4.30	6.30	8.30	10.30	12.30
OO (bolt circle diameter)	7.50	9.50	11.75	14.00	16.25
Turns to open	14	20.5	26.5	33.0	38.5
Weight*	75	124	181	270	345

*All dimensions are in inches. All weights include accessories are in pounds and are approximate.

APPENDIX B

□ **Super Centurion 250/HS™ 3-way and 4-way catalog numbers**

A-421 4-1/2" main valve opening 3-way (2 hose nozzles / 1 pumper nozzle)

A-423 5-1/4" main valve opening 3-way (2 hose nozzles / 1 pumper nozzle)

A-454 5-1/4" main valve opening 3-way (3 hose nozzles)*

A-455 5-1/4" main valve opening 4-way (4 hose nozzles)*

A-458 5-1/4" main valve opening 4-way (3 hose nozzles / 1 pumper nozzle)*

A-459 5-1/4" main valve opening 4-way (2 hose nozzles / 2 pumper nozzles)**

*Hose Gate Valves required for FM approved models

Super Centurion 200/HS™ 2-way catalog numbers

A-420 4-1/2" main valve opening 2-way (2 hose nozzles)

A-422 5-1/4" main valve opening 2-way (2 hose nozzles)

A-425 5-1/4" main valve opening 2-way (2 pumper nozzles)

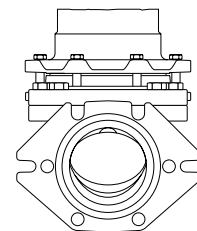
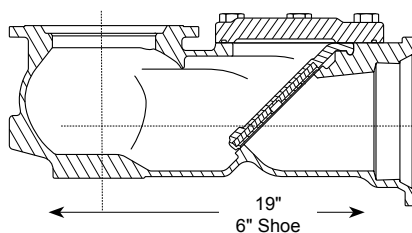
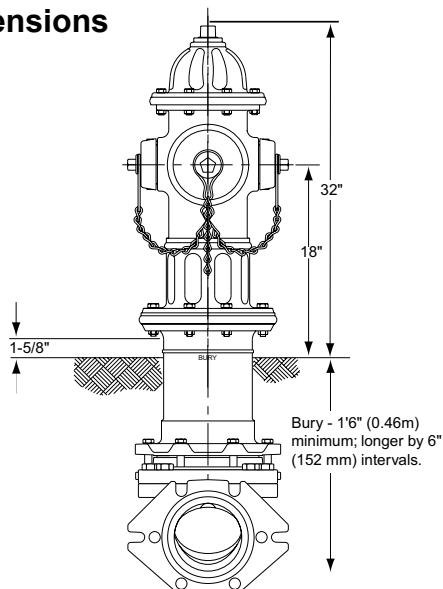
Super Centurion 200/HS™ 1-way catalog number

A-424 4-1/2" main valve opening 1-way (1 pumper nozzle)

- 10 year limited warranty on material and workmanship
- Meets all applicable parts of ANSI/AWWA C502 Standard
- Post type dry barrel design
- Dry top design with O-ring sealed oil reservoir
- Hydrant shoe incorporates a fabric and steel reinforced elastomeric flapper check valve located inside the hydrant inlet, allowing normal operation and access to the hydrant main valve through bonnet or ground flange.
- Traffic feature with stainless steel safety stem coupling
- Compression-type main valve closes with pressure for positive seal; it is made of rubber and is conveniently reversible providing a spare for long service life.
- Operating nut available in wide variety of shapes and sizes – open left or right
- Field replaceable hose and pumper nozzles
- Hose and pumper nozzles have large radius, full flow openings for low friction loss
- Contoured shoe is designed for full flow
- Dual bronze drain valves provide effective barrel drainage
- 250 psig (1725 kPa/17 barg) maximum working pressure,
500 psig (3450 kPa/35 barg) static test pressure for 3-way hydrants;
- 200 psig (1400 kPa/14 barg) maximum working pressure,
400 psig (2800 kPa/28 barg) static test pressure for 2-way and 1-way hydrants

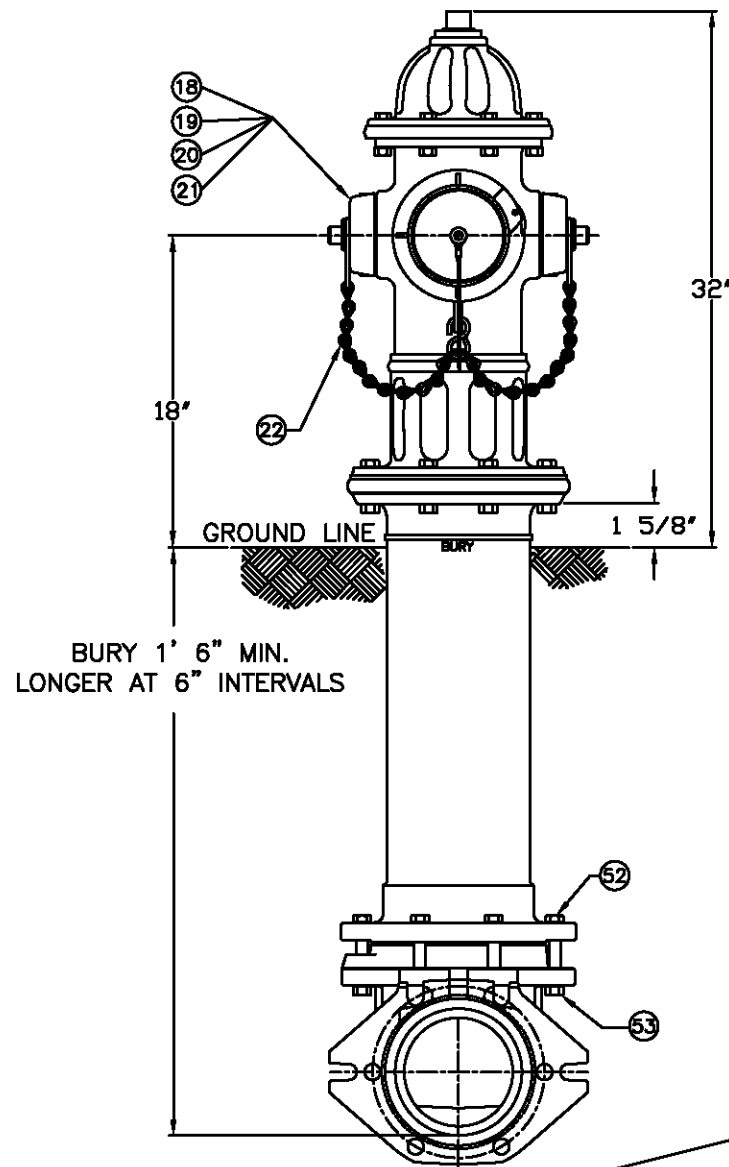


Dimensions



Non-rotating bolt design:
cast-in pads eliminate need
for anti-rotation bolts.

**Front view detail
of Mechanical Joint**



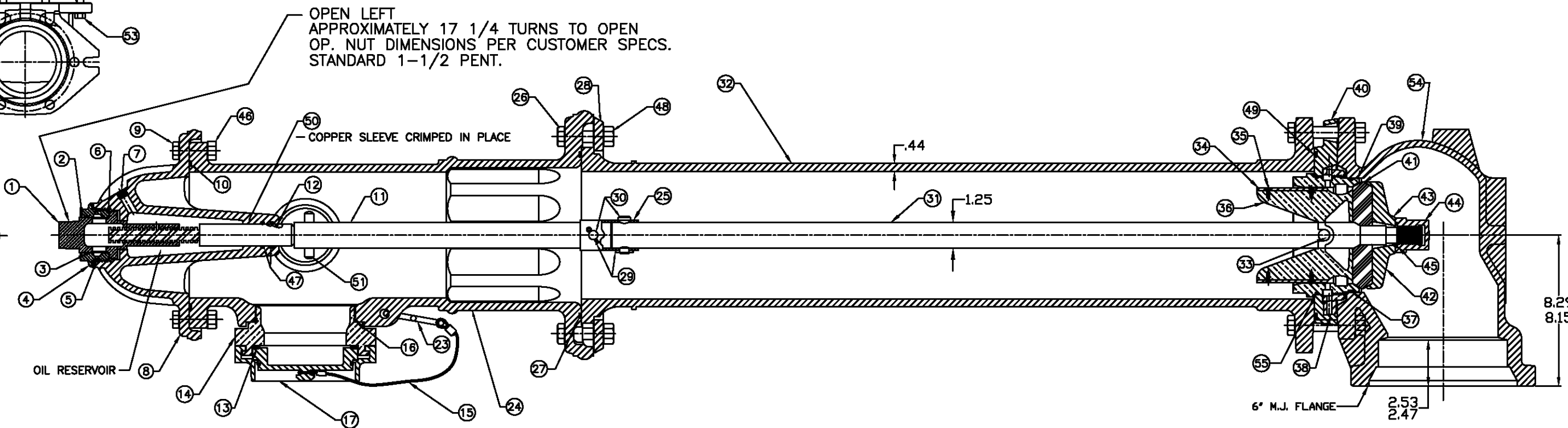
PARTS LIST				
ITEM	DESCRIPTION	REQ'D	MATERIAL	A.S.T.M.
1	OPERATING NUT	1	BRONZE	B-584
2	WIPER RING	1	RUBBER	D-2000
3	HOLD DOWN NUT O-RING	1	RUBBER	D-2000
4	HOLD DOWN NUT	1	BRONZE	B-584
5	BONNET O-RING	1	RUBBER	D-2000
6	ANTI-FRICTION WASHER	1	CELCON	GRADE M90-04
7	OIL FILLER PLUG	1	BRASS	B-16
8	BONNET	1	CAST IRON	A-126
9	HEX BOLT	8	STEEL	A-307
10	TOP UPPER BARREL O-RING	1	RUBBER	D-2000
11	UPPER STEM	1	CARBON STEEL	A-576
12	STEM O-RING	1	RUBBER	D-2000
13	GASKET	1	RUBBER	D-2000
14	5" STORZ PUMPER NOZZLE	1	MANG. BRONZE	B-584
15	STORZ CAP CABLE	1	STAINLESS STEEL	
16	PUMPER NOZZLE O-RING	1	RUBBER	D-2000
17	5" STORZ PUMPER CAP	1	ALUMINUM	
18	HOSE NOZZLE	2	BRONZE	B-584
19	HOSE NOZZLE CAP GASKET	2	RUBBER	D-2000
20	HOSE NOZZLE O-RING	2	RUBBER	D-2000
21	HOSE NOZZLE CAP	2	CAST IRON	A-126

ITEM	DESCRIPTION	REQ'D	MATERIAL	A.S.T.M.
22	CAP CHAIN	3	STEEL	
23	CHAIN HOOK	1	STEEL	
24	UPPER BARREL	1	CAST IRON	A-126
25	SAFETY STEM COUPLING	1	STAINLESS STEEL	A-890
26	SAFETY FLANGE BOLT	8	STEEL	A-307
27	BOTTOM UPPER BARREL O-RING	1	RUBBER	D-2000
28	SAFETY FLANGE	1	CAST IRON	A-126
29	COTTER PIN	2	STAINLESS STEEL	A-276
30	CLEVIS PIN	2	STAINLESS STEEL	A-276
31	LOWER STEM	1	CARBON STEEL	A-576
32	LOWER BARREL	1	CAST IRON	A-126
33	STEM PIN	1	STAINLESS STEEL	A-276
34	DRAIN VALVE FACING	2	H.D. POLYETHYLENE	
35	DRAIN VALVE FACING SCREW	4	STAINLESS STEEL	A-276
36	UPPER VALVE PLATE	1	BRONZE	B-584
37	BOTTOM SEAT O-RING	1	RUBBER	D-2000
38	DRAIN RING	1	BRONZE	B-584
39	SEAT RING	1	BRONZE	B-584
40	DRAIN RING HOUSING	1	CAST IRON	A-126
41	MAIN VALVE	1	RUBBER	D-2000
42	LOWER VALVE PLATE	1	CAST IRON	A-126
43	LOCK WASHER	1	STAINLESS STEEL	A-276

ITEM	DESCRIPTION	REQ'D	MATERIAL	A.S.T.M.
44	VALVE NUT	1	CAST IRON	A-126
45	VALVE NUT SEAL	1	RUBBER	
46	HEX NUT	8	STEEL	
47	STEM O-RING	2	RUBBER	D-2000
48	SAFETY FLANGE NUT	8	STEEL	
49	DRAIN RING HOUSING O-RING	1	RUBBER	D-2000
50	SLEEVE	1	COPPER	B-75
51	UPPER STEM PIN	1	STAINLESS STEEL	A-276
52	HEX BOLT	6	STEEL	A-307
53	HEX NUT	6	STEEL	A-307
54	SHOE	1	DUCTILE IRON	A536

SEE CAT. RECORD FOR RESPECTIVE PARTS OR SUB. ASS'YS

NOTE: SIZE AND STYLE OF OPERATING NUT, SHOE SIZE, AND THREADING OF NOZZLES IS PER CUSTOMER SPECS.

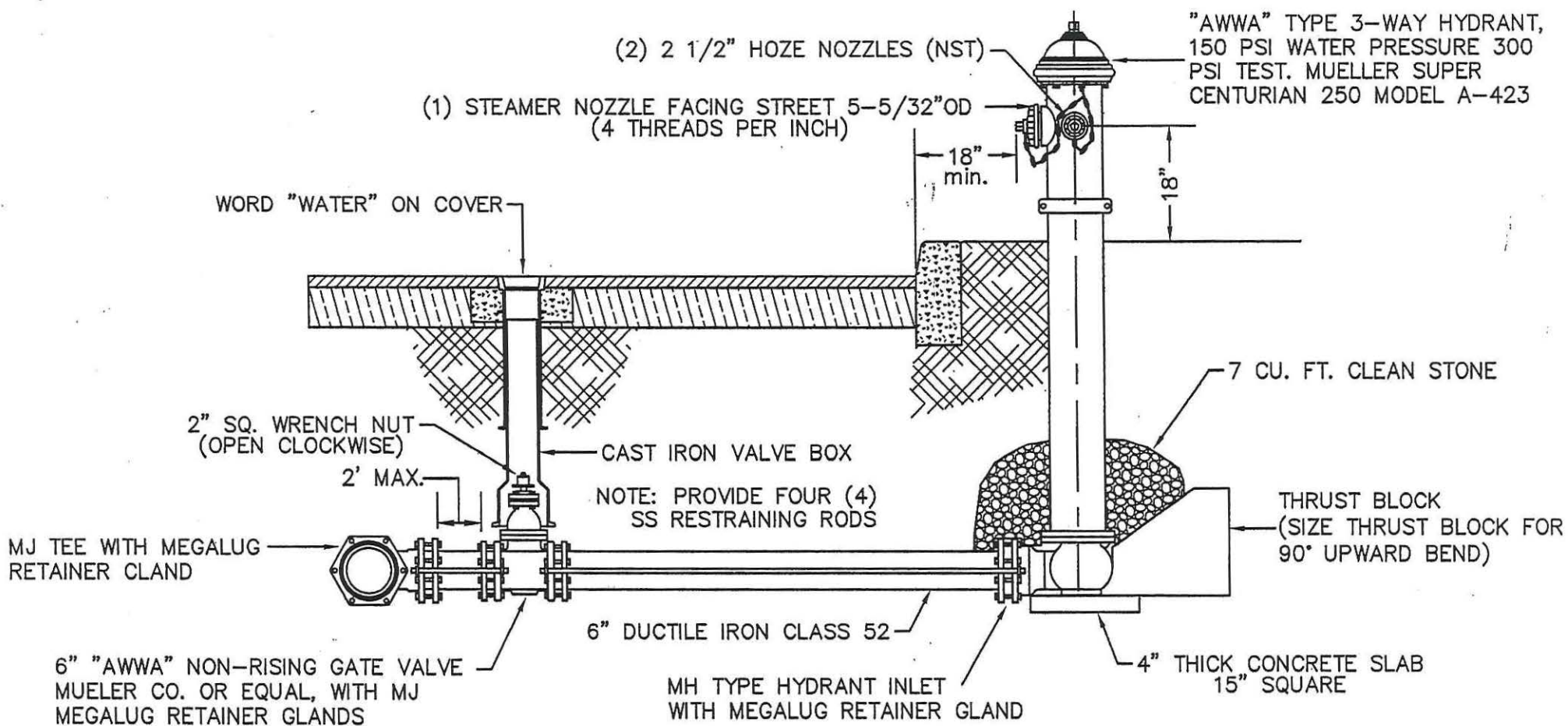


4 1/2" A421 & 5 1/4" A423 SUPER CENTURION "250" W/ TWO HOSE NOZZLES & ONE PUMPER NOZZLE - 250 P.S.I. W.P.- 500 P.S.I. TEST, 1997 STYLE.

DWG. FH. 133

REV.	DESCRIPTION	REF.	DATE
D	REVISE ITEMS 1, 4, 18, 36, 38, & 39	JMO	11-8-13
C	REVISE MATERIAL ON ITEM #14	ANC	1-21-13
B	REVISE ITEMS #11 & 31	MRO	2-27-12
A	REVISE ITEMS #11 & 31	ANC	11-20-08

TOLERANCES - MACHINING		TYPICAL PRODUCTION	
UNLESS OTHERWISE NOTED			
BREAK EDGES	120°		
FINISH SURFACES			
FRACCTIONS	21/64	DECIMALS	2 PL. 2.000
ANGLES	3°		
SEE TABLE			
MATERIAL	4 1/2" A421 & 5 1/4" A423 SUPER CENTURION W/ M.J. FLANGE & STORZ CONNECTION		
REVISED	D	FH. 133	WHEEL 1 OF 1



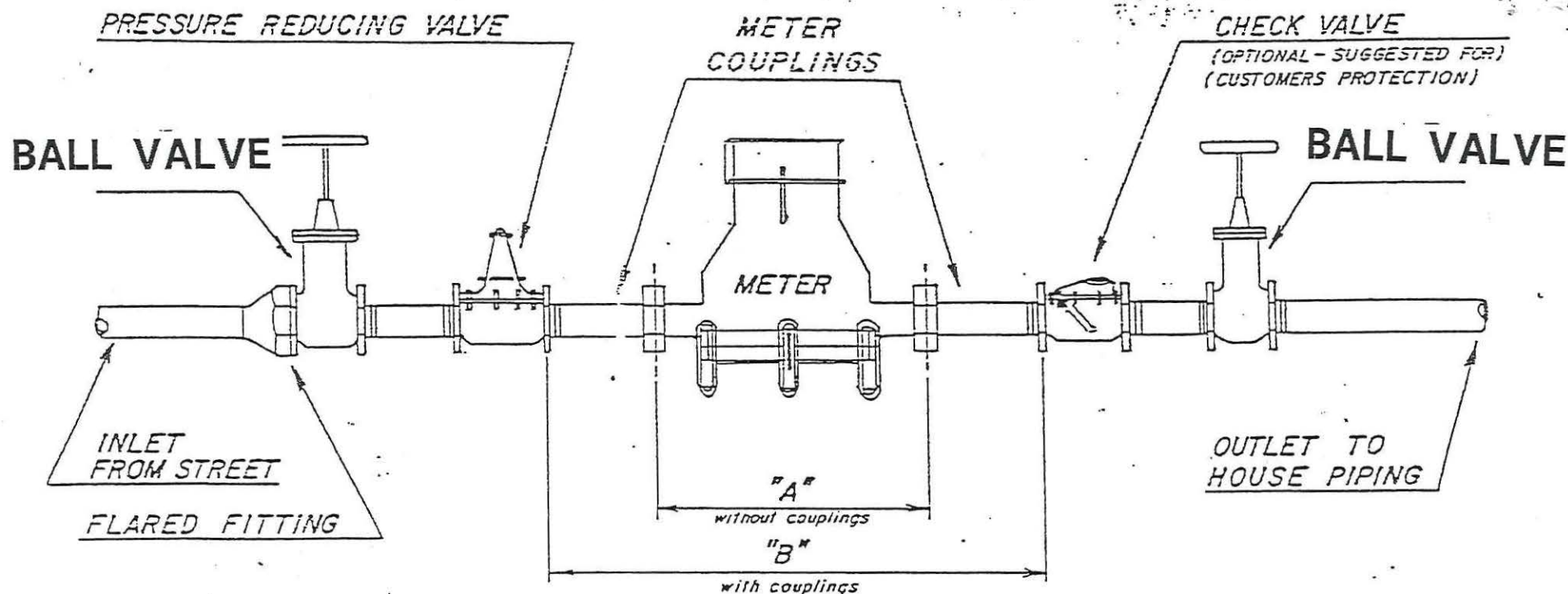
FIRE HYDRANT DETAIL

NOT TO SCALE

Notes:

1. CAP NUTS AND OPERATING NUT ARE TO BE 1-1/8" PENTAGON.
2. COUNTER CLOCK OPERATING DIRECTION.
3. RED BODY WHITE BONNET AND CAPS.

APPENDIX C



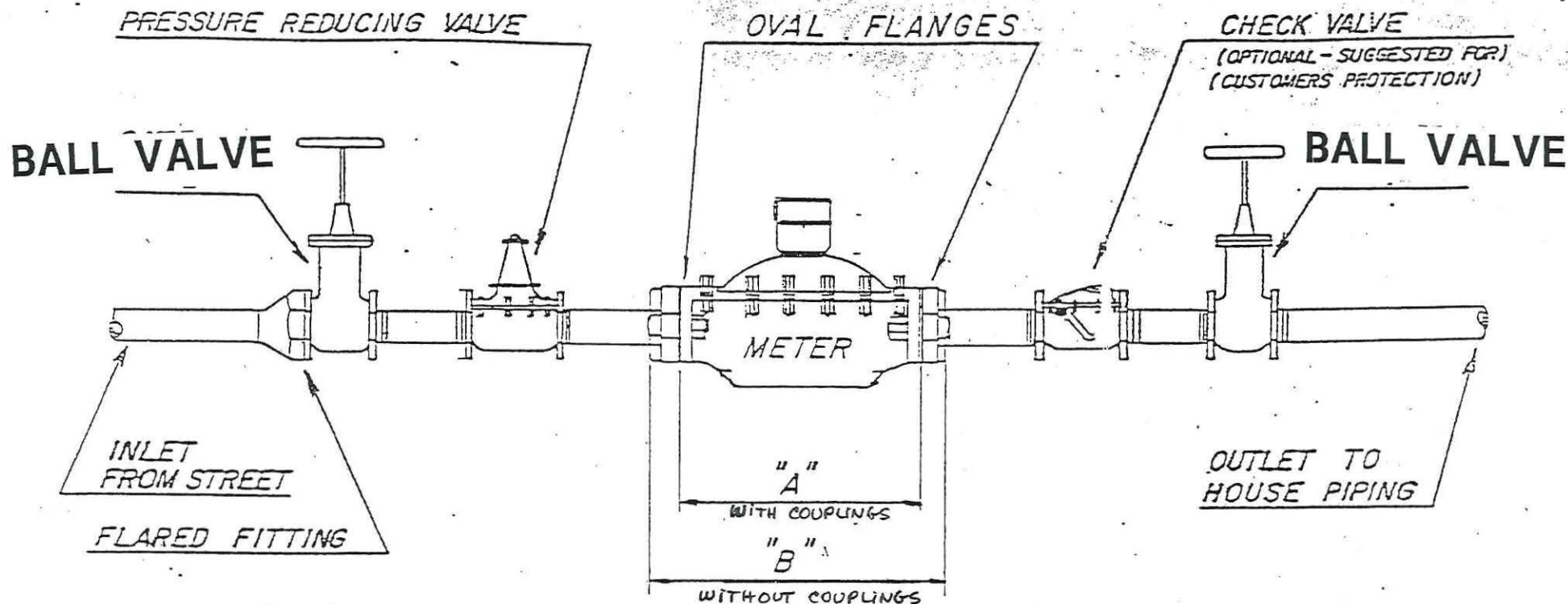
METER SIZE	A	B
5/8 3/4	7 1/2	12 3/4
3/4	9	14 1/4
1	10 3/4	16 1/4

all dimensions shown in inches

SOUTHEAST MORRIS WATER AUTHORITY METER SETTING

NOTE:

METERS MAY NOT BE SET IN CRAWL SPACES OR IN OTHER PLACES WHERE ACCESS FOR READING AND MAINTENANCE IS RESTRICTED. METERS MUST BE SET NEAR THE POINT OF ENTRANCE OF THE INLET PIPE INTO THE BUILDING AND MUST BE SO SITUATED THAT THEY WILL BE PROTECTED FROM FREEZING AND OTHER EXTERNALLY CAUSED DAMAGE. ANY QUESTIONS REGARDING METER SETTING SHOULD BE DISCUSSED WITH OUR METER DEPARTMENT.



METER SIZE	A	B
1 1/2	13 1/2	14 3/4
2	17	19 1/2

all dimensions shown in inches

SOUTHEAST MORRIS WATER AUTHORITY METER SETTING

NOTE:

METERS MAY NOT BE SET IN CRAWL SPACES OR IN OTHER PLACES WHERE ACCESS FOR READING AND MAINTENANCE IS RESTRICTED. METERS MUST BE SET NEAR THE POINT OF ENTRANCE OF THE INLET PIPE INTO THE BUILDING AND MUST BE SO SITUATED THAT THEY WILL BE PROTECTED FROM FREEZING AND



NEPTUNE
TECHNOLOGY GROUP

TRU/FLO® COMPOUND METER

SIZES: 2" HP, 3", 4", 6", AND 6" X 8"

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.

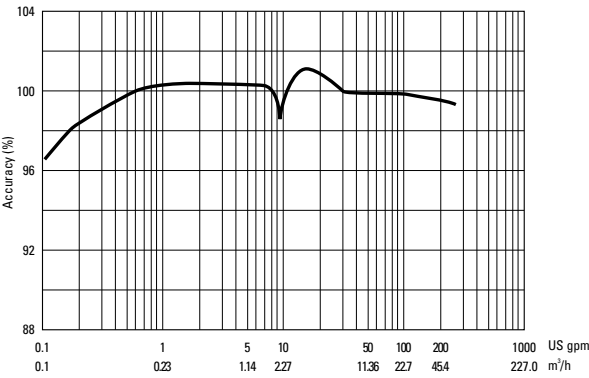
KEY FEATURES

- 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

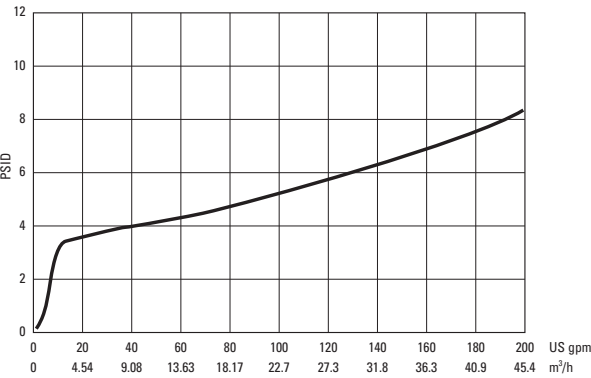
SYSTEMS COMPATIBILITY

Adaptability to all present and future systems for flexibility.

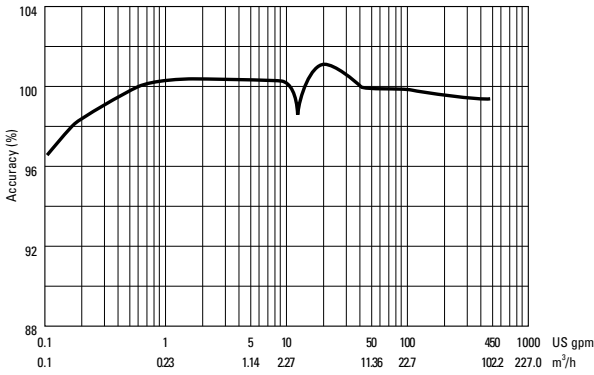
2" ACCURACY



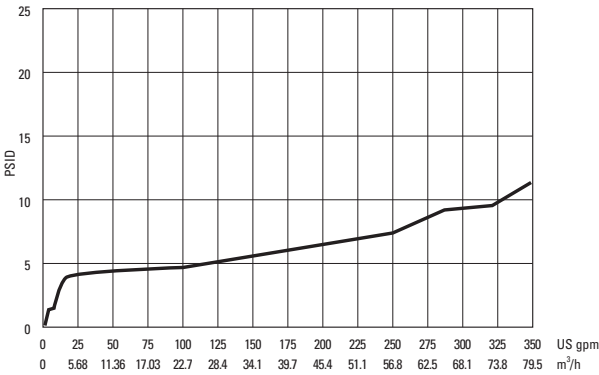
2" PRESSURE LOSS



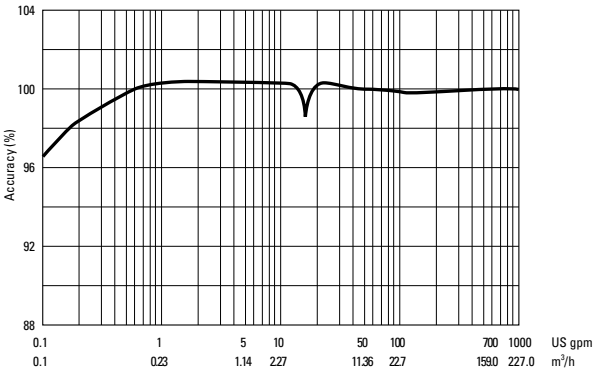
3" ACCURACY



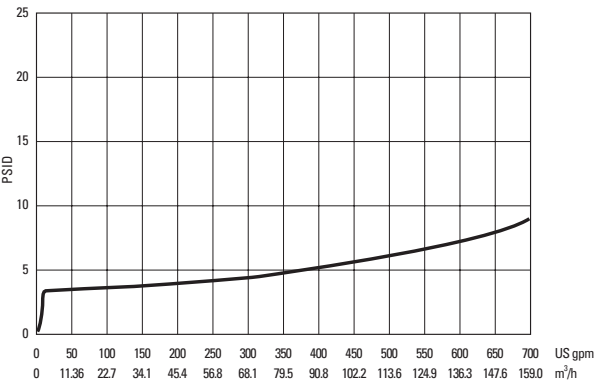
3" PRESSURE LOSS



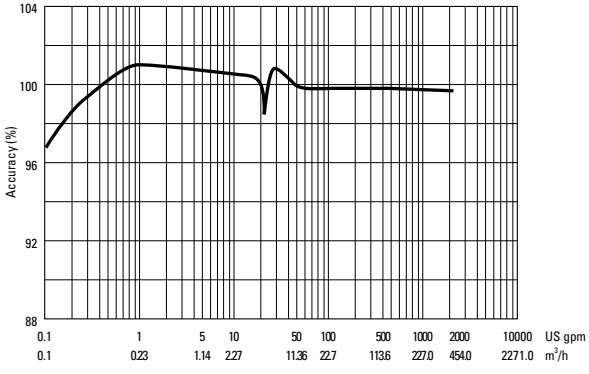
4" ACCURACY



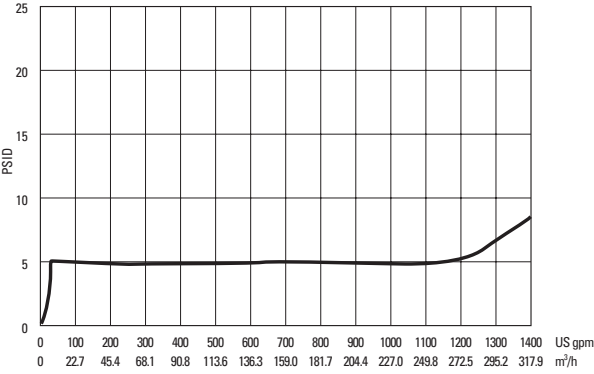
4" PRESSURE LOSS



6" ACCURACY



6" PRESSURE LOSS

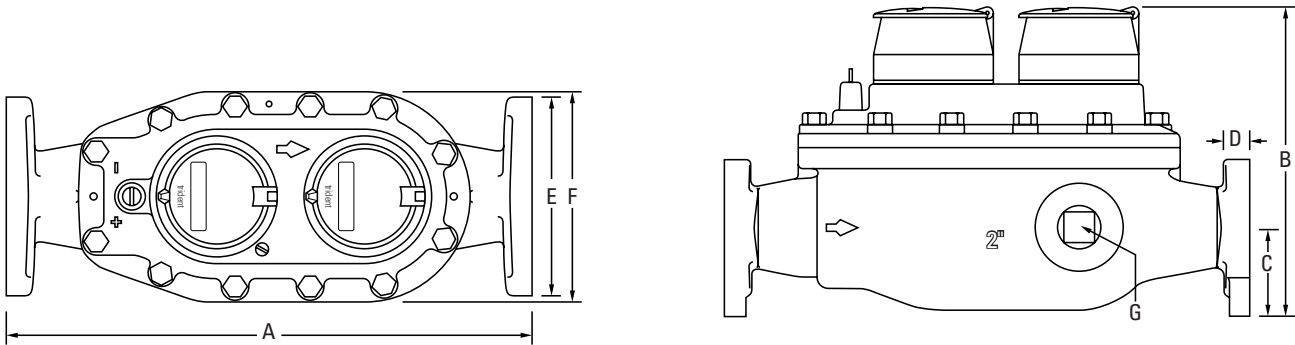


OPERATING CHARACTERISTICS

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	⅛ 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

Meter Size	A in/mm	B-Std. in/mm	B-PRO in/mm	B-E-Coder®) R900i™ 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	8 ⅝ 219	9 229	12 ⅞ 308	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	10 ½ 267	11 279	14 ¼ 362	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	12 ½ 318	13 330	16 ¼ 413	4 ½ 114	11⁄16 17	9 229	9 ⅞ 232	2 NPT 51	4" ANSI 150 lb	100 45.4
6"	24 610	15 ¾ 400	16 ¼ 413	19 ½ 495	5 ½ 140	1 25	11 279	12 ¾ 324	2 NPT 51	6" ANSI 150 lb	208 94.3
6" x 8"	55 ¾ 1407	15 ¾ 400	16 ¼ 413	19 ½ 495	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®)R900i™, E-Coder®)R450i™, TRICON®/S, TRICON/E®3, and Neptune meter reading systems without removing the meter from service.

REGISTRATION

Registration (per sweep hand revolution)	Turbine Side		Disc Side
	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			✓

Register Capacity (6-wheel odometer)	Turbine Side		Disc Side
	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)R900i, E-Coder)R450i, 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.*

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallahassee, AL 36078
USA
Tel: (800) 633-8754
Fax: (334) 283-7293

Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503





HIGH PERFORMANCE PROTECTUS® III FIRE SERVICE METER

SIZES: 4", 6", 8", and 10"



HP PROTECTUS® III
Fire Service Meter

The HP PROTECTUS® III Fire Service meter is designed to measure both domestic and fire service water usage through a single water line.

The HP PROTECTUS III Fire Service meter measures extremely wide flow ranges at 100% +/- accuracy. All HP Fire Service meters meet or exceed AWWA C703 Standard, are certified to NSF/ANSI 61, Annex G and Annex F requirements, and are Underwriters Laboratory (UL) Listed and Factory Manual (FM) Approved for fire service use.

APPLICATION

The HP PROTECTUS III Fire Service meter is designed to measure both domestic and fire service water usage through a single water line. A typical application would be in a warehouse, hotel, or hospital where one water line may supply any number of faucets or bathrooms as well as an automatic sprinkler system.

OPERATION

At low flow rates, all flow is through the bypass meter. As flow increases, pressure loss through the bypass meter increases and the detector check valve automatically opens. This condition occurs, for example, when a fire sprinkler system goes into operation. This permits flow through the mainline turbine meter. As flow decreases, reduced pressure loss closes the detector check valve and flow is again directed through the bypass meter.

CONSTRUCTION

- Epoxy-coated steel mainline body
- Integral detector check valve (stainless steel spring-loaded type)
- Epoxy-coated steel strainer body with stainless steel basket
- HP Turbine measuring element
- All bronze bypass assembly
- Lockable ball valves used on bypass
- Check valve used on bypass
- 1" T-10 meter (on 4" size)
- 1 ½" T-10 or 1 ½" HP Turbine meter (on 6" size)
- 2" T-10 or 2" HP Turbine meter (on 8" and 10" sizes)

KEY FEATURES

- Compact Size
 - Standard laying length fits existing installations
 - Lightweight
 - Reduces new installations and replacement costs
- Wide Operating Range
 - Measures extremely wide flow ranges at 98.5%-101.5% accuracy
 - Combines low-flow sensitivity of disc meter with high-flow capacity of turbine meter
 - Registers leaks or unauthorized use of water from fire service lines
- Component Repair and Maintenance
 - Owner maintenance easily accomplished by replacement of major components
 - Calibration vane allows in-field calibration of Unitized Measuring Element (UME)
- Roll-Sealed Registers
 - Eliminates leaking and fogging
 - In-line serviceability
 - Magnetic driven low torque registration
 - Tamperproof seal design

WARRANTY

Neptune provides a limited warranty with respect to its HP PROTECTUS III Fire Service meters for performance, materials and workmanship.

When desired, owner maintenance is easily accomplished either by in-line replacement of the UME.

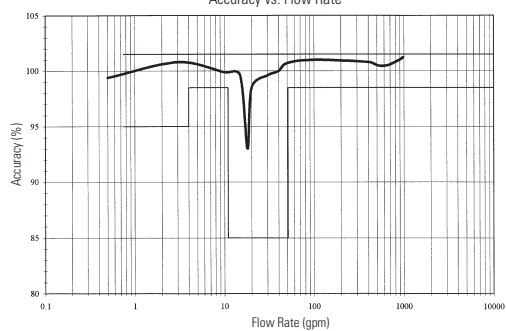
SYSTEMS COMPATIBILITY

Adaptability to all present and future systems for flexibility.

4" ACCURACY

4" HP PROTECTUS III

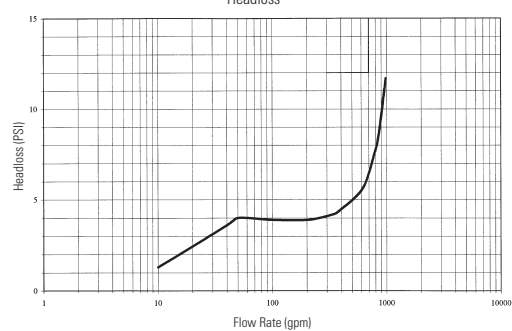
Accuracy vs. Flow Rate



4" HEADLOSS

4" HP PROTECTUS III

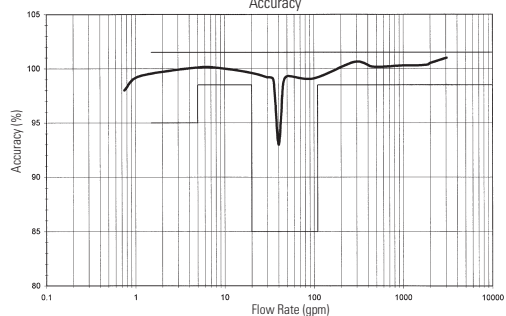
Headloss



6" ACCURACY

6" HP PROTECTUS III

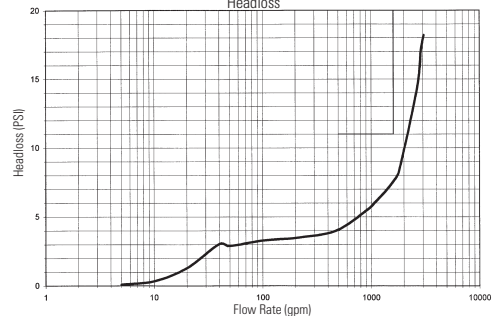
Accuracy



6" HEADLOSS

6" HP PROTECTUS III

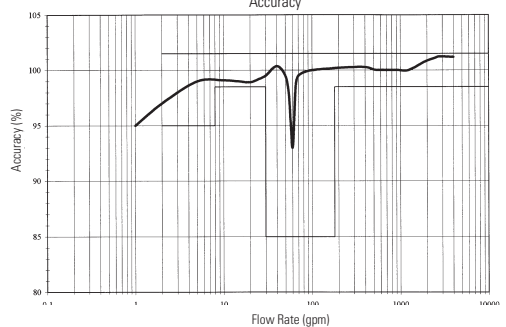
Headloss



8" ACCURACY

8" HP PROTECTUS III

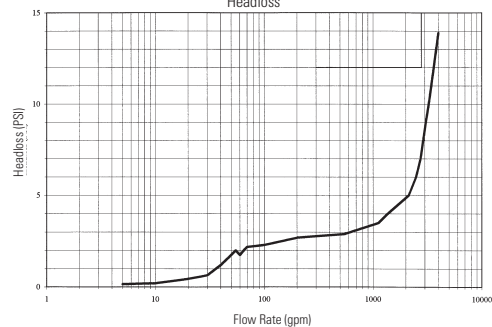
Accuracy



8" HEADLOSS

8" HP PROTECTUS III

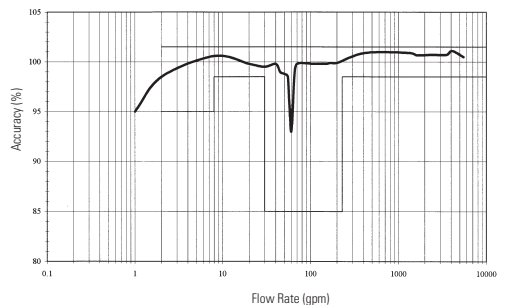
Headloss



10" ACCURACY

10" HP PROTECTUS III

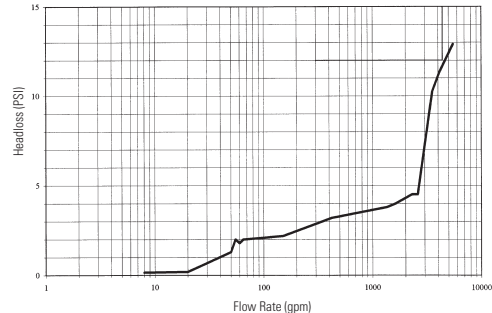
Accuracy



10" HEADLOSS

10" HP PROTECTUS III

Headloss



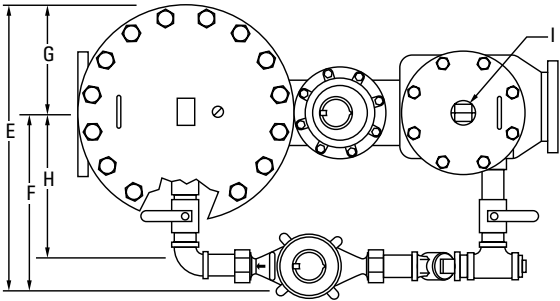
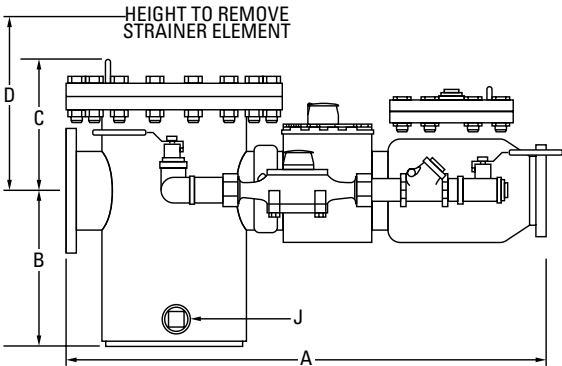
These charts show typical meter performance. Individual results may vary.

OPERATING CHARACTERISTICS

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	AWWA Standard	Low Flow @ 95% Accuracy	Maximum Intermittent Flow Rate
4"	¾ to 1200 US gpm 0.17 to 272.55 m³/h	4 to 700 US gpm 0.91 to 1.59 m³/h	⅜ US gpm 0.09 m³/h	1500 US gpm 340.7 m³/h
6"	1 ½ to 2500 US gpm 0.34 to 567.81 m³/h	5 to 1600 US gpm 1.14 to 363 m³/h	¾ US gpm 0.17 m³/h	3100 US gpm 704.1 m³/h
8"	2 to 4000 US gpm 0.45 to 908.5 m³/h	8 to 2800 US gpm 1.8 to 636 m³/h	1 US gpm 0.23 m³/h	8000 US gpm 1817 m³/h
10"	2 to 6500 US gpm 0.45 to 1476.31 m³/h	8 to 4400 US gpm 1.8 to 999 m³/h	1 US gpm 0.23 m³/h	8000 US gpm 1817 m³/h

DIMENSIONS

Meter Size	A in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G in/mm	H in/mm	I in/mm	J in/mm	Weight lbs/kg
4"	33 838	10 254	10 ¾ 273	17 ½ 445	22 559	15 ¼ 387	6 ¾ 171	12 305	2 51	2 51	215 98
6"	45 1143	11 ⅛ 281	11 ¾ 289	21 ¼ 540	29 737	19 ½ 495	9 ½ 241	16 406	2 51	3 76	570 258
8"	53 1346	11 13/16 300	13 29/64 342	25 7/8 657	34 ¼ 870	21 ¾ 552	12 ½ 318	17 432	3 76	3 76	765 347
10"	68 1727	14 13/16 376	15 381	30 1/16 764	36 ¼ 921	22 ½ 572	13 ¾ 349	18 457	3 76	3 76	900 408



GUARANTEED SYSTEMS COMPATIBILITY

All HP PROTECTUS III Fire Service meters are guaranteed adaptable to our ARB®V, ProRead™ (ARB VI), E-Coder®, E-Coder®)R900i™, TRICON®/S, TRICON/E®3, and Neptune meter reading systems without removing the meter from service.

REGISTRATION

Registration (per sweep hand revolution)	Disc Side			Turbine Side		
	1"	1 ½"	2"	4"	6"	8" & 10"
1,000 US Gallons					✓	✓
100 Gallons		✓	✓	✓		
100 Cubic Feet					✓	✓
10 US Gallons	✓					
10 Cubic Feet		✓	✓	✓		
1 Cubic Foot						
10 Cubic Metres	✓					
1 Cubic Metre					✓	✓
0.1 Cubic Metre			✓	✓		

Register Capacity (6 active wheel odometer)	Disc Side			Turbine Side		
	1"	1 ½"	2"	4"	6"	8" & 10"
1,000,000,000 Gallons					✓	✓
100,000,000 Gallons		✓	✓	✓		
100,000,000 Cubic Feet					✓	✓
10,000,000 Gallons	✓					
10,000,000 Cubic Feet		✓	✓	✓		
10,000,000 Cubic Metres					✓	✓
1,000,000 Cubic Metres			✓	✓		
1,000,000 Cubic Feet	✓					
100,000 Cubic Metres	✓	✓				

SPECIFICATIONS

- Application: cold water measurement of flow in one direction
- Maximum operating pressure: 175 psi (1206 kPa)
- Registers: direct reading, center sweep, roll-sealed magnetic drive with low-flow indicator
- Measuring element: AWWA Class II Turbine, hydrodynamically balanced rotor, nutating disc
- Flanges: round flanged ends per AWWA C207, Class D
- NSF/ANSI 61, Annex G and Annex F certified
- UL listed
- FM approved

OPTIONS

- Sizes: 4", 6", 8", and 10"
- 300 series stainless steel meter body with:
 - 300 series stainless steel bolts
 - 300 series stainless steel strainer cover and valve cover
 - Epoxy-coated steel strainer and valve cover
- Units of measure: U.S. gallons, imperial gallons, cubic feet, cubic metres
- Register types:
 - Direct reading: bronze box and cover (standard)
 - Remote reading system*: ARB V, ProRead, E-Coder, E-Coder)R900i, TRICON/S, TRICON/E3
 - Reclaim
- Companion flanges:
 - Cast iron
 - Bronze (4" only)
- Special meter flanges **
 - 12" (for 10" meter size)

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

**Non UL/FM approved

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallahassee, AL 36078
USA
Tel: (800) 633-8754
Fax: (334) 283-7293

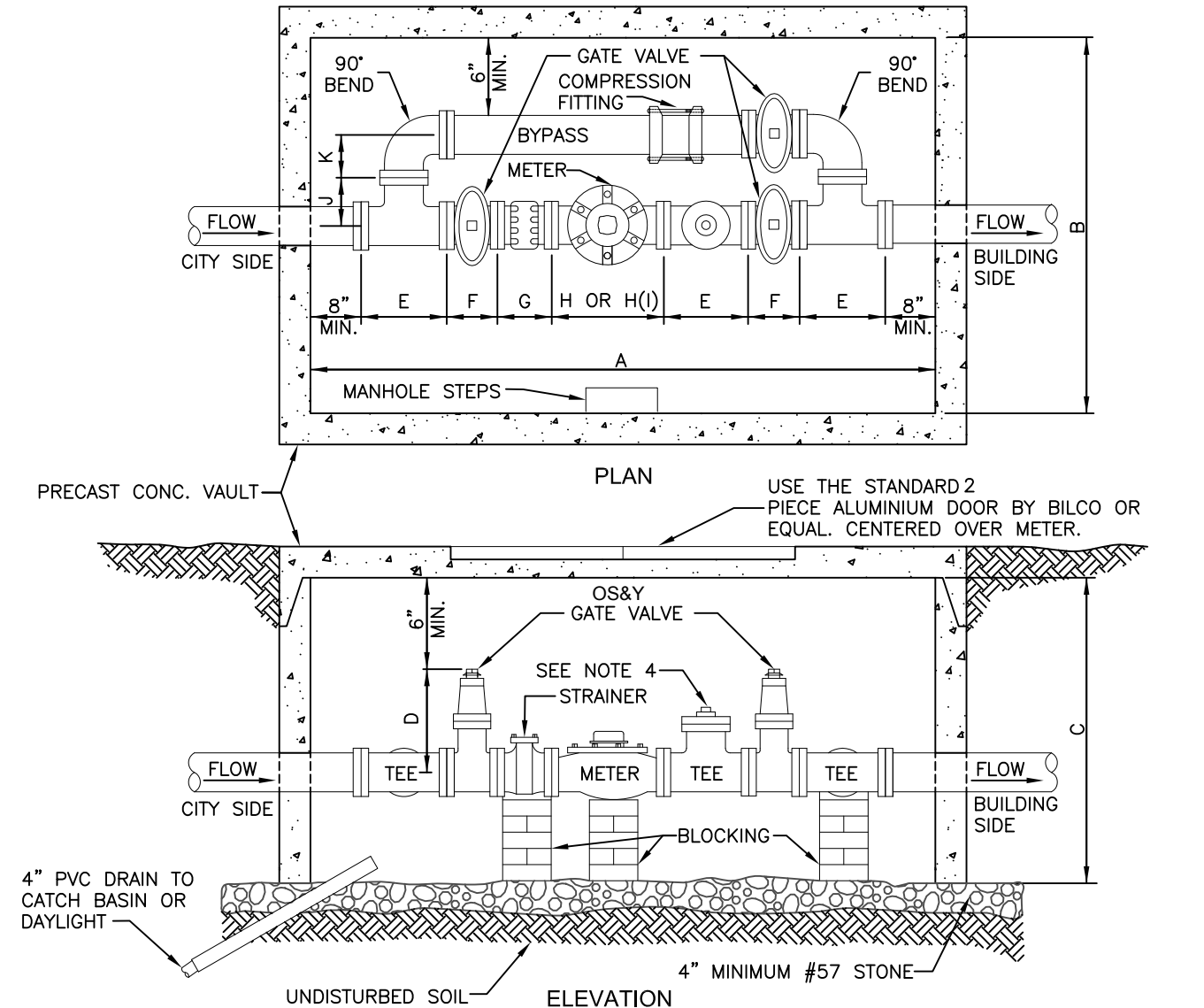
Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

 **NEPTUNE**
TECHNOLOGY GROUP
neptunetg.com

APPENDIX D

DIMENSIONS											
METER SIZE	A	B	C	D	E	F	G	H	H(I)	J	K
3"	8'-6"	4'-6"	3'-4"	12 3/8"	11"	8"	6"	12"	17"	5 1/2"	5 1/2"
4"	10'-0"	6'-0"	4'-0"	14 3/16"	13"	9"	7 1/2"	14"	20"	6 1/2"	6 1/2"
6"	10'-0"	6'-0"	4'-6"	18"	16"	10 1/2"	9"	18"	24"	8"	8"
8"	12'-0"	6'-0"	21 1/2"	2'-10"	18"	11 1/2"	10"	20"	55 3/8"	9"	9"

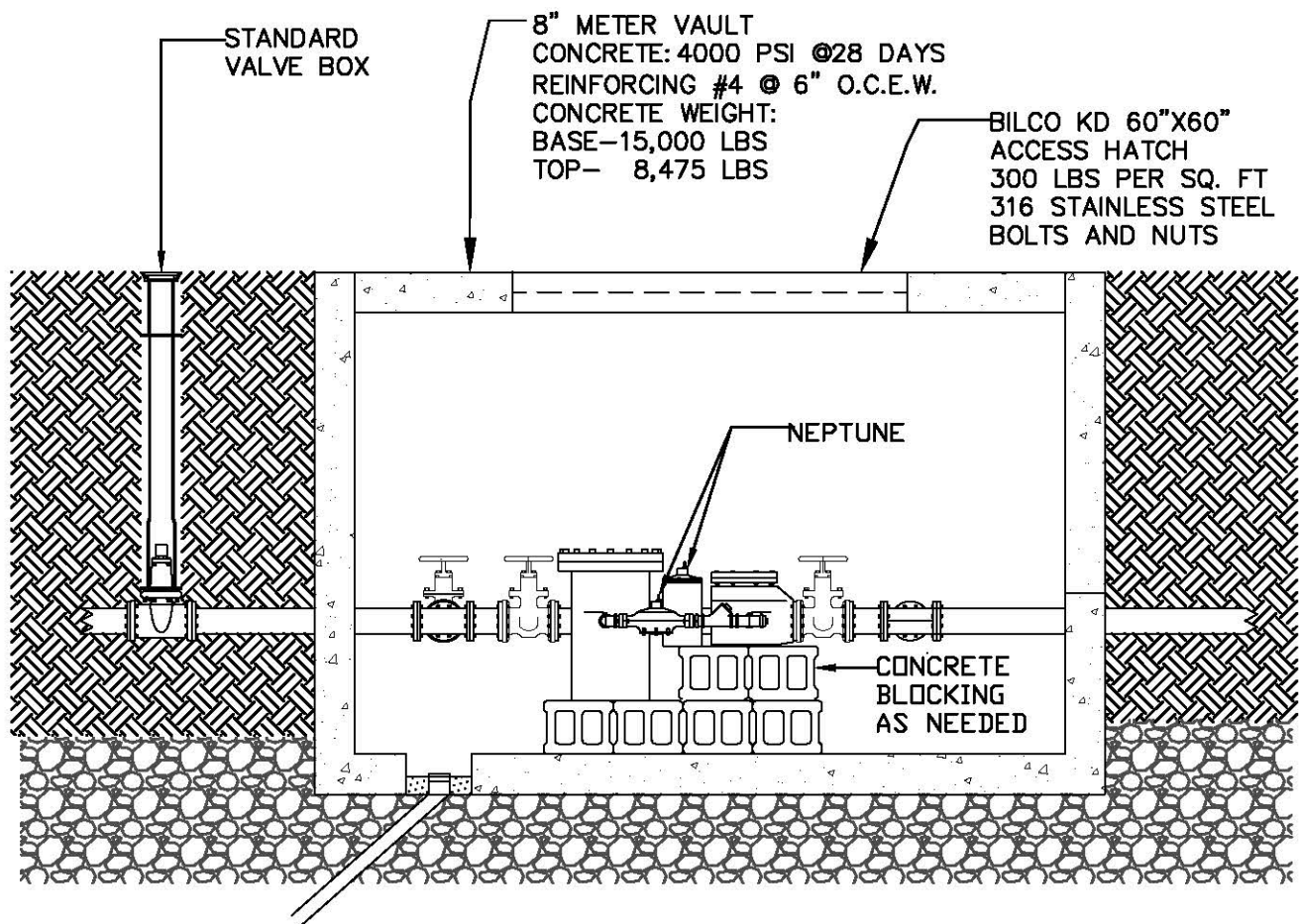
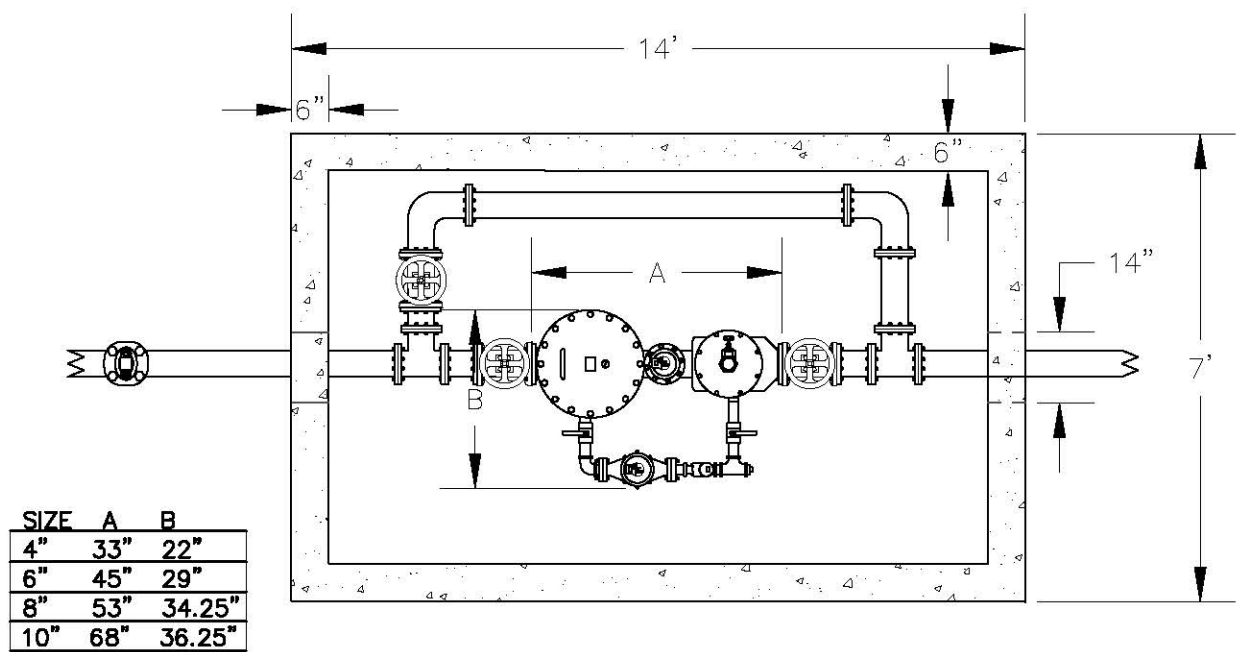


GENERAL NOTES:

1. PIPES, BENDS, TEES, AND GATE VALVES ARE THE SAME SIZE AS THE METER SIZE. (I.E. 6" METER HAS 6" PIPE, 6" 90° BENDS, 6"x6" TEES AND 6" GATE VALVES.)
2. ALL DIMENSIONS ARE BASED UPON STANDARD SIZES FOR PIPES, BENDS, TEES, GATE VALVES AND METERS. STRAINER SIZES VARY DEPENDING ON MANUFACTURER. DIMENSION "G" IS BASED UPON NEPTUNE STRAINERS. IF ANOTHER MANUFACTURER IS BEING USED THIS DIMENSION WILL VARY AND THE METER INSTALLATION MAY NOT FIT INTO THE VAULT BOX SHOWN. THIS SHOULD BE CHECKED BEFORE ORDERING THE VAULT BOX. COORDINATE WITH CITY OF DURHAM WATER & SEWER MAINTENANCE DIVISION.
3. DIMENSION "H" IS FOR STANDARD METERS. DIMENSION "H(I)" IS FOR COMPOUND METERS.
4. USE APPROPRIATE SIZE PLATE FLANGE ON THE TEE WITH A 2" BRONZE TAPPING PLUG.
5. USE ONLY METERS, STRAINERS AND GATE VALVES APPROVED BY THE
6. FOR 3" METER VAULTS USE THE STANDARD SINGLE HATCH-TYPE ALUMINIUM DOOR, CENTERED OVER THE METER. FOR 4", 6" AND 8" METER VAULTS USE 5'X5' STANDARD ACCESS DOORS.

3", 4", 6", 8" STND. AND COMPOUND WATER METER INSTALLATION

SCALE:
NTS



FIRELINE METER AND METER VAULT

4", 6", 8", & 10" METERS

SCALE:
NONE

FIRE PROTECTION PRODUCTS

R-2365-6: O.S.&Y. RESILIENT WEDGE GATE VALVE WITH FLANGE ENDS

- 2-1/2", 3", 4", 6" AND 8" SIZES
- MEETS OR EXCEEDS ALL APPLICABLE REQUIREMENTS OF UL 262 AND FM 1120/1130 SPECIFICATIONS AND CERTIFIED TO ANSI/NSF 61
- DUCTILE IRON BODY WITH MUELLER® PRO-GARD™ FUSION EPOXY COATED INTERIOR & EXTERIOR SURFACES
- OUTSIDE SCREW AND YOKE (O.S.&Y.)
- FLANGED END DIMENSIONS AND DRILLING
- RUBBER ENCAPSULATED IRON WEDGE
- ADJUSTABLE PACKING
- HANDWHEEL – OPEN LEFT OR OPEN RIGHT
- 250 PSIG (1725 kPa/17 barg) MAXIMUM WORKING PRESSURE - 500 PSIG (3450 kPa/35 barg) STATIC TEST
- EPOXY COATING MEETS OR EXCEEDS ANSI/ AWWA C550.

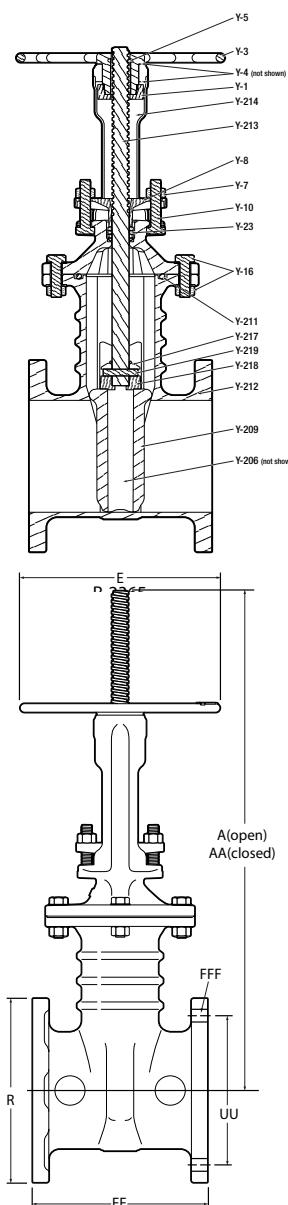


Options

- Stainless steel fasteners: Type 316
- Stainless steel stem: Type 304 and Type 316
- PN10/PN16 drilling
- EPDM disc and o-rings

PARTS LIST

Catalog Part Number	Description	Material	Material Standard
Y-1	Retaining Nut	Carbon Steel E Coated	ASTM A36
Y-3	Hand Wheel	Ductile Iron	ASTM A536
Y-4	Washer	Brass	ASTM B36
Y-5	Bush Nut	Brass	ASTM B16
Y-7	Gland Nut	Silicon Bronze	ASTM B98
Y-8	Packing Gland	Ductile Iron	ASTM A536 ▼
Y-10	Gland Bolt	Stainless Steel	Type 304
Y-16	Bonnet Bolts & Nuts	Stainless Steel	Type 304
Y-23	Stem Packing	Lubricated Flax	-
Y-206	Guide Cap Bearings	Acetal	-
Y-209	Wedge, Rubber Encapsulated	Cast Iron**+	ASTM A126 CL.B
Y-211	Bonnet O-ring	SBR	ASTM D2000
Y-212	Body	Ductile Iron	ASTM A536 ▼
Y-213	Stem	Stainless Steel	Type 431
Y-214	Bonnet & Yoke	Ductile Iron	ASTM A536 ▼
Y-217	O-ring	Nitrile	ASTM D2000
Y-218	Disc Nut	Ductile Iron E Coated	ASTM A536 ▼
Y-219	Stem Nut Pin	Stainless Steel	Type 303



DIMENSIONS

Dimension*	Size				
	2-1/2"	3"	4"	6"	8"
A	20.33"	20.16"	23.63"	30.00"	37.37"
AA	16.53"	16.32"	18.94"	23.22"	28.60"
E	7.00"	7.00"	10.00"	12.00"	14.00"
R	7.00"	7.50"	9.00"	11.00"	13.50"
FF	7.50"	8.00"	9.00"	10.50"	11.50"
UU	5.50"	6.00"	7.50"	9.50"	11.75"
FFF (number and size of holes)	4--.75"	4--.75"	8--.75"	8--.88"	8--.88"
Turns to open	11	11	14	20.5	26.5
Weight (lbs.)*	50	52	76	119	182

See page B-1-22 for ordering instructions.

NOTE: Flanged end dimensions and drilling comply with ANSI B16.1, class 125.

*All dimensions are in inches. All weights are in pounds and are approximate.

** Fully encapsulated in molded rubber with no iron exposed.

+ Manufacturer's option to upgrade material to Ductile iron ASTM A536

▼ Material strength ASTM A536 65-45-12 minimum

APPENDIX E

12.2

Mueller Co.

MECHANICAL JOINT TAPPING SLEEVE FOR CENTRIFUGAL C.I., D.I., & PVC PIPE

Rev. 4-14 Shaded area indicates change

- Catalog number--
H-615 Mechanical Joint Tapping Sleeve - with Duck Tipped end gaskets
- Sizes-- 4"-24" main and outlet (see chart below for available size combinations)
- Outlet flange dimensions and drilling comply with ANSI B16.1, class 125 and with MSS SP-60.
- Certified to ANSI/NSF 61.
- Ductile Iron body with 3/4" NPT test plug.
- 4"-24" sizes--250 psig (1725 kPa/17 barg) maximum working pressure.



H-615

Tapping Sleeve pipe information

Nominal size of main	O.D. range of sleeve		Class and type of pipe	End Gasket part numbers
	Inch	mm		
4"	4.74"-4.86"	120.5-123.3	Cast iron classes 100, 150, 200 and A - all classes ductile iron - cast iron O.D. PVC plastic pipe classes 150 and 200	195824
	4.87"-5.32	123.8-135.0	Cast iron classes B, C, and D - A-C classes 100 and 150	195653
6"	6.84"-6.96"	173.8-176.7	Cast iron classes 100, 150, 200, and A - all classes ductile iron - cast iron O.D. PVC plastic pipe classes 150 and 200	195825
	6.97"-7.40"	177.1-187.9	Cast iron classes B, C, and D - A-C classes 100 and 150	195654
8"	8.99"-9.11"	228.4-231.3	Cast iron classes 100, 150, 200, A and B - all classes ductile iron - cast iron O.D. PVC plastic pipe classes 150 and 200	195826
	9.12"-9.62"	231.7-244.2	Cast iron classes B, C, and D - A-C classes 100 and 150	195655
10"	11.04"-11.16"	280.5-283.4	Cast iron classes 150, 200, 250, A and B - all classes ductile iron - cast iron O.D. PVC plastic pipe classes 150 and 200	194680
12"	13.14"-13.26"	333.9-336.7	Cast iron classes 150, 200, 250, A and B - all classes ductile iron - cast iron O.D. PVC plastic pipe classes 150 and 200	194638
14"	15.22"-15.35"	386.7-389.8	Cast iron classes 50, 100, 150, 200, 250, A and B - all classes ductile iron	195127
16"	17.32"-17.45"	440.0-443.1	Cast iron classes 50, 100, 150, 200, 250, A and B - all classes ductile iron	195128
18"	19.42"-19.55"	493.4-496.5	Cast iron classes 50, 100, 150, 200, 250, A and B - all classes ductile iron	195266
20"	21.52"-21.65"	546.7-549.8	Cast iron classes 50, 100, 150, 200, 250, A and B - all classes ductile iron	195129
24"	25.72"-25.85"	653.4-656.5	Cast iron classes 50, 100, 150, 200, 250, A and B - all classes ductile iron	195130

Sizes available

Nominal size of main	Outlet size									
	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
4"	X	-	-	-	-	-	-	-	-	-
6"	X	X	-	-	-	-	-	-	-	-
8"	X	X	X	-	-	-	-	-	-	-
10"	X	X	X	X	-	-	-	-	-	-
12"	X	X	X	X	X	-	-	-	-	-
14"	-	X	X	X	X	X	-	-	-	-
16"	X	X	X	X	X	X	X	-	-	-
18"	X	X	X	X	X	-	X	X	-	-
20"	X	X	X	X	X	X	X	X	X	-
24"	X	X	X	X	X	X	X	X	X	X

WARNING: Use on A-C pipe, which contains a known carcinogen, requires appropriate protective equipment and procedures be employed.

APPENDIX F

Rev. 4-14

- ☐ Catalog number –
A-2361-16 mechanical joint x flanged ends (with accessories unassembled)
A-2361-19 mechanical joint x flanged ends (less accessories)
- ☐ Sizes – 4", 6", 8", 10", 12"
- ☐ Meets or exceeds all applicable requirements of ANSI/AWWA C515 Standard, UL Listed, FM Approved, and certified to ANSI/NSF 61
- ☐ Flanged end drilling complies with ANSI B16.1, class 125
- ☐ Mechanical joint end complies with ANSI/AWWA C111 Standard
- ☐ Iron body with nominal 10 mils MUELLER® Pro-Guard® Fusion Epoxy Coated interior and exterior surfaces
- ☐ Epoxy coating meets or exceeds all applicable requirements of ANSI/AWWA C550 Standard.
- ☐ Iron wedge, symmetrical & fully encapsulated with molded rubber; no exposed iron
- ☐ Non-rising stem (NRS)
- ☐ Triple O-ring seal stuffing box (2 upper & 1 lower O-rings) with fourth o-ring serving as dirt seal
- ☐ 2" square wrench nut (optional handwheel available) – open left or open right
- ☐ 350 psig (2400 kPa/24 barg) maximum working pressure
700 psig (4800 kPa/48 barg) static test pressure
- ☐ UL Listed, FM Approved – 350 psig (2400 kPa/24 barg)
- ☐ Mueller valves are designed for potable water application



A-2361-16
M.J. accessories
shipped unassembled

Options

See page 10.46 for more information on Resilient Wedge Gate Valve options

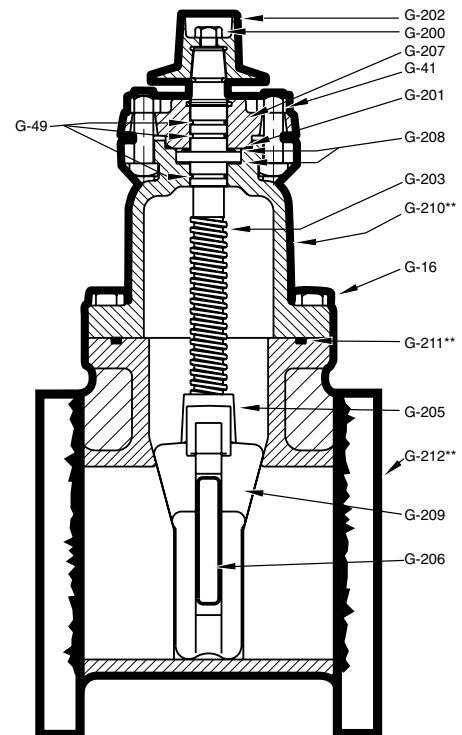
- ☐ Position indicators
- ☐ Stainless steel stem: Type 304, Type 316
- ☐ EPDM Disc and o-rings
- ☐ ASTM B98-C66100/H02 stem
- ☐ Handwheel
- ☐ Stainless steel fasteners: Type 316

Resilient wedge gate valve parts

Catalog Part No.	Description	Material	Material Standard
G-16	Bonnet Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-41	Stuffing Box Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-49	Stem O-rings (3)	Nitrile	ASTM D2000
G-200	Wrench Nut Cap Screw	304 Stainless Steel	ASTM F593
G-201	Stuffing Box O-ring	Nitrile	ASTM D2000
G-202	Wrench Nut	Ductile Iron	ASTMA536 ▼
G-203	Stem	Bronze	ASTM B138
G-204	Hand Wheel (not shown)	Cast Iron	ASTM A126 CL.B
G-205	Stem Nut	Bronze	ASTM B584
G-206	Guide Cap Bearings	Acetal	-
G-207	Stuffing Box with dirt seal	Ductile Iron Nitrile	ASTMA536 ▼ ASTM D2000
G-208	Anti-friction Washers (2)	Acetal	-
G-209	Wedge, Rubber Encapsulation	Ductile Iron* SBR	ASTMA536 ▼ ASTM D2000
G-210**	Bonnet	Ductile Iron	ASTMA536 ▼
G-211**	Bonnet gasket	Nitrile	ASTM D2000
G-212**	Body	Ductile Iron	ASTMA536 ▼

*Fully encapsulated in molded rubber with no iron exposed

▼ Material strength ASTM A536 65-45-12 minimum

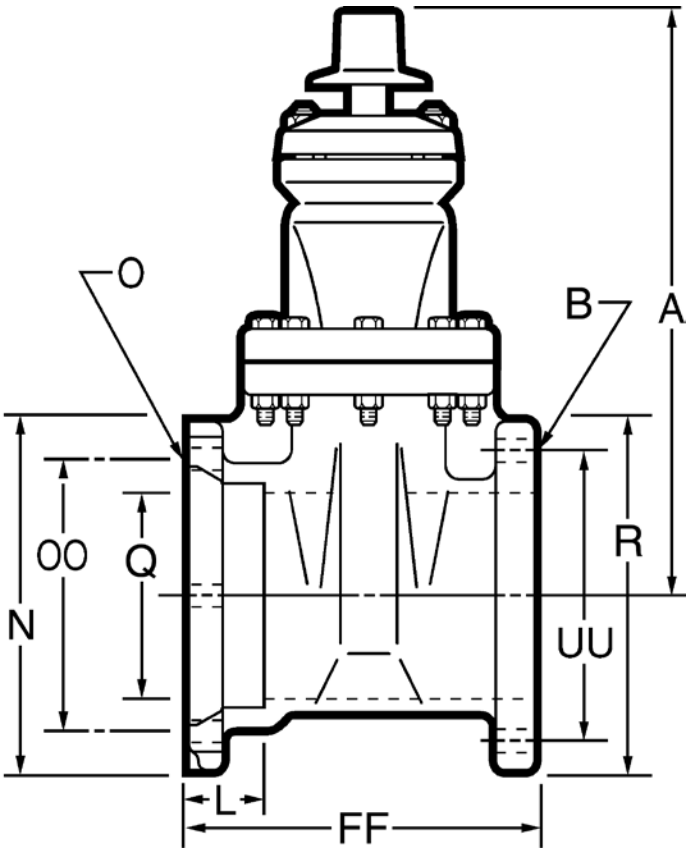


4"- 12" A-2361 RESILIENT WEDGE
GATE VALVES - M.J. x FL.

Mueller Co.

10.9

Rev. 1-15



Dimensions

Dimension	Nominal Size				
	4"	6"	8"	10"	12"
A	14.19	18.00	21.50	25.50	28.62
L	2.50	2.50	2.50	2.50	2.50
N	9.12	11.12	13.37	15.62	17.88
O	4--.88	6--.88	6--.88	8--.88	8--.88
Q (bore)	4.30	6.30	8.30	10.30	12.30
OO (bolt circle diameter)	7.50	9.50	11.75	14.00	16.25
R (number and size of holes)	9.00	11.00	13.50	16.00	19.00
UU	7.50	9.50	11.75	14.25	17.00
FF	9.50	11.06	12.09	13.94	14.50
B	8--.75	8--.88	8--.88	12--1.00	12--1.00
Turns to open	14	20.5	26.5	33	38.5
Weight*	115	168	275	400	570

* All dimensions are in inches. All weights include accessories are in pounds and are approximate.

APPENDIX G

Tyler/Union

6855 SERIES CAST IRON TWO-PIECE VALVE BOXES for 4" through 12" valves, 5 1/4" shaft, slip-type

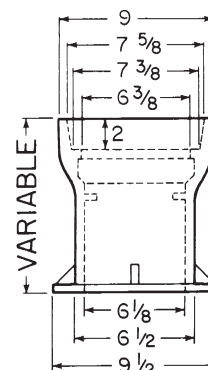
New ways to save on valve boxes. Eliminate extra handling by buying pre-assembled units. Save on single parts and accessories. Lower unit cost by purchasing Valu-Paks of 30 to 80 pieces of tops and bottoms in crates. See list price sheet for pricing details.

THREE WAYS TO SAVE 6855 VALVE BOX

Level 1 Boxes Assembled	Level 2 Individual Parts Not Assembled	Level 3 VALU-PAK Parts Not Assembled
-------------------------------	--	--

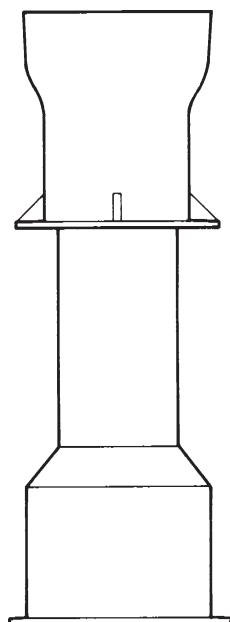
Note: A "BOX" is one top and one bottom

Level Two Top

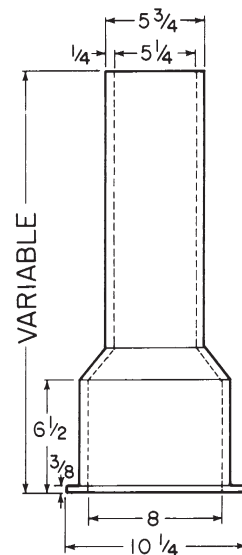


LEVEL ONE

Boxes Assembled/Less Lid



Box Assembled



Level Two Bottom

LEVEL ONE: BOXES ASSEMBLED LESS LIDS

Box (Components)	Extension Height	UPCode 670610	Weight
461-A (10T + 15B)	19-22	(Not Offered Assembled)	
462-A (10T + 24B)	27-32	(Not Offered Assembled)	
562-A (16T + 24B)	27-37	145868	72
563-A (16T + 30B)	33-43	145714	81
564-A (16T + 36B)	39-50	145875	83
662-A (26T + 30B)	36-52	145721	97
664-A (26T + 36B)	39-60	145882	99
666-A (26T + 24B + #60 Ext)	51-71	(Not Offered Assembled)	
668-A (26T + 36B + #60 Ext)	62-82	(Not Offered Assembled)	

Lids marked "WATER" will ship unless otherwise specified:
Also available 5 1/4" Drop Lids"

WATER OMA
SEWER
MWW
(PLAIN)
GAS

LEVEL TWO - Parts Not Assembled/Less Lids

TOPS & BOTTOMS

Box (Components)	Assy Height	Tops (less lids)			Bottoms			Extensions
		UPCode 670610	Lgt	Wt	UPCode 670610	Lgt	Wt	UPCode 670610
461-A (10T + 15B)	19-22	144960	10T	29	145073	15B	26	
462-A (10T + 24B)	27-32	144960	10T	29	145080	24B	36	
562-A (16T + 24B)	27-37	144977	16T	36	145080	24B	36	
563-A (16T + 30B)	33-43	144977	16T	36	145127	30B	45	
564-A (16T - 36B)	39-50	144977	16T	36	145097	36B	47	
662-A (26T - 30B)	36-52	144984	26T	52	145127	30B	45	
664-A (26T + 36B)	39-60	144984	26T	52	145097	36B	47	
666-A (26T + 24B + #60 Ext)	51-71	144984	26T	52	*145011	24B	35	145066
668-A (26T + 36B + #60 Ext)	62-82	144984	26T	52	*145028	36B	49	145066

*NOTE: These are 6850 Bottoms used to accommodate the interior threads of the applicable extensions.

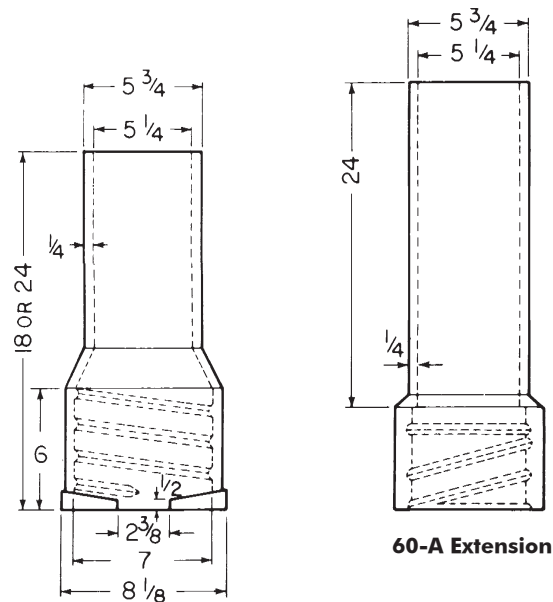
LIDS & RISERS

All Lids..... Page 45

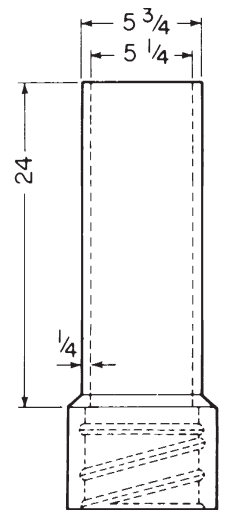
All Risers..... Page 46

EXTENSIONS

Item/Description	UPCode 670610	Height Increase	Wt
#58-A Slip-Type	145233	14	29
#59-A Slip-Type	145240	18	30
#60-A Slip-Type	145066	24	36



58-A and 59-A Extension



60-A Extension

LEVEL THREE - Crates of tops and bottoms, not assembled, less lids. Easy to handle, ships from stock.

TOPS OR BOTTOMS

Box (Components)	Assy Height	Tops (less lids)				Bottoms			
		UPCode 670610	Lgt	Wt	Qty	UPCode 670610	Lgt	Wt	Qty
461-A (10T + 15 B)	19-22	376996	10T	2320	80	372023	15B	1040	40
462-A (10T + 24B)	27-32	376996	10T	2320	80	377030	24B	1080	30
562-A (16T + 24B)	27-37	377009	16T	1080	30	377030	24B	1080	30
563-A (16T + 30B)	33-43	377009	16T	1080	30	377047	30B	1350	30
564-A (16T + 36B)	39-50	377009	16T	1080	30	377054	36B	1410	30
662-A (26T + 30B)	36-52	377016	26T	1560	30	377047	30B	1350	30
664-A (26T + 36B)	39-60	377016	26T	1560	30	377054	36B	1410	30
666-A (26T + 24B + #60 Ext)	*51-71	377016	26T	1560	30	*376958	24B	1050	30
668-A (26T + 36B + #60 Ext)	*62-82	377016	26T	1560	30	*376972	36B	1470	30

*Extensions (Required on 666-A & 668-A)

* See Note Above.

#60-A Slip-Type

24" Height Increase

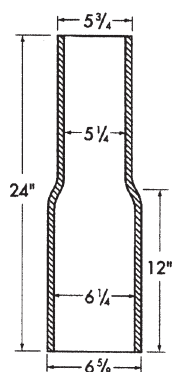
377061 1080 30

NOTES: To get equal numbers, order two crates of bottoms for each crate of tops for 461A, 562A, 563A and 564A. Order lids separately, see above.

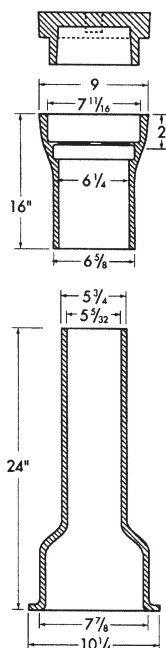
Tyler/Union

7000 SERIES TYLER TY-SPUN ADJUSTABLE VALVE BOX COMPLETE WITH O-RING

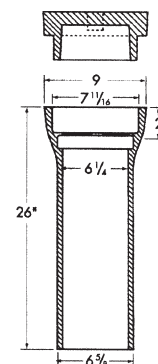
Sold Individually or in Valu-Paks of 12
5 1/4" Water Lid Sold Separately



**Optional
Extension**



**7016
(27"-39")**



**7026
(40"-60")**

7016-7026 STANDARD (Individual Box)

Item	Assembly Height	UPCode 670610	Each	Weight Each
7016 (16T + 24B)	27-39	376224	1	79
7026 (26T + 36B)	40-60	376231	1	106

VALU-PAKS (12 per pack)

Item	Assembly Height	UPCode 670610	Weight Bndl. (12)
7016 (16T) Top	16	382706	444
7026 (26T) Top	26	382737	588
7000 (24B) Bottom	24	382720	360
7000 (36B) Bottom	36	382751	540

7000 SERIES PARTS

Item	Height Increase	UPCode. 670610	Weight
7016 16T Top	...	376200	37.0
7026 26T Top	...	376217	49.0
7000 24B Bottom	...	374855	30.0
7000 36B Bottom	...	370376	45.0
Extension	24"	372981	28.0
*O-Ring	...	370390	0.2

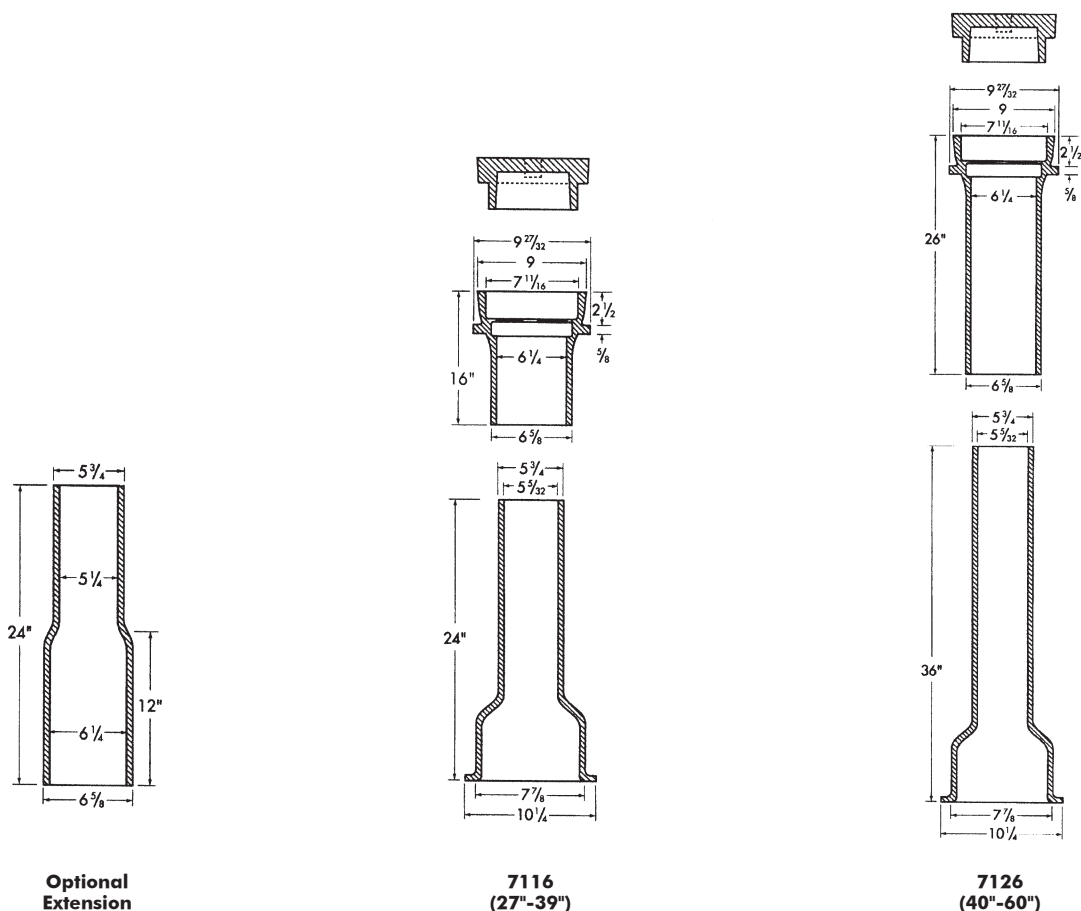
*O-Ring must be shipped with each extension piece.

Optional Lids Page 45
Risers Page 46

Tyler/Union

7100 SERIES TYLER TY-SPUN ADJUSTABLE VALVE BOX COMPLETE WITH O-RING

Sold Individually or in Valu-Paks of 12
5 1/4" Water Lid Sold Separately



7116-7126 STANDARD (Individual Box)

Item	Assembly Height	UPCode 670610	Each	Weight Each
7116 (16T + 24B)	27-39	376781	1	79
7126 (26T + 36B)	40-60	376798	1	106

VALU-PAKS (12 per pack)

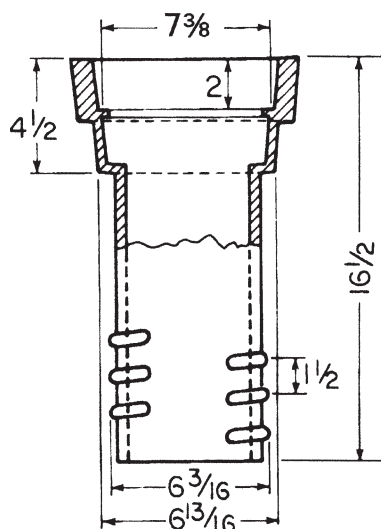
Item	Assembly Height	UPCode 670610	Weight Bndl. (12)
7116 (16T) Top	16	382713	444
7126 (26T) Top	26	382744	588
7100 (24B) Bottom	24	382720	360
7100 (36B) Bottom	36	382751	540

7000 SERIES PARTS

Item	Height Increase	UPCode. 670610	Weight
7016 16T Top	...	376200	37.0
7026 26T Top	...	376217	49.0
7000 24B Bottom	...	374855	30.0
7000 36B Bottom	...	370376	45.0
Extension	24"	372981	28.0
*O-Ring	...	370390	0.2

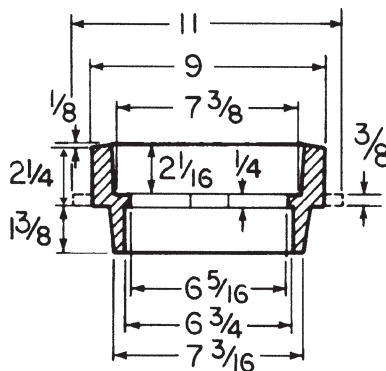
*O-Ring must be shipped with each extension piece.

Optional Lids Page 45
Risers Page 46

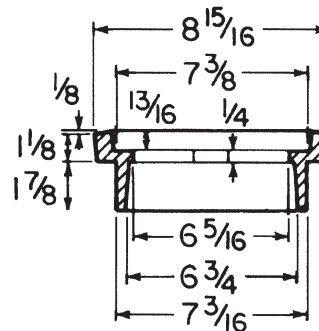


**#69 SCREW TYPE ADJUSTABLE RISER
FOR 6850/60 SERIES
(Uses Standard Drop Lid)**

UPCode	Height Increase	Weight
670610		
148197	2 1/2" - 9"	29



**5 1/4" x 2 1/4" Riser
(Uses Standard 5 1/4"
Drop Lid)**

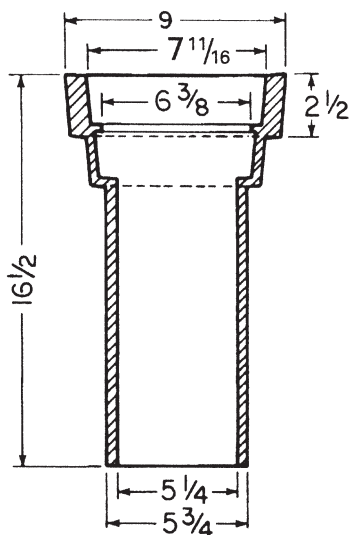


**5 1/4" x 1 1/8" Riser
(Requires 1 1/8" Riser Lid)**

RISERS

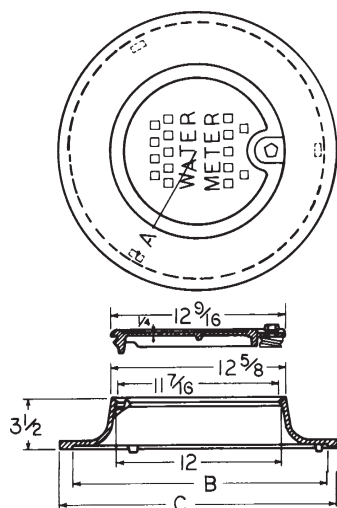
Item/Description	UPCode	Height Increase	Weight
5 1/4 x 1 1/8 Slip-In*	145554	1 1/8"	8
5 1/4 x 2 1/4 Slip-In	145547	2 1/4"	14

*Use with 1 1/8" Lid Only.

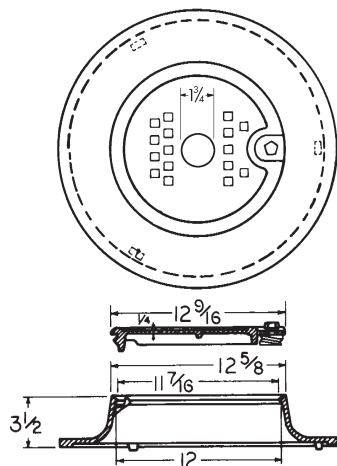


**#69-A SLIP TYPE ADJUSTABLE RISER
FOR 6855 SERIES
(Uses Standard Drop Lid)**

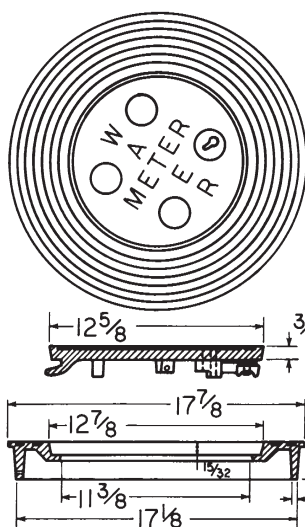
UPCode	Height Increase	Weight
670610		
148241	2 1/2" - 12"	29



6150 Meter Box Cover



6150TR Meter Cover



6200 Meter Cover

**6150 & 6150TR METER COVERS,
CAST IRON**

Description	A	B	C
18-in. 6150 Series	8 3/4	18	20
20-in. 6150	9 3/4	20	22

UPCode	Ship Code	Description	Weight
670610			
148449	S	6150-18 Ring & Lid B/L*	39
148456	S	6150-18 Ring & Lid B/S	39
148647	S	6150-18 Ring Only	27
148494	S	6150-18/20 Lid With Lock B/L*	13
148593	S	61 50-L-1 8/20 Lid Less Lock	14
148500	S	6150-18/20 Lid With Lock B/S*	13
148463	S	6150-20 Ring & Lid B/L*	41
148470	S	6150-20 Ring & Lid B/S*	41
148630	S	6150-R-20 Ring Only	29

*B/L = Large Bolts (1-1/32"); B/S = Small Bolts (27/32" Standard)

6150TR (TOUCH-READER) METER COVERS CAST IRON

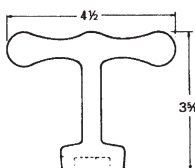
UPCode	Ship Code	Description	Weight
670610			
148531	S	6150-18 TR Ring & Lid B/L"	39
148524	S	6150-18 TR Ring & Lid B/S*	39
148579	S	6150-18/20 TR Lid With Lock B/L*	13
148562	S	6150-18/20 TR Lid With Lock B/S*	13
148586	S	6150-18/20 TR Lid Less Lock	12
148555	S	6150-20 TR Ring & Lid B/L*	41
148548	S	6150-20 TR Ring & Lid B/S*	41

*B/L = Large Bolts (1-1/32"); B/S = Small Bolts (27/32")

NOTE: 6150TR - Same dimensions as 6150, plus a 1-27/32" access hole in lid.

6200 METER COVER, CAST IRON

UPCode	Ship Code	Description	Weight
670610			
148708	S	6200 Ring & Lid Less Lock	28
148760	S	6200-R Ring Only	18
148739	S	6200-L Lid Less Lock	13
148722	S	6200-L Lid With Lock	11



**WRENCH
Fits Standard Waterworks
Pentagon Head 27/32" Brass Screws**

UPCode	Ship Code	Description	Weight
670610			
144908	S	Wrench	0.5