VILLAGE CENTER COMMUNITY DEVELOPMENT DISTRICT POTABLE WATER SYSTEM

CROSS CONNECTION CONTROL HANDBOOK

REVISED JULY 2009

OWNER
VILLAGE CENTER COMMUNITY DEVELOPMENT DISTRICT
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STATEMENT OF POLICY

Under the provisions of the Safe Drinking Water Act adopted by the E.P.A. in 1974, the Water Purveyor (supplier) is held responsible for compliance to the provisions of the Act, to include a warranty that water quality provided by his operation is in conformance with the E.P.A. standards at the source, and is delivered to the Customer without the quality being compromised as a result of its delivery through the distribution system.

To this end, Village Center Community Development District (VCCDD) endorses the Statement of Policy adopted by the American Water Works Association (AWWA) as follows:

"The American Water Works Association recognizes that the Water Purveyor has a responsibility to provide its Customers at the service connection with water that is safe under all foreseeable circumstances. Thus, in the exercise of this responsibility, the Water Purveyor must take reasonable precautions to protect the community distribution system from the hazards originating on the premises of its Customers that may degrade the water in the community distribution system.

Cross-connection control and plumbing inspections on premises of water Customers are regulatory in nature and should be handled through the rules, regulations and recommendations of the health authority or the plumbing-code enforcement agencies having jurisdiction. The Water Purveyor, however, should be aware of any situation requiring inspection and/or reinspection necessary to detect hazardous conditions resulting from cross-connections. If, in the opinion of the Utility, effective measures consistent with the degree of hazard have not been taken by the regulatory agency, the Water Purveyor should take such measures as he may deem necessary to ensure that the community distribution system is protected from contamination. Such action would include the installation of a backflow prevention device, consistent with the degree of hazard at the service connection or discontinuance of the service.

In addition, Customer use of water from the community distribution system for cooling or other purposes within the Customer's system and later return of the water to the community distribution system is not acceptable and is opposed by AWWA."

In order to implement an effective cross-connection control program, VCCDD adopts the following guidelines:

1. Establish a Cross-Connection Control Handbook outlining policies, rules, regulations, and procedures to be followed to insure the quality of water supplied by the potable water supply system.

2. Implement an Education Program which may include information provided at the time of request for service, mail-outs to Customers, and newspaper articles.

3. Send personnel who monitor compliance with the program to courses on backflow prevention (BFP) and cross-connection control.

4. Conduct periodic meetings with local plumbing inspection personnel, licensed plumbers and others who will be involved in the installation, inspection, testing and repair of backflow prevention devices.

5. Instruct meter readers and maintenance personnel to watch for cross-connections

during their daily work schedules and report any cross-connections to management.

6. Establish a policy that specifies the types of service connections that will require a backflow prevention device, proper location of the backflow prevention device, and a list of all approved devices.

7. Ensure that any new construction is reviewed to assess the degree of hazard and ensure that the proper backflow preventer is installed.

8. Continue a backflow protection program to install a residential dual check backflow device at every new residence.

9. As existing water meters are repaired or replaced at residences, ensure that a residential dual check backflow preventer is set with the new or reworked water meter.

10. Prepare a listing of all testable backflow devices in the system and ensure that they are tested by certified test personnel on an annual basis.

11. Maintain records associated with installation, testing, and repair of backflow prevention devices.

12. Provide a customer service contact number and specify information handling procedures for complaints and emergencies related to backflow prevention devices and possible cross contamination.

A. RULES CONCERNING THE PROTECTION OF THE POTABLE WATER SUPPLY SYSTEM

In order to protect the public water supply system from contamination due to cross-connections, VCCDD hereby establishes the following rules:

A.1. No installation of potable water supply piping or part thereof shall be made in such a manner that it will be possible for used, unclean, polluted or contaminated water, mixtures or substances to enter any portion of such piping from any tank, receptacle, equipment or plumbing fixture by reason of back-siphonage, back-pressure, or any other cause either during normal use and operation thereof or when any such tank, receptacle, equipment or plumbing fixture is flooded or subject to pressure in excess of the pressure in the hot or cold water piping.

A.2. No person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by any public or private water service system, and any pipes, conduits or fixtures containing or carrying water from any other source or containing or carrying water which has been used for any purpose whatsoever, or any substances whatsoever, unless there is provided an approved backflow prevention device. The approval of the VCCDD must be obtained before any connection is made between the domestic supply and any contaminated, polluted or auxiliary water system.

A.3. No plumbing fixture or device shall be installed or maintained or shall be connected to any domestic water supply when such installation or connection may provide a cross-connection between a distributing system of water for

drinking and domestic purposes and water which may become contaminated by such plumbing fixture or device unless there is provided an approved backflow prevention device.

A.4. No water piping supplied by any private water supply system or industrial piping system shall be connected to the potable water system without approval from the VCCDD.

A.5. Any business, resident, or any other connection having been found by the VCCDD to be a potential backflow source or which meets the established requirements for backflow prevention protection shall install or cause to be installed an approved backflow prevention assembly.

A.6. All assemblies, which consist of independent units assembled for the purpose of preventing backflow shall comply with the material, operational, and other specifications of The American Water Works Association (AWWA), The American Society of Sanitary Engineering (ASSE), or the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR) as required for backflow prevention assemblies. In order to ensure proper operation, all assemblies shall be completely assembled by the manufacturer with all required components. Resilient seated shut-off valves and test cocks are considered to be an integral part of the assembly.

A.7. The assembled piping shall be thoroughly flushed before installing the backflow prevention device.

A.8. All backflow prevention devices shall be adequately supported.

A.9. All backflow prevention assemblies are the property of the customer. VCCDD shall have no ownership or responsibility for the proper installation, operation, maintenance, or repair of any backflow prevention assembly.

B. EXCERPTS FROM STATE CODES AND REGULATIONS

The following excerpts are herein incorporated into this program by reference, including any future amendments.

In the event of any conflict between this Document and other Codes or Regulations, excluding State and Federal Laws, the terms and provisions of this Document shall prevail.

B.1. RULES OF THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 62-550.200(22):

(22) "CROSS-CONNECTION" means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage or other waste, or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as the result of backflow.

By-pass arrangements, jumper connections, removable sections, swivel or changeable devices, and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross-connections.

SECTION 62-555.360(1), (2) AND (4):

(1) Cross-connection, as defined in Rule 62-550.200, F.A.C. is prohibited. However, a person who owns or manages a public water system may interconnect to another public water system if that system is operated and maintained in accordance with this Chapter.

(2) Community water systems, and all public water systems that have service areas also served by reclaimed water systems regulated under Part III of Chapter 62-610, F.A.C., shall establish and implement a routine cross-connection control program to detect and control cross-connections and prevent backflow of contaminants into the water system. This program shall include a written plan that is developed using recommended practices of the American Water Works Association set forth in *Recommended Practice for Backflow Prevention and Cross-Connection Control*, AWWA Manual M14, as incorporated into Rule 62-555.330, F.A.C.

(4) Only the following are considered to be backflow prevention devices. They shall be installed in agreement with and under the supervision of the supplier of water or his designated representative (plumbing inspector, etc.) at the consumer's meter, at the property line of the consumer when a meter is not used, or at a location designated by the supplier of water or the Department. The devices are:

(a) Air gap separation - A physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved airgap separation" shall be at least double the diameter of the supply pipe measured vertically above the top of the rim of the vessel. In no case shall it be less than 1 inch.
(b) Reduced pressure backflow preventer - A device containing within its structure a minimum of two independently acting approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.
(c) Atmospheric vacuum breaker - A backflow prevention device which is operated by atmospheric pressure in combination with the force of gravity. The unit is designed to work on a vertical plane only. The one moving part consists of a poppet valve which must be carefully sized to slide in a guided chamber and effectively shut off the reverse flow of water when a negative pressure exists.
(d) Pressure vacuum breaker - A pressure vacuum breaker is similar to an

atmospheric vacuum breaker except that the checking unit poppet valve is activated by a spring. This type of vacuum breaker does not require a negative pressure to react and can be used on the pressure side of a valve.
(e) Double check valve assembly - An assembly composed of two single, independently acting, check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g., clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.
(f) Residential Dual Check - A compact unit manufactured with two independent spring actuated check valves. The residential dual check is acceptable only as added back flow prevention in areas served by reuse systems defined in Chapter 62-610, Part III, F.A.C., when the cross-connection control program identifies activities specific to paragraphs (5)(a) and (5)(b) of this section.

B.2. FLORIDA BUILDING CODE, PLUMBING

CHAPTER 6 – WATER SUPPLY AND DISTRIBUTION:
Section 608 – Protection of Potable Water Supply (Section in its entirety)
608.1 General. A potable water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from nonpotable liquids, solids or gases being introduced into the potable water supply through cross-connections or any other piping connections to the system. Backflow preventer applications shall conform to Table 608.1 , except as specifically stated in Sections 608.2 through 608.16.9 .

C. RESULT OF NON-COMPLIANCE WITH HANDBOOK

Any person or customer failing to comply with this program or part hereof shall be deemed to be in non-compliance, and water service may be terminated by VCCDD until corrective actions required by this program are completed and verified.

C.1. FEES DISCONNECT/RECONNECT:

Fees may be assessed to customers regarding actions taken by VCCDD associated with disconnection/reconnection of service, performance of backflow prevention device testing and/or repair, or any other applicable actions. Any person, persons, or customers having been deemed to be in non-compliance with this program shall pay fees as set by VCCDD.

C.2. TERMINATION OF SERVICE:

In emergency conditions, when the public potable water supply is being contaminated or is in danger of contamination, water service may be disconnected by VCCDD.

D. HAZARD REVIEW PROCESS AND BFP DEVICE DETERMINATION

D.1. All commercial facilities that intend to connect to the VCCDD water system shall submit a Cross-Connection Control Survey form at the time of application for water service (see Appendix A). Failure to comply with the submittal of the Cross-Connection Control Survey form shall be a violation of this program. Upon review, VCCDD shall evaluate the hazard potential and determine the type of backflow prevention device that is required. There are varying degrees of hazard, and the degree of protection shall be commensurate with the degree of hazard.

D.2. All commercial connections to the public water system shall be required to have a backflow prevention device as otherwise specified herein. Commencing with the approval of this Handbook by the VCCDD Board of Supervisors, all backflow prevention devices that are installed shall be as approved by VCCDD or its designated representative.

D.3. **Residential** - All new residential connections will include a residential dual check backflow prevention device that is integral to the meter. As all existing residential meters are repaired or replaced, water system operations personnel will ensure that a residential dual check backflow prevention device is present or installed. Whenever a residential meter is replaced, the dual check device will be replaced as well.

If any devices or equipment are installed that connect to a residential water line that have the potential for increasing the level of hazard to the public water system, the resident will be responsible for installing an additional backflow prevention device in compliance with the requirements of 62-555 F.A.C. and this Handbook. All devices shall be installed in accordance with the manufacturer's recommendations. Added backflow prevention devices shall be required to be tested and reported in accordance with the requirements of Section H of this Handbook. If the provisions of this Handbook are not met, VCCDD may disconnect the water service until such time as proper corrections are made and verified.

Fertigation systems shall require the installation of a reduced pressure zone assembly. The device shall be installed next to the home, upstream of the irrigation zone valves and any connection of the fertigation system.

D.4. **Device Location** - Backflow prevention devices shall be located on the facility-side of the water meter, upstream of any connection points to the water service line. Reduced Pressure Zone backflow prevention devices shall be located above grade as close to the building as possible so as to allow for screening by landscaping. In no case shall there be any connections to the water service upstream of the backflow prevention device.

D.5. **Device Type** - Backflow prevention device types shall be as determined by VCCDD or its designated representative. The following chart shows, in general, the types of devices that are required for various types of commercial connections. Final determination of the device type will be made by VCCDD or its designed representative and will be based on the assessment of the potential hazard to the public water system.

D.6. **Approved Devices** – Refer to Appendix B for general information on approved backflow prevention devices. Final approval of the specific device (manufacturer and model) shall be by VCCDD or their designated representative.

D.7. Upon completion of the installation of a backflow prevention device, the Owner shall submit to VCCDD detailed installation data on the Installation Record form provided in Appendix A.

VILLAGE CENTER COMMERCIAL CONNECTIONS	
APPROVED BACKFLOW PREVENTION DEVICES	
Connection Type	**Approved BFP Device**
Restaurant	DCVA
Medical/Dental/Veterinary	RPZ
Office	DCVA
Grocery Store	RPZ
Beauty Salon/Spa	RPZ
Drug Store	DCVA
Convenience Stores	DCVA
Banks/Financial	DCVA
Home Improvement/Hardware	RPZ
Clothing Retail	DCVA
Furniture Retail	DCVA
Restroom Facility	DCVA
Pool	DCVA with Air Gap
Postal Facility	DCVA
School	DCVA
Church	DCVA
Irrigation	DCVA
Fire Protection System	DCVA
Funeral Home	RPZ
Maintenance Facility (Golf, Landscape, etc.)	RPZ
Wastewater Pumping Station	RPZ
Wastewater Treatment Plant	RPZ
Car Wash	RPZ
Assisted Living/Nursing Facility	RPZ
Commercial Laundries	RPZ
Photo Processing Facilities	RPZ
Pest Control Companies	RPZ
Cooling Towers	RPZ
Hospitals	RPZ
Definitions	
BFP	Backflow Prevention
DCVA	Double Check Valve Assembly
RPZ	Reduced Pressure Zone Assembly
Notes	
1. Backflow Prevention Devices for facility types not described above shall be submitted to and approved by the District or its authorized representative prior to installation.	
2. An alternate Backflow Prevention Device may be submitted for approval. Alternate devices shall be approved by the District or its authorized representative prior to installation.	

E. INSPECTION

E.1. Duly authorized employees or representatives of VCCDD shall be permitted to enter upon properties for the purpose of sampling or testing the potable water supply, or to make inspections or observations of connections to the potable water supply. Refusal to allow inspection shall constitute a violation of this program.

E.2. If a backflow prevention device is required, the Customer shall have installed the correct backflow prevention device as determined by VCCDD. At such time, an inspection by VCCDD will be performed; such inspection by VCCDD shall determine satisfactory compliance by the Customer with this program . If such inspection fails to show compliance with this program, VCCDD shall not be compelled to establish water service until such time that satisfactory compliance has been achieved.

F. EXISTING FACILITIES

F.1. All premises where cross-connections are suspected shall be surveyed by VCCDD to determine if a detailed inspection will be required. The Owners of the suspected premises shall be contacted to secure an appointment for inspection of the premises. The Owner or his authorized representative will be required to accompany the Inspector during the tour of the premises. A cross-connection survey form will be completed by the Inspector and signed by the Owner or his representative. The Owner shall be made aware of any corrective measures that need to be made. Upon conformance to the requirements in the notification, the Owner shall immediately notify VCCDD to schedule a date for re-inspection.

F.2. In order for potable water service to be continued, corrective measures identified by VCCDD must be completed by the owner within sixty (60) days or an alternate timeframe as specified by VCCDD.

F.3. If corrective measures are not completed within the specified timeframe, VCCDD may disconnect water service.

F.4. If an existing condition is deemed an immediate hazard to the water system, VCCDD may disconnect the water service until such time as corrective measures are completed and verified.

G. NEW FACILITIES

G.1. All new commercial connections to the VCCDD water system shall require a backflow prevention assembly in accordance with the provisions of this handbook.

G.2. The presence of a backflow prevention assembly may affect the operation of a facility's fire protection system. Owners should have a registered professional engineer or certified fire-protection system contractor check the hydraulics of the fire protection system to ensure proper operation in conjunction with the presence of the backflow prevention assembly.

G.3. The installation of thermal expansion devices and/or pressure relief valves is needed within the closed-loop plumbing system created by the required use of backflow prevention assemblies to protect the VCCDD water system.

H. TESTING AND REPORTING

H.1. Testing shall be required on all backflow prevention devices. Testing is to be performed by a certified Backflow Prevention Device Technician in accordance with AWWA standards or an individual holding a current plumbing license issued by the State of Florida. All backflow prevention devices, reduced pressure or double check valve assemblies, and all devices installed where testing is made possible by the design of the device shall be tested a minimum of once every twelve (12) months. In the opinion of VCCDD, if a backflow prevention device is used in high hazard applications, it may be required by VCCDD to be tested more frequently.

H.2. Annual Backflow Prevention Device testing and any required maintenance or repair shall be completed and reported to VCCDD by May 1st or September 1st of each year, depending on the due date that has been assigned to your location. An alternate schedule or greater frequency may be approved/required by VCCDD.

H.3. Customers may receive a past due notice from VCCDD if the annual Test and Maintenance Report is not received in accordance with the dates indicated by VCCDD.

H.4. If an acceptable Test and Maintenance Report is not received within 45 days of receipt of the initial annual notification letter, VCCDD, at its option, may have the test conducted and perform any required maintenance or repair. All costs incurred by VCCDD, as provided for by Rule, will be included on the customer's utility bill.

I. REPAIRS

I.1. A backflow prevention device that fails a test or does not meet the standards of this program shall have be repaired/replaced by the Owner to correct any deficiencies or problems with the device. The Customer, Owner or authorized agent for the Owner shall be responsible for any and all repairs/replacement necessary to maintain good working condition of the backflow prevention device. Repairs shall be performed by a certified Backflow Prevention Device Technician or an individual holding a current plumbing license issued by the State of Florida.

I.2. Certified Backflow Prevention Device Technician or an individual holding a current plumbing license issued by the State of Florida shall determine and affirm to VCCDD satisfactory repair and compliance of the backflow prevention equipment. Said affirmation of compliance by the Technician shall be attached to the Test and Maintenance Report and provided to VCCDD in accordance with the schedule in section H, Testing.

J. EDUCATION PROGRAM

J.1. Upon application for water service, all potential commercial customers will receive a copy of the VCCDD Cross-Connection Control Handbook.

J.2. Commercial customers will receive periodic notification regarding backflow prevention device testing and reporting requirements.

J.3. If annual testing is not completed in accordance with the provisions of this handbook, the commercial customer will be notified regarding their non-compliance.

J.4. Residential irrigation and landscaping contractors who are working within The Villages community will be provided with a copy of the VCCDD Cross-Connection Control Handbook.

J.5. Periodic newspaper articles will be in the local newspaper to notify residential and commercial customers of the backflow prevention and water system protection issues.

J.6. Meter readers and utility operations personnel will receive training regarding the requirements for commercial and residential backflow prevention devices. Locations that are found to be non-compliant with the provisions of this handbook will receive individual notification of actions that must be taken to bring the connection into compliance.

K. COMPLAINTS AND EMERGENCIES

K.1. **Normal Business Hours-** Complaints and emergencies regarding backflow shall be directed to the VCCDD utility customer service number (352) 750-0000 from 8:00AM to 5:00PM, Monday through Friday.

K.2. **After Hours and on Weekends-** Complaints and emergencies regarding backflow shall be directed to Neighborhood Watch (352) 753-0550.

K.3. Information regarding backflow complaints and emergencies will be relayed to utility operations personnel who will implement required response actions. Utility operations personnel are on call twenty-four (24) hours per day, seven (7) days per week.

L. RECORDKEEPING

L.1. All records will be maintained for not less than ten (10) years.

L.2. Records will be maintained by the VCCDD Utility Department.

L.3. Records will be kept on items including, but not limited to:

a) Cross-Connection Survey Forms

b) Backflow Prevention Device-Installation Records

c) Backflow Prevention Device-Test and Maintenance Reports

d) Backflow Complaint and Emergency Work Orders

M. DEFINITIONS

AIR GAP: A physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved air-gap separation" shall be at least double the diameter of the supply pipe measured vertically above the top of the rim of the vessel. In no case shall it be less than 1 inch.

APPROVED: Accepted by VCCDD

AUXILIARY WATER SUPPLY: Any water supply on or available to the premises other than VCCDD approved potable water supply. These auxiliary waters may include water from another purveyor's potable water supply or any natural source(s) such as a well, spring, stream, river, harbor, etc., or "used waters" or "industrial fluids".

BACK PRESSURE: Any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration which would cause - or tend to cause - a reversal of the normal direction of flow through the backflow prevention assembly.

BACK-SIPHONAGE: A form of backflow due to a reduction in system pressure which causes a negative or sub-atmospheric pressure to exist at a site in the water system.

BACKFLOW: The undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the distribution pipes of the potable supply of water from any source or sources.

BACKFLOW PREVENTION DEVICE: A device or means designed to prevent back-pressure, back-siphonage, or backflow.

CONTAMINATION: An impairment of the quality of the potable water by sewage, industrial fluids or waste liquids, compounds or other materials to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease. (See also pollution.)

CROSS-CONNECTION: Any physical arrangement whereby a potable water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage or other waste or liquid of unknown or unsafe quality which may be capable of imparting contamination to the potable water supply as the result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeable devices and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross-connections.

CROSS-CONNECTION, CONTROLLED: A connection between a potable water system and a non-potable water system with an approved backflow prevention device

properly installed that will continuously afford protection against contamination or pollution commensurate with the degree of hazard.

CROSS-CONNECTION CONTROL BY CONTAINMENT: The installation of an approved backflow prevention device at the service connection to any Customer's premises where it is not physically and economically feasible to find and permanently eliminate or control all actual or potential cross-connections within the Customer's water system; or it shall mean the installation of an approved backflow prevention device on the service line leading to and supplying a portion of a Customer's water system where there are actual or potential cross-connections which cannot be effectively eliminated or controlled at the point of connection.

DOUBLE CHECK VALVE ASSEMBLY: An assembly composed of two single, independently acting, check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is 1 psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g., clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

DUAL CHECK VALVE ASSEMBLY: An assembly of two (2) spring loaded, independently operating check valves without tightly closing shut-off valves and test cocks, generally employed immediately downstream of the water meter to act as a containment device.

HAZARD, DEGREE OF: A measure of hazard derived from an evaluation of the potential risk to public health and the adverse affect of the hazard upon the potable water system.

HAZARD, HEALTH: Any condition, device or practice in the water supply system and its operation which could create, or in the judgment of VCCDD, may create a danger to the health and well-being of the water Consumer. An example of a health hazard is a structural defect, including cross-connections, in a water supply system.

HAZARD, PLUMBING: A plumbing type cross-connection in a Consumer's potable water system that has not been properly protected by a vacuum breaker, air-gap separation, or backflow prevention device. Unprotected plumbing type cross-connections are considered to be a health hazard.

HAZARD, POLLUTION: An actual or potential threat to the physical properties of the water system or to the potability of the Public or the Consumer's potable water system, but which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.

HAZARD, SYSTEM: An actual or potential threat of severe damage to the physical properties of the potable water system or the Consumer's potable water system or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.

INDUSTRIAL FLUIDS SYSTEM: Any system containing fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or

concentration such as would constitute a health, plumbing, pollution or system hazard if introduced into the public potable water supply. This may include, but not be limited to: polluted or contaminated waters; all types of process waters and "used waters" originating from the public potable water system which may have deteriorated in sanitary quality; chemicals in fluid form; plating acids and alkalies, circulated cooling waters connected to an open cooling tower and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural water such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc.; oils, gases, glycerine, paraffins, caustic and acid solutions and other liquids and gaseous fluids used for industrial or other purposes or for fire-fighting purposes.

POLLUTION: The presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

REDUCED PRESSURE ZONE BACKFLOW PREVENTER: A device containing within its structure a minimum of two (2) independently acting approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

WATER - NON-POTABLE: Water which is not safe for human consumption.

WATER - POTABLE: Any water which, according to recognized Standards, is safe for human consumption.

WATER PURVEYOR: The Owner or Operator of a Potable Water Utility supplying a potable water supply to the Public.

WATER SERVICE CONNECTIONS: The terminal end of a service connection from the potable water system; i.e., where VCCDD loses sanitary control over the water at its point of delivery to the Customer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream side of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the Customer's water system. Service connections shall also include water service connections from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

WATER - USED: Any water supplied by a Water Purveyor from a potable water system to a Consumer's water system after it has passed through the point of delivery and is no longer under sanitary control of the Water Purveyor.

APPENDIX A
FORMS

VCCDD WATER SYSTEM
CROSS-CONNECTION SURVEY FORM

ACCOUNT NUMBER: _____

DATE COMPLETED: _____

FACILITY NAME: _____

OWNER: _____

OWNER ADDRESS: _____

OWNER PHONE: ( ) _____ OWNER FAX: ( ) _____

FACILITY ADDRESS / LOCATION: _____

FACILITY PHONE: ( ) _____ FACILITY FAX: ( ) _____

TYPE OF FACILITY: _____

DESCRIBE ACTIVITIES AT THE FACILITY: _____

_____

_____

WATER SERVICE LINE SIZE (in): _____ WATER METER SIZE (in): _____

NOTE: Completion of this form in its entirety is required prior to initiation of water service

QUESTIONS	YES	NO
1. Is there another source of water to the property other than the service connection to the public potable supply i.e., a private well, lake, stream, river, pond, etc.?	( )	( )
2. Is there an irrigation system on the property?	( )	( )
3. Is the irrigation system on a separate metered connection?	( )	( )
4. Are there any facilities (such as a booster pump, pressure tank, etc.) that increase the water pressure to the facility or any portion thereof, above the supply pressure presently provided by the potable supply?	( )	( )
5. Are any toxic or non-toxic chemicals used in the operation?	( )	( )
6. Are any toxic or non-toxic chemicals stored at the facility?	( )	( )
7. Are any ejectors, aspirators, or pumps used in the operation?	( )	( )
8. Is any water recycled during the operation of an air conditioner or other equipment in your plant or building?	( )	( )
9. Are there any water supply lines submerged in tanks, vats, etc.?	( )	( )
10. Is there a fire stand-pipe or fire sprinkler system installed in the building?	( )	( )

PROVIDE APPROPRIATE DETAILS ON ALL QUESTIONS ANSWERED “YES”.

ATTACH ADDITIONAL SHEETS AS NECESSARY:

COMMENTS:

OWNER OR AGENT: _____ TITLE: _____

(Please Print)

SIGNATURE: _____ DATE: _____

Acknowledgement: By my signature above, I acknowledge receipt of the Village Center Community Development District, *Cross-Connection Control Handbook.* I further agree to be bound by the conditions and guidelines included therein.

Questions regarding completion of this form can be directed to Russ Vaughn at (352) 259-2802.

Upon completion of this form, please return the original to:

Village Center Community Development District
Attention: Backflow Prevention Program
3201 Wedgewood Lane
The Villages, Fl 32162
Fax: (352) 751-3911

VCCDD WATER SYSTEM
BACKFLOW PREVENTION DEVICE
INSTALLATION RECORD

ACCOUNT NUMBER: _____

DATE COMPLETED: _____

FACILITY NAME: _____

OWNER: _____

OWNER ADDRESS: _____

OWNER PHONE: ( ) _____ OWNER FAX: ( ) _____

FACILITY ADDRESS / LOCATION: _____

FACILITY PHONE: ( ) _____ FACILITY FAX: ( ) _____

LOCATION 1

WATER SERVICE DESCRIPTION (potable indoor, irrigation, pool make-up, etc.)

_____

WATER SERVICE LINE SIZE (in): _____ WATER METER SIZE (in): _____

BACKFLOW PREVENTION DEVICE:

Manufacturer: _____

Model Number: _____

Size (in): _____

Type (Double Check, Reduced Pressure Zone, etc): _____

LOCATION 2

WATER SERVICE DESCRIPTION (potable indoor, irrigation, pool make-up, etc.)

_____

WATER SERVICE LINE SIZE (in): _____ WATER METER SIZE (in): _____

BACKFLOW PREVENTION DEVICE:

Manufacturer: _____

Model Number: _____

Size (in): _____

Type (Double Check, Reduced Pressure Zone, etc): _____

Please attach additional sheets as necessary for additional water system service connections.

Completed forms shall be submitted to:

Village Center Community Development District
Attention: Backflow Prevention Program
3201 Wedgewood Lane
The Villages, Fl 32162
Fax: (352) 751-3911

VCCDD WATER SYSTEM
BACKFLOW PREVENTION DEVICE
TEST AND MAINTENANCE REPORT

ACCOUNT NUMBER: _____

DATE COMPLETED: _____

FACILITY NAME: _____

OWNER: _____

OWNER ADDRESS: _____

OWNER PHONE: ( ) _____ OWNER FAX: ( ) _____

FACILITY ADDRESS / LOCATION: _____

FACILITY PHONE: ( ) _____ FACILITY FAX: ( ) _____

LOCATION 1

LOCATION DESCRIPTION:

BACKFLOW PREVENTION DEVICE: METER INFORMATION:

Manufacturer: _____ Serial No. _____ Meter Size _____

Model Number: _____ Meter Serial No. _____

Size (in): _____ Water Usage Type: _____

Type (Double Check, Reduced Pressure Zone, etc): _____

DATE TESTED: _____ TESTED BY: _____

*ATTACH TEST RESULTS FROM A CERTIFIED BACKFLOW PREVENTION DEVICE TECHNICIAN.

DESCRIPTION OF MAINTENANCE / REPAIRS PERFORMED

*ATTACH COPY OF INVOICE OR REPORT FROM A CERTIFIED TECHNICIAN VERIFYING COMPLETION OF REQUIRED MAINTENANCE AND/OR REPAIR.

LOCATION 2

LOCATION DESCRIPTION:

BACKFLOW PREVENTION DEVICE: METER INFORMATION:

Manufacturer: _____ Serial No. _____ Meter Size _____

Model Number: _____ Meter Serial No. _____

Size (in): _____ Water Usage Type: _____

Type (Double Check, Reduced Pressure Zone, etc): _____

DATE TESTED: _____ TESTED BY: _____

*ATTACH TEST RESULTS FROM A CERTIFIED BACKFLOW PREVENTION DEVICE TECHNICIAN.

DESCRIPTION OF MAINTENANCE / REPAIRS PERFORMED

*ATTACH COPY OF INVOICE OR REPORT FROM A CERTIFIED TECHNICIAN VERIFYING COMPLETION OF REQUIRED MAINTENANCE AND/OR REPAIR.

Please attach additional sheets as necessary for additional water system service connections.

Completed forms shall be submitted to:

Village Center Community Development District
Attention: Backflow Prevention Program
3201 Wedgewood Lane
The Villages, Fl 32162
Fax: (352) 751-3911

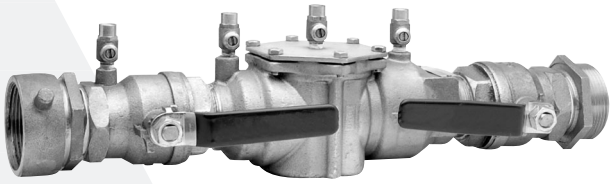
APPENDIX B
APPROVED BACKFLOW PREVENTION DEVICES & INSTALLATION DETAILS

DOUBLE CHECK VALVE ASSEMBLY

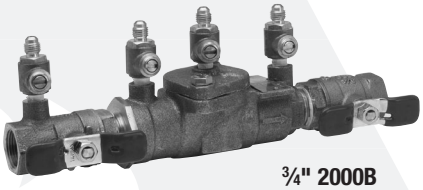
Series 2000B

Double Check Valve Assemblies

Sizes: 1½" – 2" (15 – 60mm)



2" 2000B HC (50mm)



¾" 2000B (20mm)

Features

- Ease of maintenance with only one cover
- Top entry
- Replaceable seats and seat discs
- Modular construction
- Compact design
- ½" – 2" (15 – 50mm) Cast bronze body construction
- Top mounted ball valve test cocks
- Low pressure drop
- No special tools required
- ½" – 1" (15 – 25 mm) have tee handles

Available Models

Suffix:

B - Quarter turn ball valves
LBV - less ball valves
LH - locking handle ball valves (open position)
SH - stainless steel ball valve handles
HC - 2½" inlet/outlet fire hydrant fitting (2" valve)

Prefix:

U - union connections

Pressure — Temperature

Temperature Range: 33°F – 140°F (5°C – 60°C)

Maximum Working Pressure: 175psi (12.06 bar)

Standards

AWWA Std. C510, IAPMO PS31

Series 2000B Double Check Valve Assemblies shall be installed at referenced cross-connections to prevent the backflow of polluted water into the potable water supply. Only those cross-connections identified by local inspection authorities as non-health hazard shall be allowed the use of an approved double check valve assembly.

Check with local authority having jurisdiction regarding vertical orientation, frequency of testing or other installation requirements.

These valves meet the requirements of ASSE Std. 1015 and AWWA Std. C510 and are approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Specifications

A Double Check Valve Assembly shall be installed at each noted location. The assembly shall consist of two positive seating check modules with captured springs and rubber seat discs. The check module seats and seat discs shall be replaceable. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves and four top mounted, resilient seated test cocks. The assembly shall meet the requirements of ASSE Std. 1015 and AWWA Std. C510. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. Assembly shall be an Ames Company Series 2000B.

Approvals

1015 **B64.5** **¾" - 2" (LBV Models Only)**

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

LBV models not listed.

Horizontal and vertical "flow up" approval on all sizes.

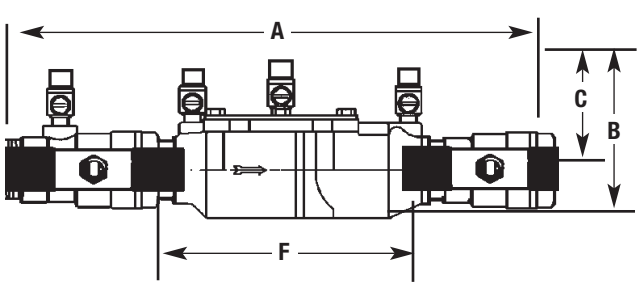
Job Name _____ Contractor _____

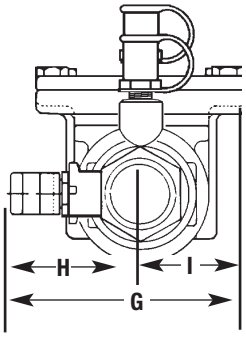
Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

Dimensions – Weights





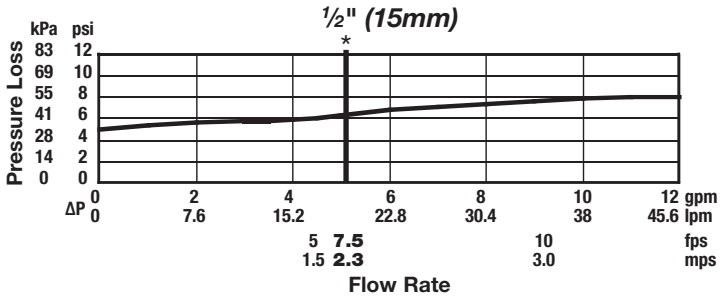
Suffix HC — Fire Hydrant Fittings dimension "A" = 23½" (594mm)

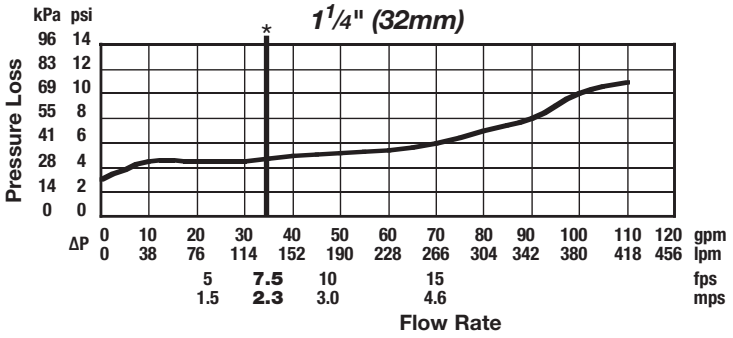
SIZE (DN)		DIMENSIONS														WEIGHT	
		A		B		C		F		G		H		I			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
½	15	10	254	4⅝	117	2 7/16	62	5	127	3⅜	85	2 5/16	59	2 1/16	52	4.5	2
¾	20	11⅛	282	4	102	3⅛	79	6 3/16	157	3 7/16	87	2⅛	54	1 5/16	33	5	2.3
1	25	13¼	337	5⅛	130	4	102	7½	191	3⅜	85	11 1/16	43	11 1/16	43	12	5.4
1¼	32	16⅜	416	5	127	3 5/16	84	9½	241	5	127	3	76	2	50	15	6.8
1½	40	16¾	425	4⅞	124	3½	89	9¾	248	5 13/16	148	3⅛	79	2 1/16	68	15.86	7.2
2	50	19½	495	6¼	159	4	102	13⅜	340	6⅛	156	3 7/16	87	2 1/16	68	25.75	11.7

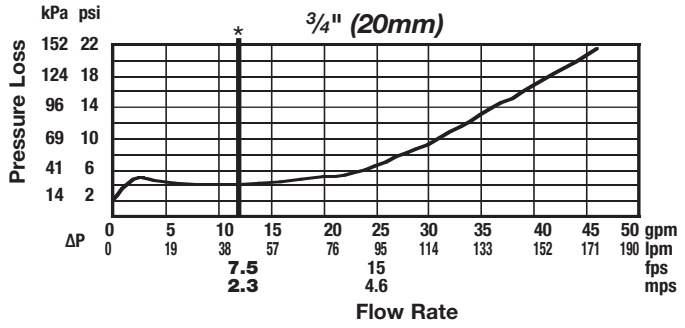
Strainer sold separately

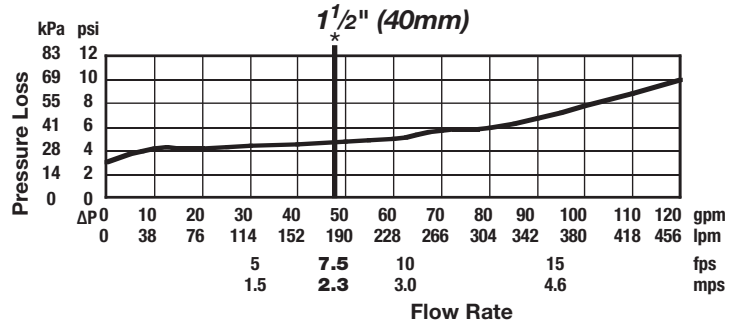
Capacities

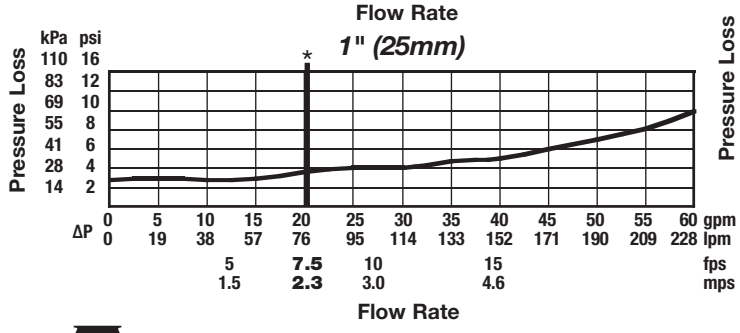
As compiled from documented Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California lab tests.
*Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)

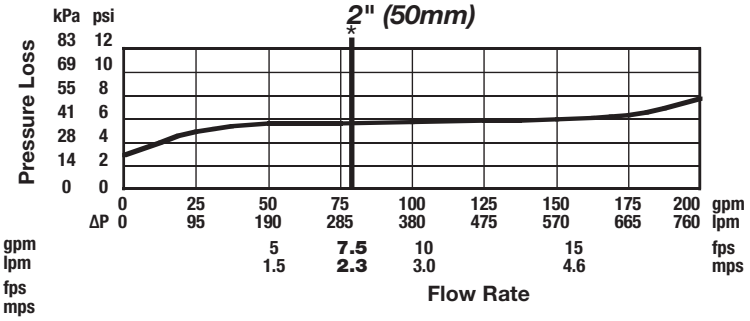












IMPORTANT: Inquire with governing authorities for local installation requirements.

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1427 North Market Blvd. • Suite #9 • Sacramento, CA 95834 • Phone: 916-928-0123 • Fax: 916-928-9333

Series 2000SS

Double Check Valve Assemblies

Sizes: 2½" – 12" (65 – 300mm)

Features

- Patented Cam-Check Assembly provides low head loss
- Short lay length is ideally suited for retrofit installations
- Stainless Steel body is half the weight of competitive designs reducing installation and shipping cost
- Stainless steel construction provides long term corrosion protection and maximum strength
- Single top access cover with two-bolt grooved style coupling for ease of maintenance
- No special tools required for servicing
- Compact construction allows for smaller vaults and enclosures
- May be installed in horizontal or vertical "flow up" position

Available Models

Suffix:

NRS – non-rising stem resilient seated gate valves

OSY – UL/FM outside stem and yoke resilient seated gate valves

*OSY FxG – flanged inlet gate connection and grooved outlet gate connection

*OSY GxF – grooved inlet gate connection and flanged outlet gate connection

*OSY GxG – grooved inlet gate connection and grooved outlet gate connection

LG – less gates

Available with grooved NRS gate valves - consult factory*

Post indicator plate and operating nut available – consult factory*

*Consult factory for dimensions

Materials

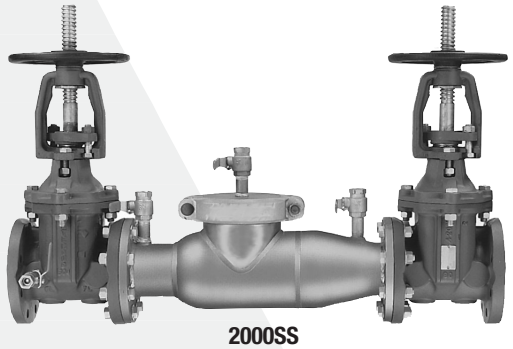
All internal metal parts: 300 Series stainless steel

Main valve body: 300 Series stainless steel

Check assembly: Noryl®

Flange dimension in accordance with AWWA Class D

Noryl® is a registered trademark of General Electric Company.



2000SS

Series 2000SS Double Check Valve Assemblies are designed to prevent the reverse flow of polluted water from entering into the potable water system. This series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. Features short end-to-end dimensions, lightweight stainless steel body, and low head loss.

Specifications

A Double Check Valve Assembly shall be installed at each noted location to prevent the unwanted reversal of polluted water into the potable water supply. The main valve body shall be manufactured from 300 series stainless steel to provide corrosion resistance, 100% lead free through the waterway. The double check shall consist of two independently operated spring loaded cam-check valves, required test cocks, and optional inlet and outlet resilient seated shutoff valves. Each cam-check shall be internally loaded and provide a positive drip tight closure against the reverse flow of liquid caused by backsiphonage or backpressure. The modular cam-check includes a stainless steel spring and cam-arm, rubber faced disc and a replaceable seat. There shall be no brass or bronze parts used within the cam-check valve assembly. The valve cover shall be held in place through the use of a single grooved style two-bolt coupling. The main assembly shall consist of two independently operating torsion spring check assemblies, two resilient seated isolation valves, and four ball valve type test cocks. The assembly shall be an Ames Company Series 2000SS.

Pressure — Temperature

Temperature Range: 33°F – 110°F (5°C – 43°C)

Maximum Working Pressure: 175psi (12.06 bar)

Standards

AWWA C510-92, CSA B64.5

Approvals

1015 (OSY ONLY) For 12" approvals consult factory

Job Name _____ Contractor _____

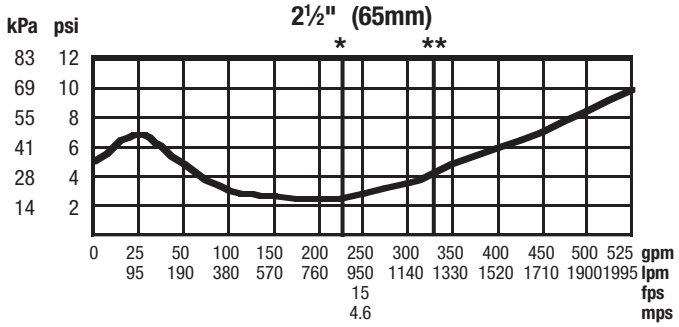
Job Location _____ Approval _____

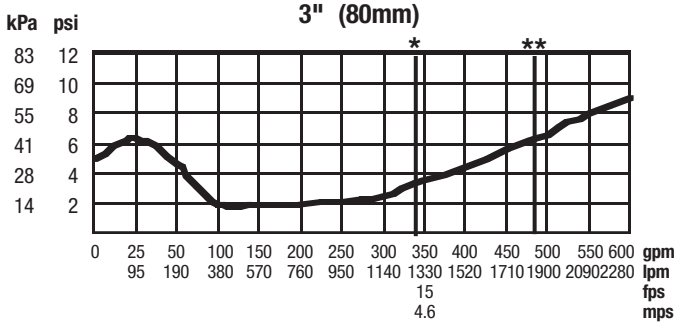
Engineer _____ Contractor's P.O. No. _____

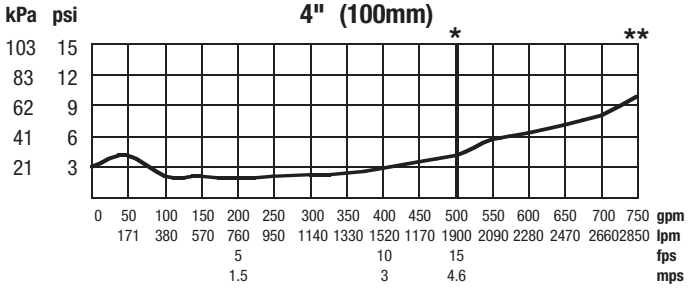
Approval _____ Representative _____

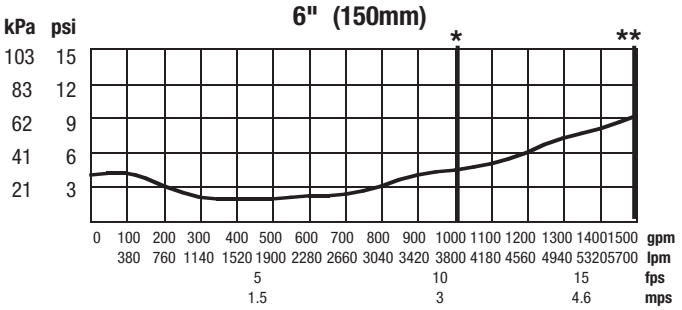
Capacities

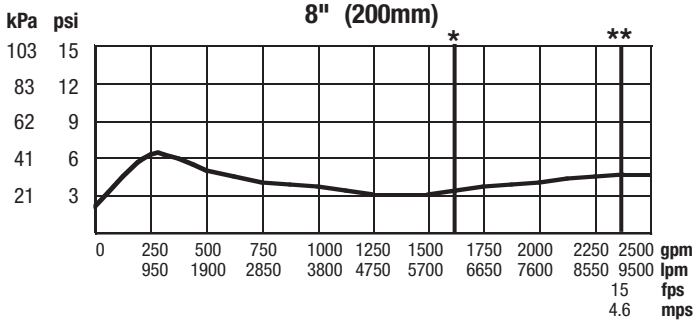
Rated working pressure 175psi (12.06 bar) * Rated flow **UL Tested

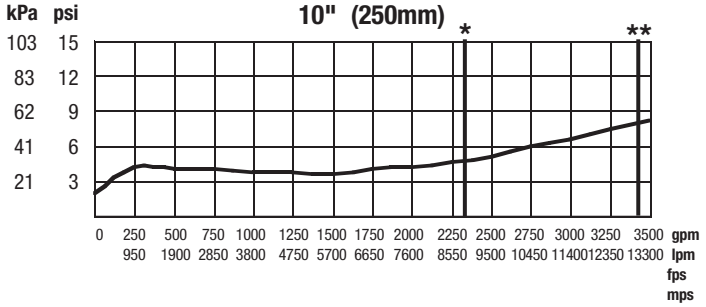


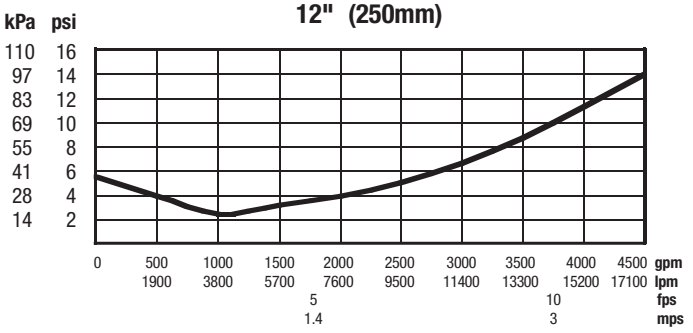




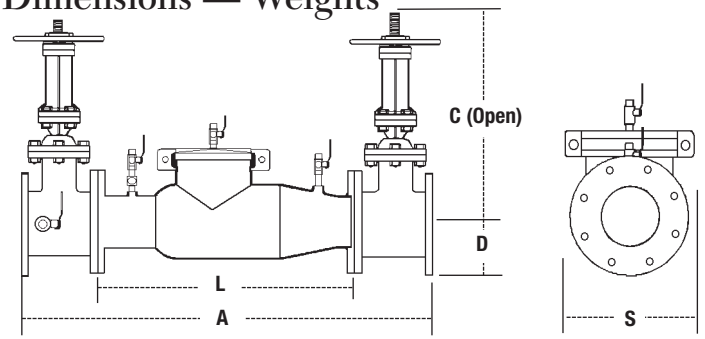








Dimensions — Weights



SIZE (DN)		DIMENSIONS												WEIGHT			
		A		C (OSY)		C(NRS)		D		L		S		w/Gates		w/o Gates	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*	*lb.*	*kg.*
2½	65	37	965	16⅜	416	9⅜	238	3½	89	22	559	7	178	140	64	53	24
3	80	38	965	18⅞	479	10¼	260	3¾	95	22	559	7½	191	215	98	55	25
4	100	40	1016	22¾	578	12^{3}⁄$_{16}$	310	4½	114	22	559	9	229	225	102	58	26
6	150	48½	1232	30⅛	765	16	406	5½	140	27½	699	11	279	375	170	105	48
8	200	52½	1334	37¾	959	19^{15}⁄$_{16}$	506	6¾	171	29½	749	13½	343	561	254	169	77
10	250	55½	1410	45¾	1162	23^{13}⁄$_{16}$	605	8	200	29½	749	16	406	763	346	179	81
12	300	57½	1461	53⅛	1349	26¾	679	9½	241	29½	749	19	483	1033	469	209	95

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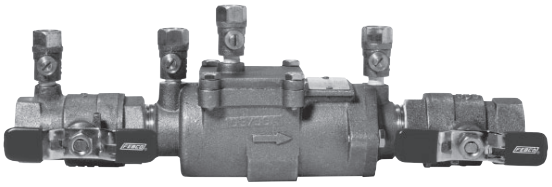
SPECIFICATION SHEET

Series 850

Double Check Valve Assemblies

Size: ½" - 2" (15mm - 50mm)

The FEBCO Series 850 Double Check Valve Assemblies are designed for non-health hazard applications. End Connections – NPT ANSI / ASME B1.20.1



Series 850

Pressure – Temperature

Max. Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32°F to 140°F (0°C to 60°C)

Materials

Valve Body:	Bronze
Elastomers:	Silicone
Springs:	Stainless Steel

Models

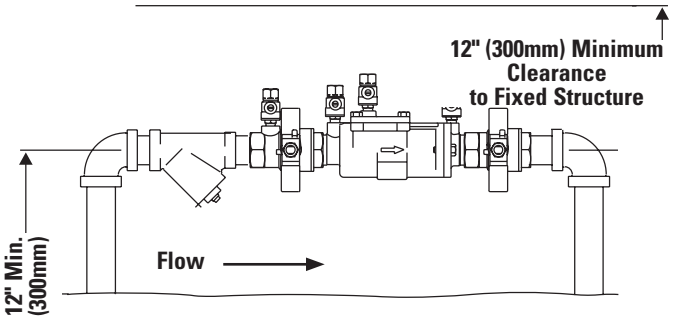
- Wye - Strainer

Approvals – Standards

- ANSI/AWWA Conformance (C510-92)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

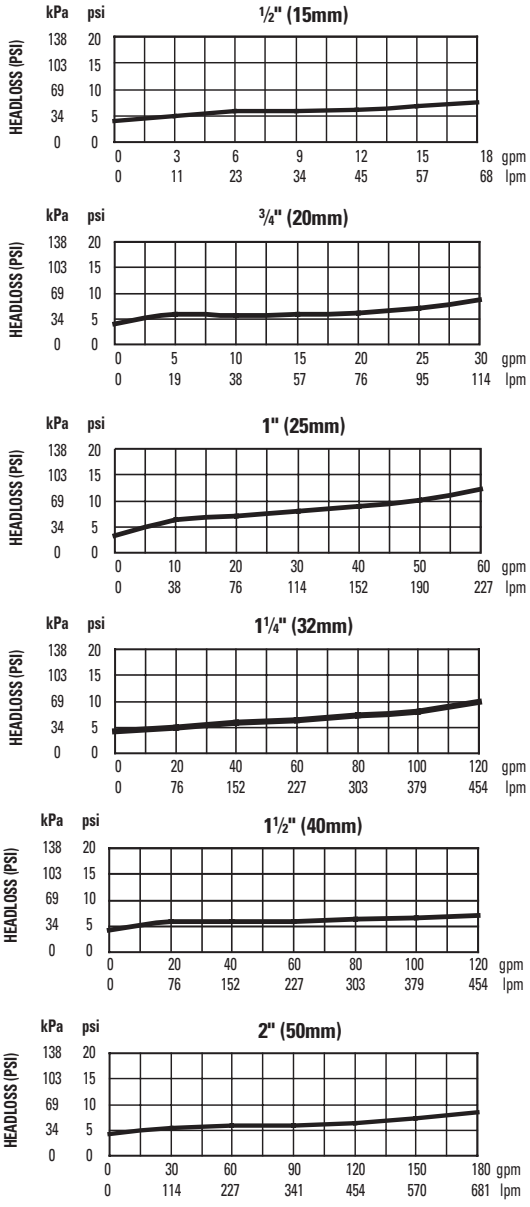
ASSE 1015 CSA B64.5

Typical Installation



Series 850 ½" - 2" (15-50mm)
Outdoor Installation

Capacity

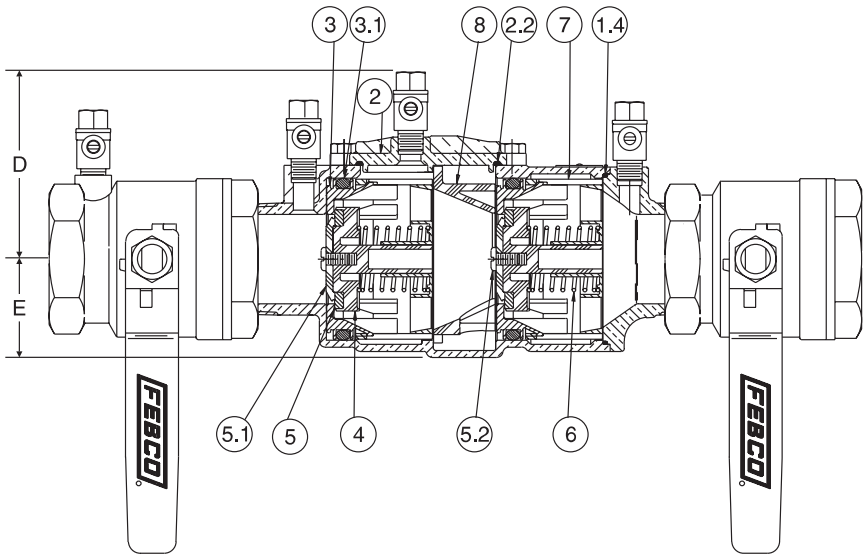


Job Name _____ Contractor _____

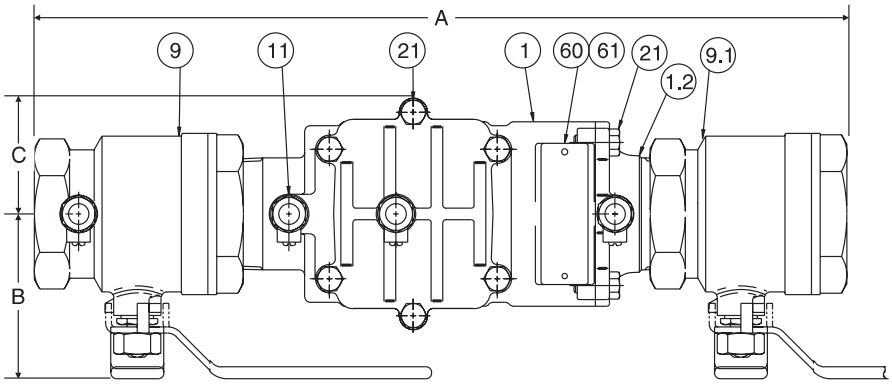
Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

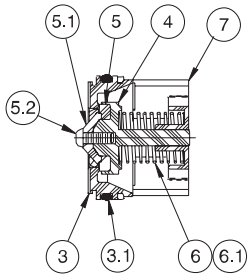
Approval _____ Representative _____



ITEM	DESCRIPTION	MATERIALS
1	Body	Bronze
1.2	Tailpiece	Bronze
1.4	O-Ring	Silicone
2	Cover	Bronze
2.2	O-Ring	Silicone
3	Seat	Noryl®
3.1	O-Ring	Silicone
4	Poppet	Noryl®
5	Seat Disc	Silcone
5.1	Disc Retainer	Noryl®
5.2	Rnd HD Screw	Stainless Steel
6	Spring	Stainless Steel
7	Guide	Noryl®
8	Retainer Spacer	Noryl®
9	Ball Valve (w/tap)	Bronze
9.1	Ball Valve	Bronze
11	Test Cock	Bronze
21	Hex HD Capscrew	Stainless Steel
60	Identification Plate	Brass
61	Drive Screw Stick	Stainless Steel



Check Assembly



Dimensions and Weights

Size: ½" - 2" (15 - 50mm)

SIZE (DN)		DIMENSIONS										WEIGHT	
		A		B		C		D		E			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
½	15	10	254	1½	38	1½	38	3⅛	79	1¼	32	4.2	1.9
¾	20	10¾	273	1½	38	1½	38	3⅛	79	1¼	32	4.4	2.0
1	25	12½	318	1⅞	48	1⅝	41	3⅜	86	1½	38	6.8	3.1
1¼	32	15⅞	403	3	76	2½	64	4¼	108	2¼	57	15.8	7.2
1½	40	16⅜	416	3	76	2½	64	4¼	108	2¼	57	16.2	7.4
2	50	17⅝	450	3½	89	2½	64	4¼	108	2¼	57	21.1	9.6

Note: Dimensions are nominal. Allowances must be made for normal manufacturing tolerances.

FEBCO®

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A Division of Watts Water Technologies, Inc.
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Canada: 5435 North Service Rd. • Burlington, ONT. • L7L 5H7 • Tel. (905) 332-4090 • Fax: (905) 332-7068 • www.FEBCOonline.ca

SPECIFICATION SHEET

FEBCO®

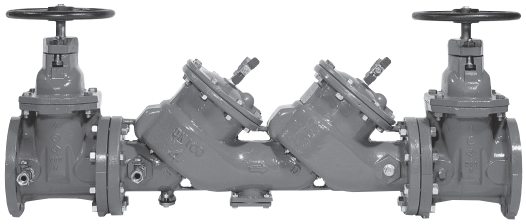
MASTER series®

MasterSeries® 850

Double Check Valve Assemblies

Size: 2½" - 10" (65mm - 250mm)

The FEBCO Master Series® 850 Double Check Valve Assemblies are designed for non-health hazard applications.
End Connections – Flanged ANSI B16.1 Class 125



Model 850 Double Check Assembly
U.S. Patent No. 4,989,635

Pressure – Temperature

Max. Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32°F to 140°F (0°C to 60°C)

Materials

Main Valve Body:	Ductile iron Grade 65-45-12
Coating:	Fusion epoxy coated internal and external AWWA C550-90
Shutoff Valves:	NRS resilient wedge gate valves AWWA C509
Trim:	Bronze
Elastomer Discs:	EPDM
Spring:	Stainless steel
Clamp:	AWWA C606

Approvals – Standards

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. - 2½" - 8" (65 - 80mm) (Horizontal & Vertical Up)
- ANSI/AWWA (C510) - 2½" - 8" (Horizontal & Vertical Up), 10" (Horizontal)

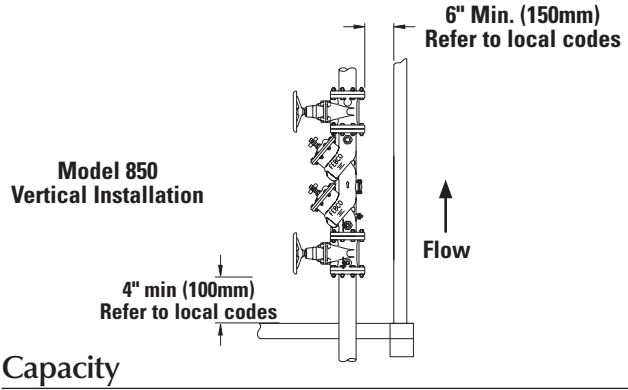
ASSE 1015
2½" - 8" (65 - 200mm) (Horizontal & Vertical up) 10" (250mm) (Horizontal)

CSA B64.5
CLASSIFIED C UL US
FM Approved
2½" - 8" (65 - 200mm) (Horizontal & Vertical up)

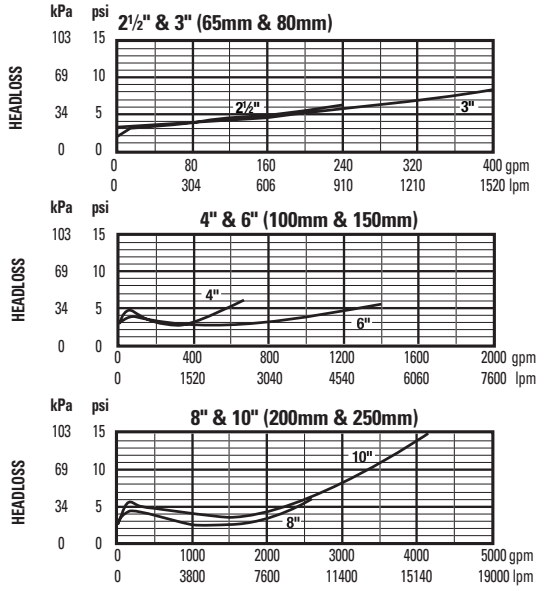
* Less gates not FM approved. Less gates not UL Classified unless installed with UL listed gate valves.

Models

- UL/FM OS&Y RW Gate Valves
- Wye-Strainer



Capacity



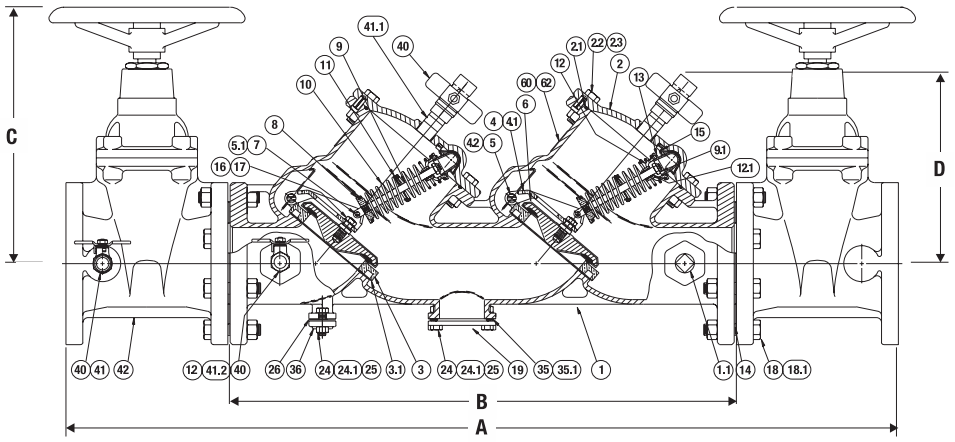
Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

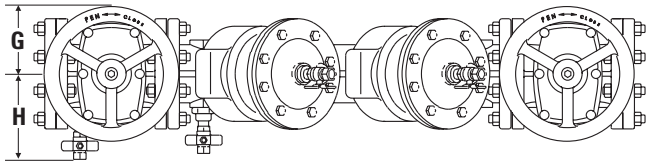
Approval _____ Representative _____

Model 850 / Materials of Construction



ITEM	DESCRIPTION	MATERIAL
1	Body	A536 GR 65-45-12
1.1	Pipe Plug	Galv. Steel
1.2	Bushing (21/2 -4 only)	Brass
2	Cover	A536 GR 65-45-12
2.1	O-Ring	EPDM ASTM D2000
2.2	Cap Screw	Plated Steel
2.3	Hex Nut	Plated Steel
3	Seat Ring	B584 Alloy C83600
3.1	Gasket	EPDM ASTM D2000
4	Arm	B584 Alloy C83600
4.1	Bushing-Swing Pin	Acetal Resin
4.2	Swing Pin	304 SS
5	Retaining Clip	302 SS
5.1	Retaining Clip	302 SS
6	Check Disk Assy	EPDM Coated GR, 45 Ductile Iron with type 304 SS stem
7	Load Pin	304 SS
8	Lwr Spring Retnr	B584 Alloy C83600
9	Spring Stem	304 SS
9.1	Elastic Stop Jam Nut	18-8 SS
10	Spring	A313 Type 631 SS
11	Spring Guide	B130 Alloy C22000
12	Upr Spring Retnr	B584 Alloy C83600
12.1	Bushing-Spr. Stem	Acetal Resin
13	Pivot Bearing	B585 Alloy C83600
14	Flange Gasket	Rubber/Fabric
15	Bearing Socket	Acetal Resin
16	Hex Jam Nut	18-8 SS
17	Washer	302 SS
18	Flange Nut	Plated Steel
18.1	Flange Nut	Plated Steel
19	Cover	A36 Stl Epoxy Coated
24	Bolt	Plated Steel
24.1	Washer	Plated Steel
25	Nut	Plated Steel
26	Gasket	EPDM ASTM D2000
35	O-Ring	EPDM ASTM D2000
35.1	Back-Up Ring	Acetal Resin
36	Cover	B584 Alloy C83600
40	Ball Valve	B584 Alloy C84400
41	Nipple	Brass
41.1	Nipple	Brass
41.2	Nipple	Brass
42	Gate Valve	AWWA C509
60	Id Plate	B36 Alloy C26000
62	Drive Screw	SS
70	Clamp (10" Only, Not Shown Above)	AWWA 606

Top View



Dimensions and Weights

Size: 2½" - 10" (65 - 250mm)

SIZE (DN)		DIMENSIONS															
		A		B		C*		D		G		H		NRS		OS&Y	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*	*lbs.*	*kgs.*
2½	65	40¾	1035	25½	648	12⅝	321	10	254	4½	114	7⅛	181	199	90	203	92
3	80	41⅞	1064	25⅝	651	12⅞	327	10	254	4½	114	7⅜	187	211	96	213	97
4	100	46¼	1175	28	711	14⅜	365	10⅛	257	5½	140	8⅛	206	288	131	312	142
6	150	56	1422	34¾	883	18⅞	479	12¾	324	6½	165	9⅞	251	450	204	494	224
8	200	65	1651	41¾	1061	23½	597	15⅝	397	7	178	11⅛	283	711	323	773	351
10	250	72⅝	1845	46⅜	1178	27½	699	15⅝	397	9	229	12⅜	314	980	445	1080	490

* With NRS Gate Valves

Note: Dimensions shown are nominal. Allowances must be made for normal manufacturing tolerances.

FEBCO®

MASTER series®

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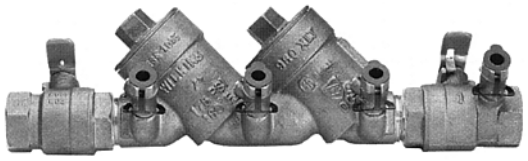
WILKINS
a ZURN company

Model 950XLT
Top Access Double Check Valve Assembly

SPECIFICATION SUBMITTAL SHEET



APPLICATION

Designed for installation on potable water lines to protect against both backsiphonage and backpressure of polluted water into the potable water supply. A tethered test cock cap is provided to protect against fouling caused by insects, dirt and debris. Assembly shall provide protection where a potential non-health hazard exists.

FEATURES

Sizes: ❑3/4" ❑ 1" ❑ 1 1/4" ❑ 1 1/2" ❑ 2"

Maximum working water pressure	175 PSI
Maximum working water temperature	180°F
Hydrostatic test pressure	350 PSI
End connections Threaded	ANSI B1.20.1

STANDARDS COMPLIANCE

(unless otherwise noted, applies to 3/4" thru 2" Horizontal)

- ASSE® Listed 1015 (Vertical flow-up:1 1/4" thru 2")
- IAPMO® Listed
- AWWA Compliant C510
- CSA® Certified (Vertical flow-up:1 1/2" & 2")
- Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California

OPTIONS

(Suffixes can be combined)

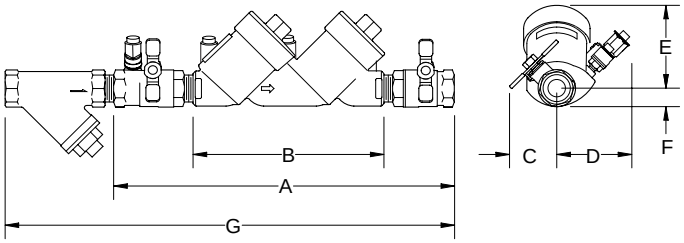
- ❑ L - less ball valves
- ❑ FT - with "Fast Test" testcocks
- ❑ U - with union ball valves
- ❑ S - with bronze "Y" type strainer

MATERIALS

Main valve body	Cast Bronze ASTM B 584
Access covers	Cast Bronze ASTM B 584
Fasteners	Stainless Steel, 300 Series
Elastomers	Silicone (FDA approved) Buna Nitrile (FDA approved)
Polymers	Noryl™, NSF Listed
Springs	Stainless steel, 300 series
Test cock cover	Plastic

ACCESSORIES

- ❑ Repair kit (rubber only)
- ❑ Thermal expansion tank (Model WXTP)
- ❑ Bronze wye strainer
- ❑ Stainless steel ball valve handles
- ❑ QT-SET Quick Test Fitting Set
- ❑ Test Cock Lock (Model TCL24)

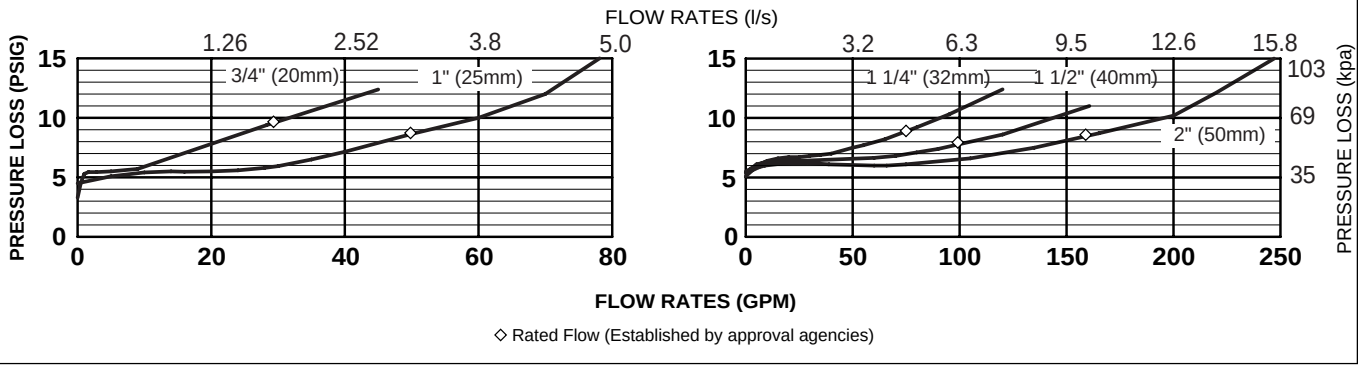


DIMENSIONS & WEIGHTS (do not include pkg.)

MODEL SIZE		DIMENSIONS (approximate)																WEIGHT			
		A		A UNION BALL		B LESS BALL		C		D		E		F		G		LESS BALL		WITH BALL	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	lbs.	kg
3/4	20	13	330	14 5/16	364	8 3/4	222	2 3/8	60	2 5/16	59	3 5/16	84	3/4	19	17 5/8	448	4	1.8	6	2.7
1	25	14	356	15 3/4	400	8 3/4	222	2 1/2	64	2 5/16	59	3 5/16	84	3/4	19	19 3/4	502	8	3.6	12	5.4
1 1/4	32	19 5/8	499	21 5/8	549	13 3/4	349	4	102	3 5/8	92	4 3/8	111	1 5/16	33	24 3/4	629	16	7.3	22	10
1 1/2	40	20 5/16	516	22 5/16	567	13 3/4	349	5 3/8	137	3 5/8	92	4 3/8	111	1 5/16	33	25 15/16	659	16	7.3	22	10
2	50	21 3/8	543	23 1/4	591	13 3/4	349	5 13/16	148	3 5/8	92	4 3/8	111	1 5/16	33	28 5/16	719	17	7.7	29	13.2

FLOW CHARACTERISTICS

MODEL 950XLT 3/4", 1", 1 1/4", 1 1/2" & 2" (STANDARD & METRIC)

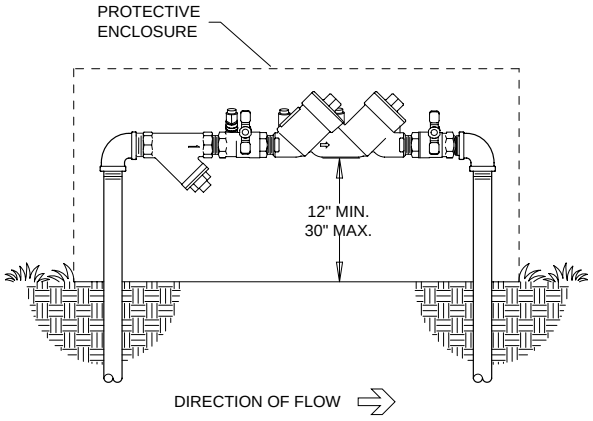


◇ Rated Flow (Established by approval agencies)

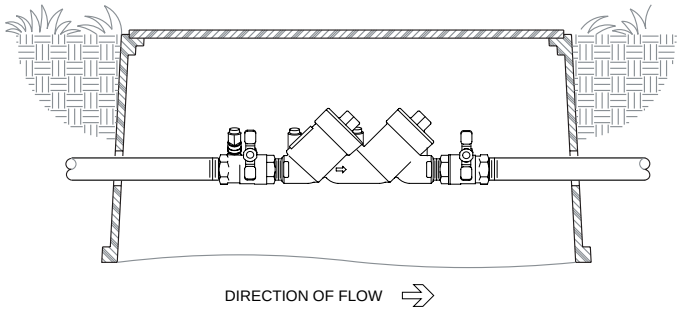
TYPICAL INSTALLATION

Local codes shall govern installation requirements. To be installed in accordance with the manufacturer's instructions and the latest edition of the Uniform Plumbing Code. Unless otherwise specified, the assembly shall be mounted at a minimum of 12" (305mm) and a maximum of 30" (762mm) above adequate drains with sufficient side clearance for testing and maintenance. The installation shall be made so that no part of the unit can be submerged.

Capacity thru Schedule 40 Pipe				
Pipe size	5 ft/sec	7.5 ft/sec	10 ft/sec	15 ft/sec
1/8"	1	1	2	3
1/4"	2	2	3	5
3/8"	3	4	6	9
1/2"	5	7	9	14
3/4"	8	12	17	25
1"	13	20	27	40
1 1/4"	23	35	47	70
1 1/2"	32	48	63	95
2"	52	78	105	167



OUTDOOR INSTALLATION



PIT INSTALLATION

SPECIFICATIONS

The Double Check Type Backflow Preventer shall be ASSE Listed 1015, rated to 180°F and supplied with full port ball valves. The main body and access covers shall be bronze (ASTM B 584), the seat ring and all internal polymers shall be NSF® Listed Noryl™ and the seat disc elastomers shall be SILICONE. The first and second check shall be located at a 45° angle and accessible for maintenance from the top of the device, without removing the device from the line. Each check shall have separate access covers and testcocks shall be accessible from the top of the device. Testcocks shall be protected from debris by a tethered cap. The Double Check Type Backflow Preventer shall be a WILKINS Model 950XLT.

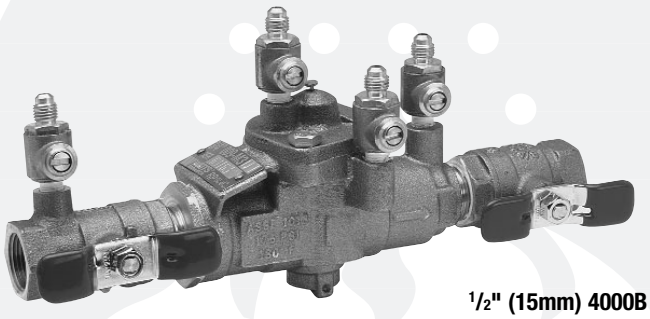
WILKINS OPERATION OF ZURN INDUSTRIES, 1747 Commerce Way, Paso Robles, CA 93446 Phone:805/238-7100 Fax:805/238-5766
IN CANADA: ZURN INDUSTRIES LIMITED, 3544 Nashua Dr., Mississauga, Ontario L4V 1L2 Phone:905/405-8272 Fax:905/405-1292
Product Support Help Line: 1-877-BACKFLOW (1-877-222-5356) • **Website:** http://www.zurn.com

REDUCED PRESSURE ZONE ASSEMBLY

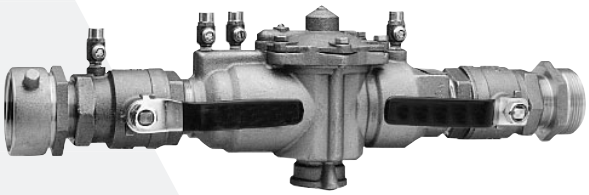
Series 4000B

Reduced Pressure Zone Assemblies

Sizes: ½" – 2" (15 – 50mm)



1/2" (15mm) 4000B



2" (50mm) 4000B-HC

Features

- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability - ½" to 2" (15-50mm)
- Ball valve test cocks - screwdriver slotted -½" to 2" (15-50mm)
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing

Series 4000B Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross connections in piping systems or for containment at the service line entrance.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes ½"- 1" (15-25mm) shutoffs have tee handles.

Specifications

A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC Manual 8th Edition†; ASSE Std. 1013; AWWA Std. C511; CSA B64.4. The assembly shall be an Ames Company Series 4000B.

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

Materials

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable stainless steel relief valve seat. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (½" - 2")(15-50mm). Series 4000B furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

Standards

AWWA C511-92, USC Manual 8th Edition, IAPMO File No. 1563

Approvals

1013 **B64.4** **¾" - 2" (20-50mm) (LBV models only)**

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Approval models QT, U.

Pressure — Temperature

Suitable for supply pressures up to 175psi (12.06 bar) and water temperature to 180°F (75°C) continuous.

Available Models

Suffix:

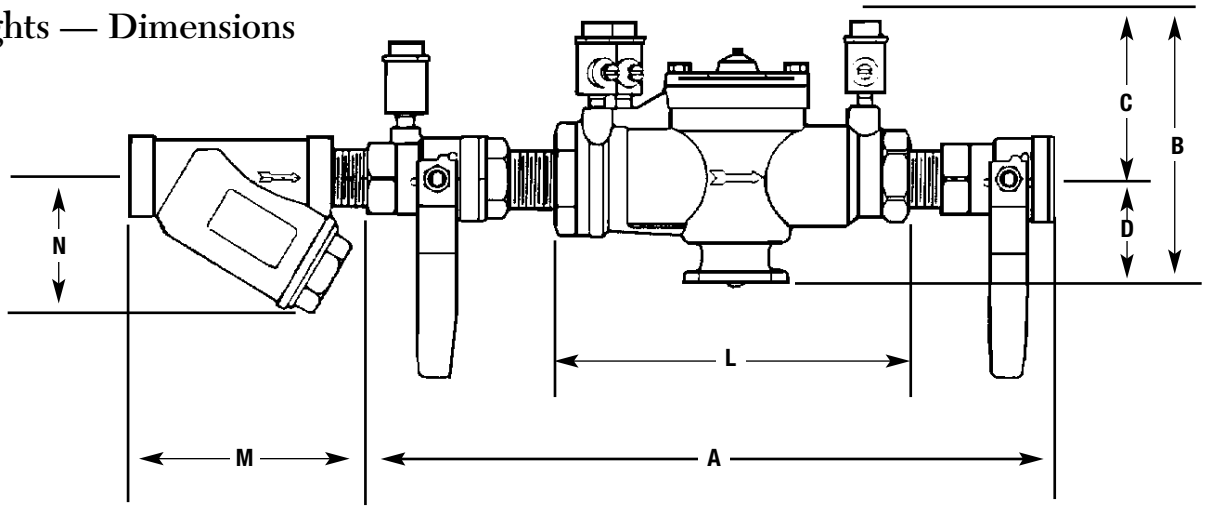
- B - quarter-turn ball valves
- LBV - less ball valves
- LH - locking handle ball valves (open position)
- SH - stainless steel ball valve handles
- HC - 2½" inlet/outlet fire hydrant fitting (2" valve)
- S - bronze strainer

Prefix:

- U - union connections

IMPORTANT: Inquire with governing authorities for local installation requirements.

Weights — Dimensions



Suffix HC - Fire Hydrant Fittings dimension "A" = 25 1/16 (637mm)

MODEL	SIZE (DN)		DIMENSIONS										STRAINER DIMENSIONS				WEIGHT	
			A		B		C		D		L		M		N			
	in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kg.*
4000B**	½	15	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	3	76	2	51	4.50	2.0
4000B M3**	¾	20	10¾	273	5	127	3½	89	1½	38	6¾	171	3 5/16	84	2 5/16	59	5.75	2.6
4000B M2**	1	25	16¾	425	5½	140	3	76	2½	64	9½	241	4½	114	2 5/16	59	12.25	5.6
4000B**	1¼	32	17⅜	44	116	150	3½	89	2½	64	11⅜	289	5⅛	130	3⅛	79	14.62	6.6
4000B**	1½	40	17⅞	454	6	150	3½	89	2½	64	11⅛	283	5⅞	149	3¾	95	16.32	7.4
4000B**	2	50	21⅜	543	7¾	197	4½	114	3¼	83	13½	343	6 3/16	157	4⅞	124	30.00	13.6

Strainer sold separately

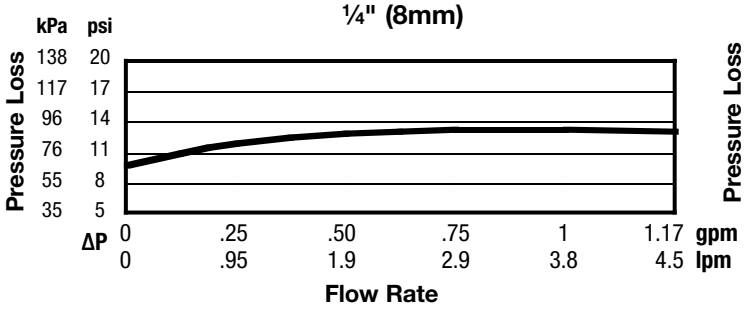
****Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.**

Capacity

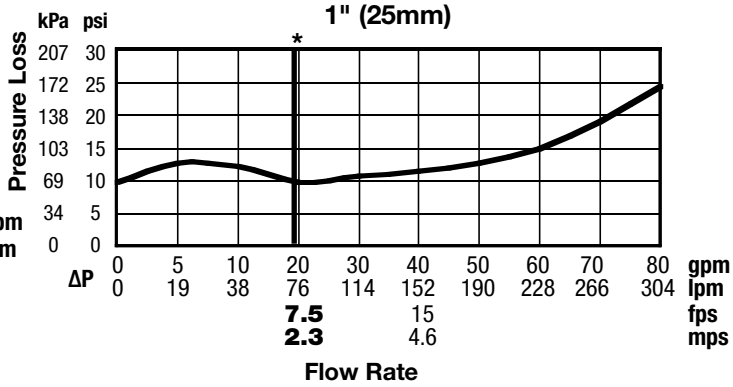
Performance as established by an independent testing laboratory.

*Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)

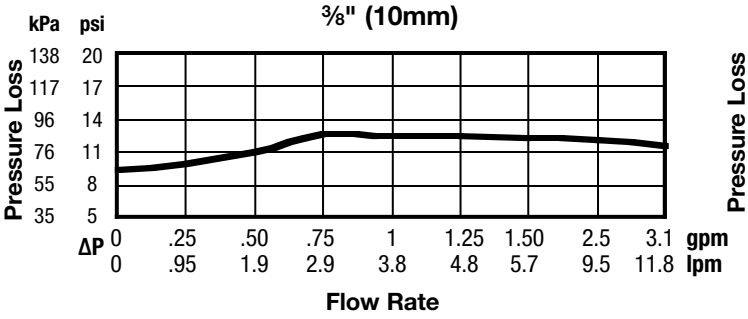
¼" (8mm)



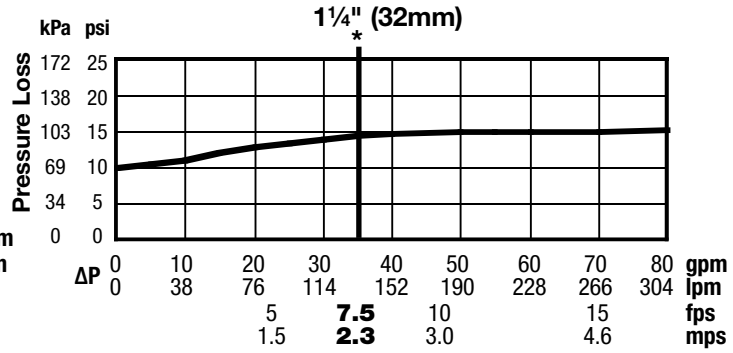
1" (25mm)



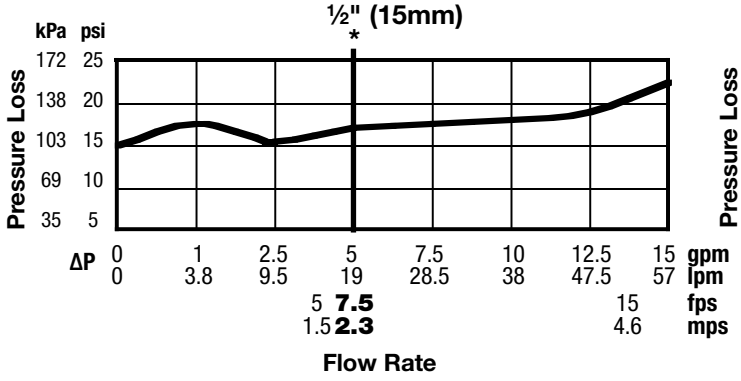
⅜" (10mm)



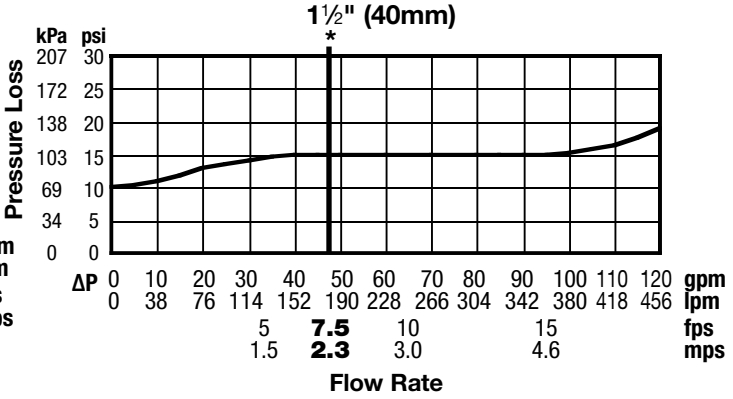
1¼" (32mm)



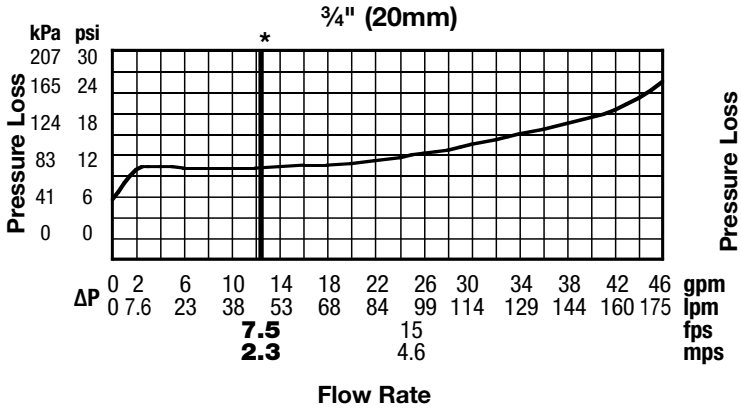
½" (15mm)



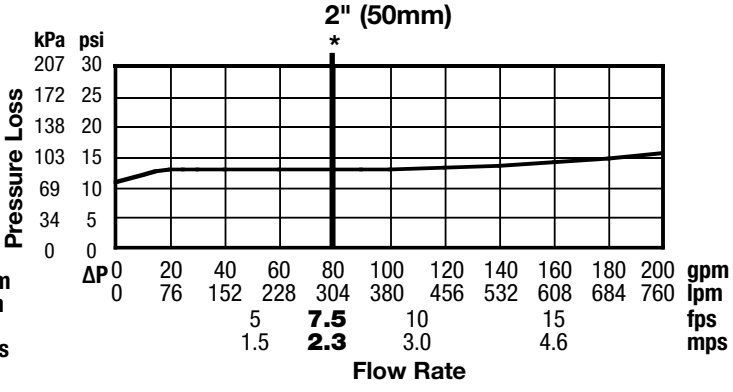
1½" (40mm)



¾" (20mm)



2" (50mm)



For additional information, visit our web site at: www.amesfirewater.com

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ES-A-4000B 0625

Series 4000SS

Reduced Pressure Zone Assemblies

Sizes: 2½" – 10" (65 – 250mm)

Features

- Stainless steel construction provides long term corrosion resistance and maximum strength
- Stainless steel body is half the weight of competitive designs reducing installation & shipping costs
- Short end-to-end dimensions makes retrofit easy
- Patented cam-check assembly provides maximum flow at low pressure drop
- No special tools required for servicing
- Compact construction allows for smaller enclosures
- Stainless steel relief valve features a balanced rolling diaphragm to eliminate sliding seals and lower maintenance costs

4000SS OSY

Series 4000SS Reduced Pressure Zone Assemblies are designed to provide protection of the potable water supply in accordance with national codes. This series can be used where approved by the local authority having jurisdiction on health hazard cross connections. Series 4000SS features short lay length, lightweight stainless steel body, corrosive resistant stainless steel relief valve, and patented cam-check assembly.

Materials

All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl®
Flange dimension in accordance with AWWA Class D

Pressure — Temperature

Temperature Range: 33°F – 110°F (5°C – 43°C)
Maximum Working Pressure: 175psi (12.06 bar)

Available Models

Suffix:

- NRS – non-rising stem resilient seated gate valves
- OSY – UL/FM outside stem and yoke resilient seated gate valves
- *OSY FxG – flanged inlet gate connection and grooved outlet gate connection
- *OSY GxF – grooved inlet gate connection and flanged outlet gate connection
- *OSY GxG – grooved inlet gate connection and grooved outlet gate connection
- LG – less gates

Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available – consult factory*

*Consult factory for dimensions

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. The 4000SS should be installed with a minimum clearance of 12" between lowest point of the assembly and the floor drain or grade.

Specifications

A Reduced Pressure Zone Assembly shall be installed at each cross-connection to prevent backsiphonage and backpressure of hazardous materials into the potable water supply. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating cam-check assemblies. The main valve body shall be manufactured from 300 Series stainless steel for corrosion resistance. The cam-check assembly shall be of thermoplastic construction with stainless steel hinge pins, cam arm, and cam bearing. The cam-check assembly shall utilize a single torsion spring design to minimize pressure drop through the assembly. The cam-check assembly shall be modular and shall seal to the main valve body by the use of an O-ring. There shall be no brass or bronze parts used within the check assembly or relief valve. The use of seat screws to retain the check valve seat is prohibited. All internal parts shall be accessible through a single cover on the valve assembly securely held in place by a two-bolt grooved coupling. The differential relief valve shall be of stainless steel construction and shall utilize a rolling diaphragm and no sliding seals. The relief valve shall be bottom mounted and supplied with a steel reinforced sensing hose. The assembly shall include two resilient seated shutoff valves & four ball type test cocks. The assembly shall be an Ames Company Series 4000SS.

Standards

AWWA C511-92

Approvals

1013 | B64.5 | Sizes 2½" – 10", OSY only | OSY only

Note: When installing a drain line on Series 4000SS backflow preventer, use air gap.
See Literature ES-A-AG/EL/TC for additional information.

Job Name _____ Contractor _____

Job Location _____ Approval _____

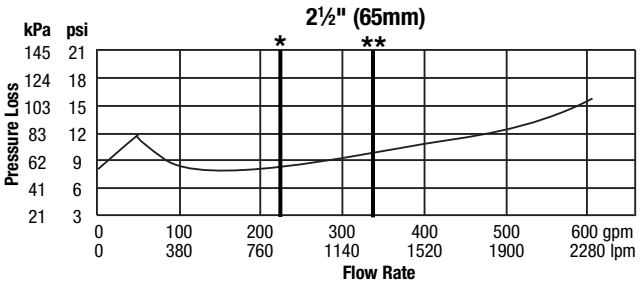
Engineer _____ Contractor's P.O. No. _____

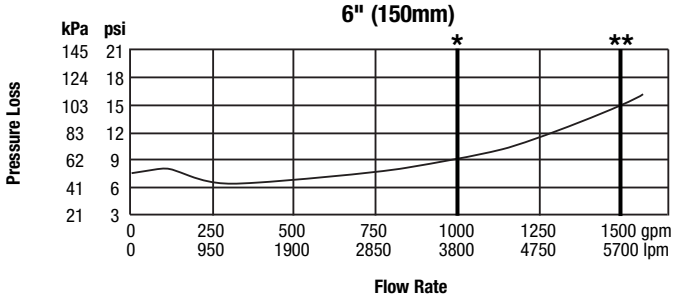
Approval _____ Representative _____

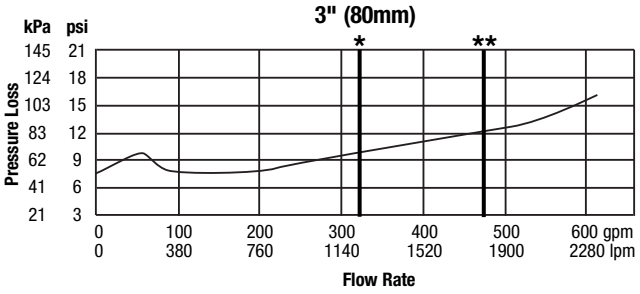
Capacity

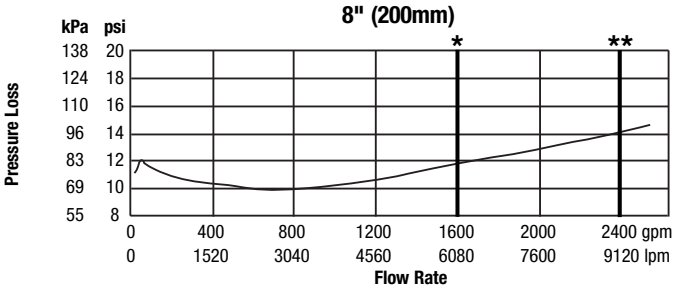
Series 4000SS performance as established by an independent testing laboratory (1996 UL). UL certified flow characteristics.
Documented flow characteristics (including shutoff valves).

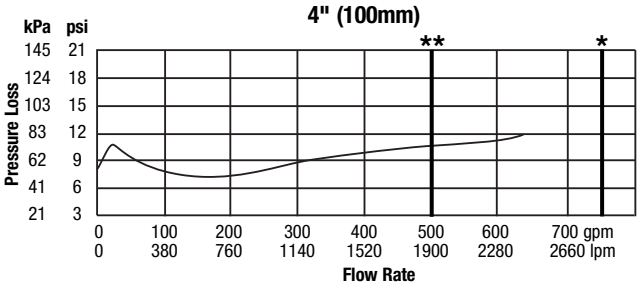
*UL Rated **UL Tested

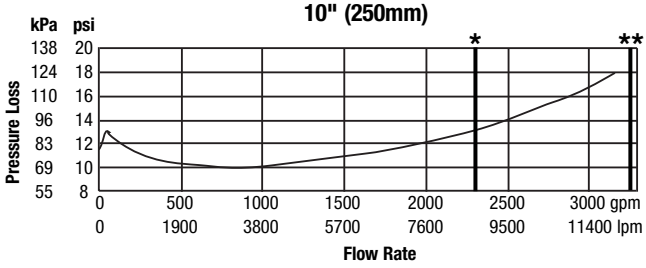




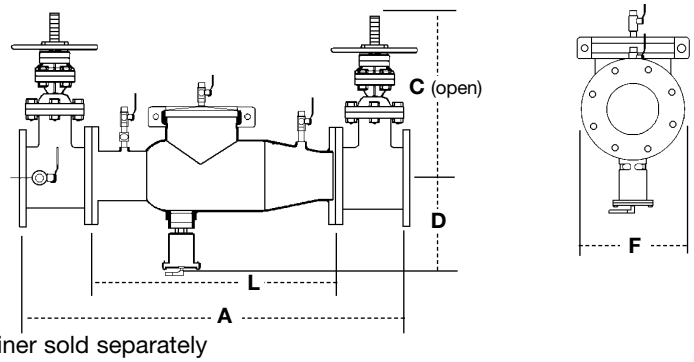








Dimensions – Weights



Note: Strainer sold separately

SIZE		DIMENSIONS												NET WEIGHT			
		A		C (OSY)		C(NRS)		D		F		L		w/Gates		w/o Gates	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in*	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*	*lb.*	*kg.*
2½	65	37	940	16⅜	416	9⅜	238	10½	267	7	178	22	559	148	67	60	27
3	80	38	965	18⅞	479	10¼	260	10½	267	7½	191	22	559	226	103	62	28
4	100	40	1016	22¾	578	12 3/16	310	10½	267	9	229	22	559	235	107	65	30
6	150	48½	1232	30⅛	765	16	406	11½	292	11	279	27½	699	380	172	110	50
8	200	52½	1334	37¾	959	19 15/16	506	12½	318	13½	343	29½	749	571	259	179	81
10	250	55½	1410	45¾	1162	23 13/16	605	12½	318	16	406	29½	749	773	351	189	86

Noryl® is a registered trademark of General Electric Company

IMPORTANT: Inquire with governing authorities for local installation requirements.

AMES FIRE & WATERWORKS™

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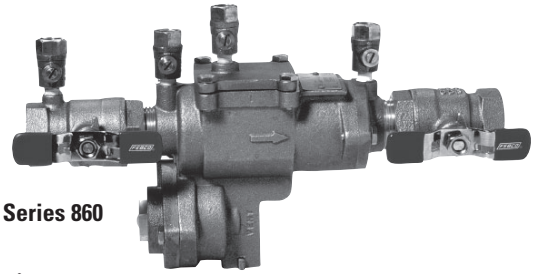
SPECIFICATION SHEET

Series 860

Reduced Pressure Zone Assemblies

Size: ½" - 2" (15mm - 50mm)



Series 860

The FEBCO Series 860 Reduced Pressure Zone Assemblies are designed for use in health-hazard applications.
End Connections – NPT ANSI / ASME B1.20.1

Pressure – Temperature

Max. Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32°F to 140°F (0°C to 60°C)

Materials

Valve Body:	Bronze
Elastomers:	Silicone
Springs:	Stainless Steel

Models

- Wye - Strainer

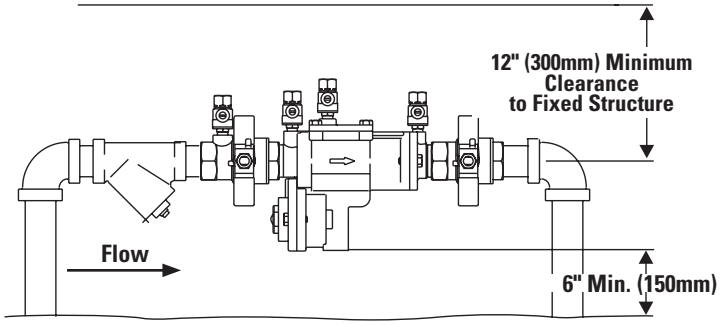
Approvals – Standards

- ANSI/AWWA Conformance (C511)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

1013 **B64.4**

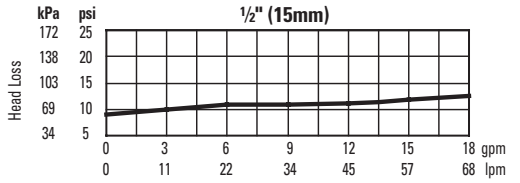
Typical Installation

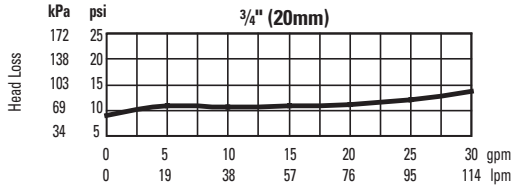
Series 860 ½" - 2" (15 - 50mm)
Outdoor Installation

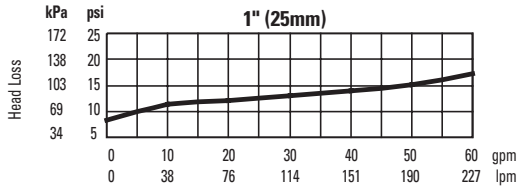


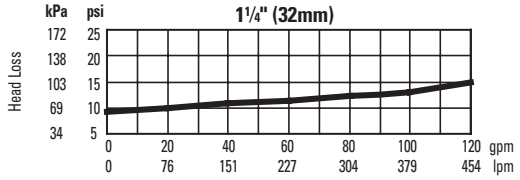
IMPORTANT: INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS

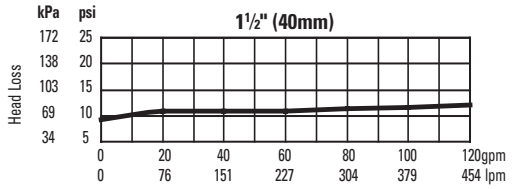
Capacity

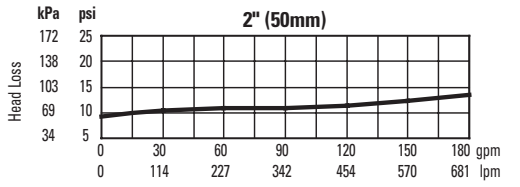












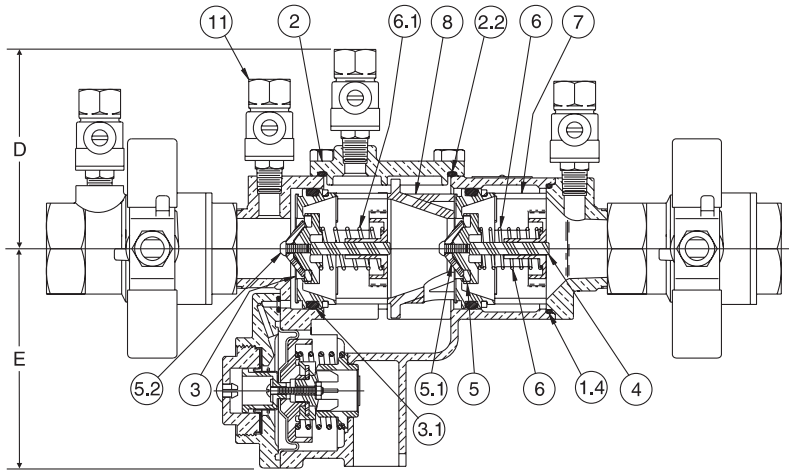
Job Name _____ Contractor _____

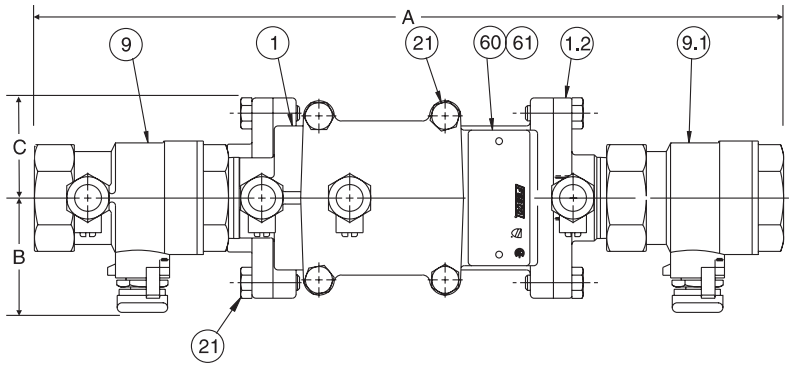
Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

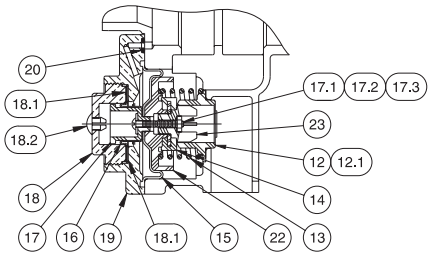
Series 860 / Size: ½" - 2" (15mm - 50mm)



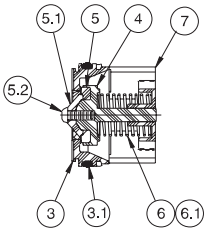


ITEM	DESCRIPTION	MATERIALS
1	Body	Bronze
1.2	Tailpiece	Bronze
1.4	O-Ring	Silicone
2	Cover	Bronze
2.2	O-Ring	Silicone
3	Seat	Noryl®
3.1	O-Ring	Silicone
4	Poppet	Noryl®
5	Seat Disc	Silicone Rubber
5.1	Disc Retainer	Noryl®
5.2	Rnd HD Screw	Phillips, 18-8 SS
6	Spring	SS
6.1	Spring	SS
7	Guide	Noryl®
8	Retainer Spacer	Noryl®
9	Ball Valve	Bronze
9.1	Ball Valve	Bronze
11	Test Cock	Bronze
12	Seat Ring-RV	Noryl®
12.1	Gasket Ring-RV	Silicone Rubber
13	Spring-RV	SS
14	Seat Disc-RV	Silicone Rubber/SS
15	Diaphragm-RV	Rubber/Fabric
16	Outer Diaphragm-RV	Rubber/Fabric
17	Small Piston-RV	Noryl®
17.1	Rnd HD Screw	Phillips, 18-8 SS
17.2	Washer	18-8 SS
17.3	Hex Nut	18-8 SS
18	Cylinder-RV	Brass
18.1	Slip Ring-Cylinder	Acetal
18.2	Slide (Plug)	Nylon
19	Cover-RV	Bronze
20	O-Ring	Silicone
21	Hex HD Capscrew	18-8 SS
22	Large Piston-RV	Noryl®
23	Guide-RV	Noryl®
60	Identification Plate	Brass
61	Drive Screw Stick	SS

Relief Valve Assembly



Check Assembly



Note: The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Dimensions – Weights

Size: ½" - 2" (15 - 50mm)

SIZE (DN)		DIMENSIONS										WEIGHT	
		A		B		C		D		E			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
½	15	10	254	1½	38	1½	38	3⅛	79	3½	89	5.6	2.5
¾	20	10¾	273	1½	38	1½	38	3⅛	79	3½	89	5.8	2.6
1	25	12½	318	1⅞	48	1⅝	41	3⅜	86	3⅝	92	9.2	4.2
1¼	32	15⅞	403	3	76	2½	64	4¼	108	5⅝	143	20.2	9.2
1½	40	16⅜	416	3	76	2½	64	4¼	108	5⅝	143	20.6	9.4
2	50	17⅝	450	3½	89	2½	64	4¼	108	5⅝	143	24.8	11.3

Note: Dimensions are nominal. Allowances must be made for normal manufacturing tolerances.

FEBCO®

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Canada: 5435 North Service Rd. • Burlington, ONT. • L7L 5H7 • Tel. (905) 332-4090 • Fax: (905) 332-7068 • www.FEBCOonline.ca

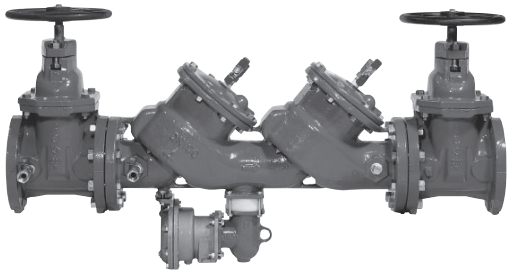
SPECIFICATION SHEET

MasterSeries® 860

Reduced Pressure Zone Assemblies

Size: 2½" - 10" (65mm - 250mm)

The FEBCO Master Series® 860 Reduced Pressure Zone Assemblies are designed for health hazard applications.
End connections – Flanged ANSI B16.1 Class 125



MODEL 860 REDUCED PRESSURE ASSEMBLY
U.S. Patent No. 4,989,635

Pressure – Temperature

Max. Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32°F to 140°F (0°C to 60°C)

Materials

Main Valve Body:	Ductile iron Grade 65-45-12
Coating:	Fusion epoxy coated internal and external AWWA C550-90
Shutoff Valves:	NRS and OS&Y resilient wedge gate valves AWWA C509
Trim:	Bronze Alloy C83600
Elastomer Discs:	EPDM
Spring:	Stainless steel
Clamp:	AWWA C606 (10" only, 250mm)

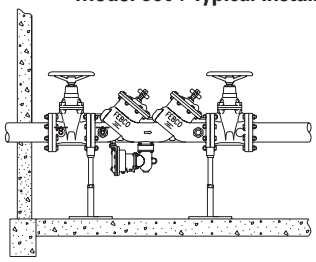
Approvals – Standards

- ANSI/AWWA (C511-89) - 2½" - 10"
- Approved by the Foundation for Cross-connection Control and Hydraulic Research at the University of Southern California. - 2½" - 8" (65 - 200mm)

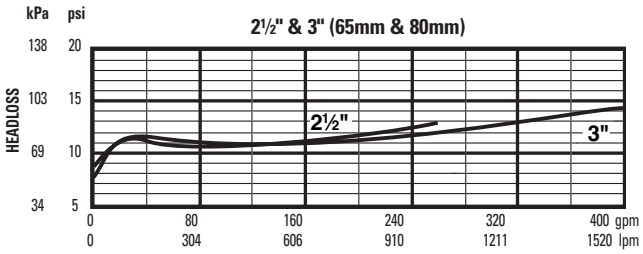
1013	B64.4		
2½" - 10"	2½" - 8"	2½" - 8"	2½" - 8"
65 - 250mm	65 - 200mm	65 - 200mm	65 - 200mm

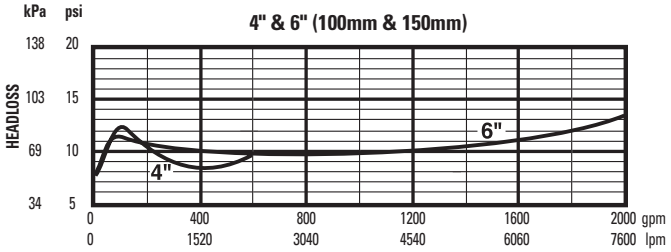
Typical Installation

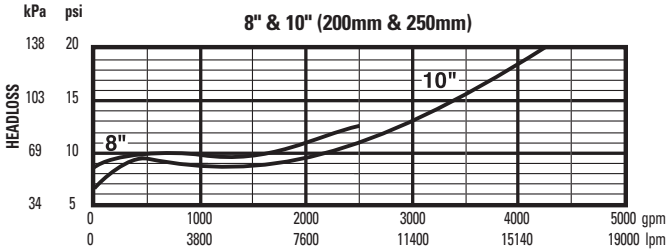
Model 860 / Typical Installation



Capacity





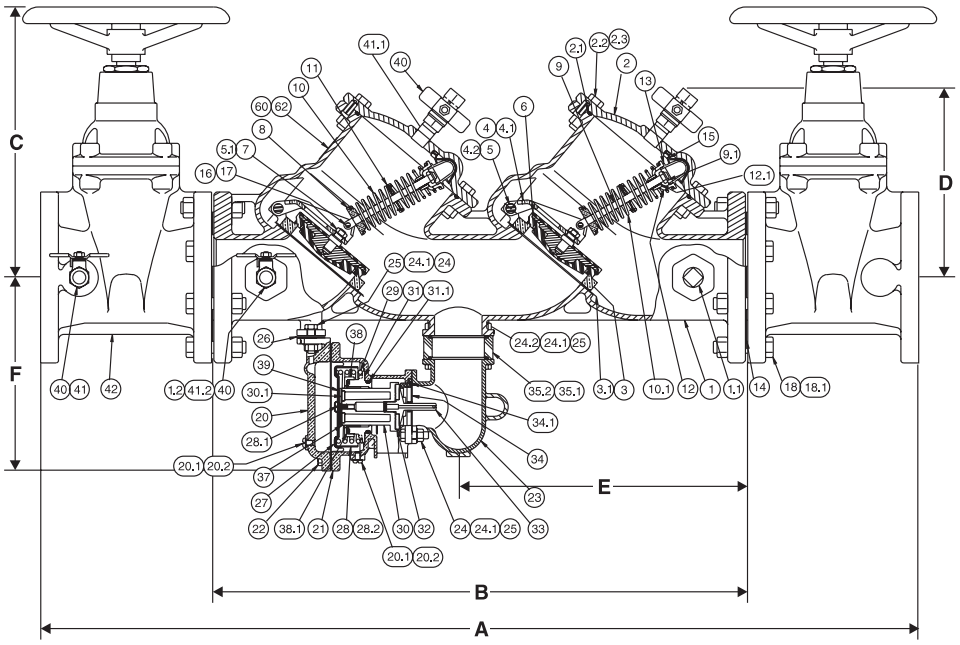


Job Name _____ Contractor _____

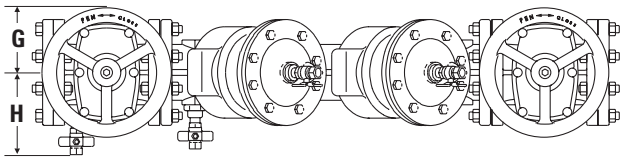
Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____



Top View



ITEM	DESCRIPTION	MATERIAL
1	Body	A536 GR 65-45-12
1.1	Pipe Plug	Galv. Stl.
1.2	Bushing (2½"-4" Only)	Brass
2	Cover	A536 GR 65-45-12
2.1	O-Ring	EPDM ASTM D2000
2.2	Cap Screw	Plated Steel
2.3	Hex Nut	Plated Steel
3	Seat Ring	B584 Alloy C83600
3.1	Gasket	EPDM ASTM D2000
3.2	Socket Head Screw	18-8-SS
3.3	Washer	304 SS
3.4	Elastic Stop Nut	18-8-SS
4	Arm	B584 Alloy C83600
4.1	Bushing-Swing Pin	Acetal Resin
4.2	Swing Pin	304 SS
5	Retaining Clip	302 SS
5.1	Retaining Clip	302 SS
6	Check Disk	EPDM Coated GR, 45 Ductile Iron with A276 type 304SS stem
7	Load Pin	B150 Alloy C61300
8	Lwr Spring Retnr	B584 Alloy C83600
9	Spring Stem	304 SS
9.1	Elastic Stop Jam Nut	18-8 SS
10	Spring	A313 Type 631 SS
10.1	Spring 2nd Check	A313 Type 631 SS
10.2	Spring Shim 2nd Check	Acetal Resin
11	Spring Guide	B130 Alloy C22000
12	Upr Spring Retnr	B584 Alloy C83600
12.1	Bushing-Spr. Stem	Acetal Resin
13	Pivot Bearing	B585 Alloy C83600
14	Flange Gasket	Rubber/Fabric
15	Bearing Socket	Acetal Resin
16	Hex Jam Nut	18-8 SS
17	Washer	302 SS
18	Flange Nut	Plated Steel
18.1	Flange Nut	Plated Steel
20	R.V. Cover	B584 Alloy C83600
20.1	Bleed Screw	18-8 SS
20.2	Gasket	HDPE
21	R.V. Body	B584 Alloy C83600
22	Cover Bolt	18-8 SS
23	Elbow	A536 GR 65-45-12
24	RV Mtg Bolt	Plated Steel
24.1	Washer	Plated Steel
25	RV Mtg Nut	Plated Steel
26	Gasket	EPDM
27	Lrg. Diaphragm	Nitrile ASTM D2000
28	Button	A240 304 SS
28.1	Flow Washer	Acetal Resin
29	RV Spring	A313 Type 302 SS
30	RV Stem	Acetal Resin
31	Main Guide	B584 Alloy C83600
31.1	Main Guide O-Ring	FDA EPDM
32	Seat Disc	EPDM AST D2000
33	Lower Guide	Acetal Resin
34	Seat Ring	B584 Alloy C83600
34.1	O-ring	FDA EPDM
35.1	O-Ring	EPDM ASTM D2000
35.2	Extension	Acetal Resin
37	Sm. Diaphragm	Nitrile ASTM D2000
38	Retainer	B584 Alloy C83600
38.1	Slip Ring	Acetal Resin
39	Flow Washer	Acetal Resin
40	Ball Valve	B584 Alloy C84400
41	Nipple	Brass
41.1	Nipple	Brass
41.2	Nipple	Brass
42	Gate Valve (NRS)	AWWA C509
60	Identification Plate	B36 Alloy C26000
62	Drive Screw	Stainless Steel
70	Clamp	AWWA C606 (10" Only)

Dimensions – Weight

Size: 2½" - 10" (65 - 80mm)

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		B		C		D		E		F		G		H		NRS		OS&Y	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*	*lbs.*	*kgs.*
2½	65	40¾	1035	25½	648	12⅝	321	10	254	12⅞	327	10	254	4½	114	7⅛	181	219	99	223	101.2
3	80	41⅞	1064	25⅝	651	12⅞	327	10	254	13	330	10	254	4½	114	7⅜	187	231	105	233	105.7
4	100	46¼	1175	28	711	14⅜	365	10⅛	257	15⅛	384	10⅛	257	5½	140	8⅛	206	317	144	334	151.5
6	150	56	1422	34¾	883	18⅞	479	12¾	324	20¾	527	11⅛	283	6½	165	9⅞	251	481	218	516	234.1
8	200	65	1651	41¾	1061	23½	570	15⅝	397	26⅞	683	12¼	311	7	178	11⅛	283	734	333	796	361.1
10	250	72⅝	1845	46⅜	1178	27½	699	15⅝	397	28¼	718	12⅜	314	9	229	12⅜	314	946	429	1008	457.2

Note: Dimensions shown are nominal. Allowances must be made for normal manufacturing tolerances.

Note: The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

FEBCO®

ISO 9001-2000 CERTIFIED

A Division of Watts Water Technologies, Inc. USA: 4381 N. Brawley • Ste. 102 • Fresno, CA • 93722 • Tel. (559) 441-5300 • Fax: (559) 441-5301 • www.FEBCOonline.com
Canada: 5435 North Service Rd. • Burlington, ONT. • L7L 5H7 • Tel. (905) 332-4090 • Fax: (905) 332-7068 • www.FEBCOonline.ca

WILKINS
a ZURN company

Model 975XL
Reduced Pressure Principle Assembly

SPECIFICATION SUBMITTAL SHEET

FEATURES
Sizes: ❑ 3/4" ❑ 1" ❑ 1 1/4" ❑ 1 1/2" ❑ 2"

Maximum working water pressure	175 PSI
Maximum working water temperature	180°F
Hydrostatic test pressure	350 PSI
End connections Threaded	ANSI B1.20.1

OPTIONS
(Suffixes can be combined)

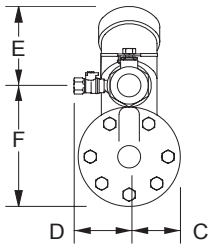
- ❑ - with full port QT ball valves (standard)
- ❑ L - less ball valves
- ❑ U - with union ball valves
- ❑ MS - with integral relief valve monitor switch
- ❑ P - for reclaimed water systems
- ❑ S - with bronze "Y" type strainer
- ❑ BMS - with battery operated monitor switch
- ❑ FDC - with fire hydrant connection; 2" only
- ❑ TCU - with test cocks up
- ❑ V - with union swivel elbows
- ❑ SE - with street elbows
- ❑ FT - with integral male 45° flare SAE test fitting

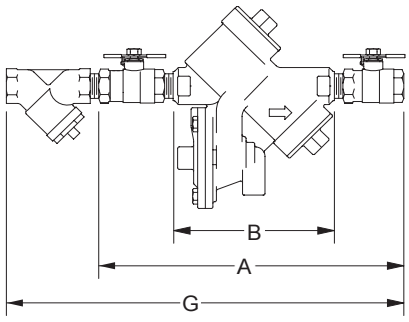
ACCESSORIES
- ❑ Air gap (Model AG)
- ❑ Repair kit (rubber only)
- ❑ Thermal expansion tank (Model WXTP)
- ❑ Soft seated check valve (Model 40)
- ❑ Shock arrester (Model 1250)
- ❑ QT-SET Quick Test Fitting Set
- ❑ Ball valve handle locks
- ❑ Test Cock Lock (Model TCL24)

APPLICATION
Designed for installation on potable water lines to protect against both backsiphonage and backpressure of contaminated water into the potable water supply. Assembly shall provide protection where a potential health hazard exists.

STANDARDS COMPLIANCE
- ASSE® Listed 1013
- IAPMO® Listed
- UL® Classified (less shut-off valves or with OS&Y valves)
- C-UL® Classified
- CSA® Certified
- AWWA Compliant C511
- Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California
- NYC MEA 425-89-M VOL 3

MATERIALS
Main valve body	Cast Bronze ASTM B 584
Access covers	Cast Bronze ASTM B 584
Fasteners	Stainless Steel, 300 Series
Elastomers	Silicone (FDA Approved)
	Buna Nitrile (FDA Approved)
Polymers	Noryl™, NSF Listed
Springs	Stainless steel, 300 series





Relief Valve discharge port:
3/4" - 1" - 0.63 sq. in.
1 1/4" - 2" - 1.19 sq. in.

DIMENSIONS & WEIGHTS (do not include pkg.)

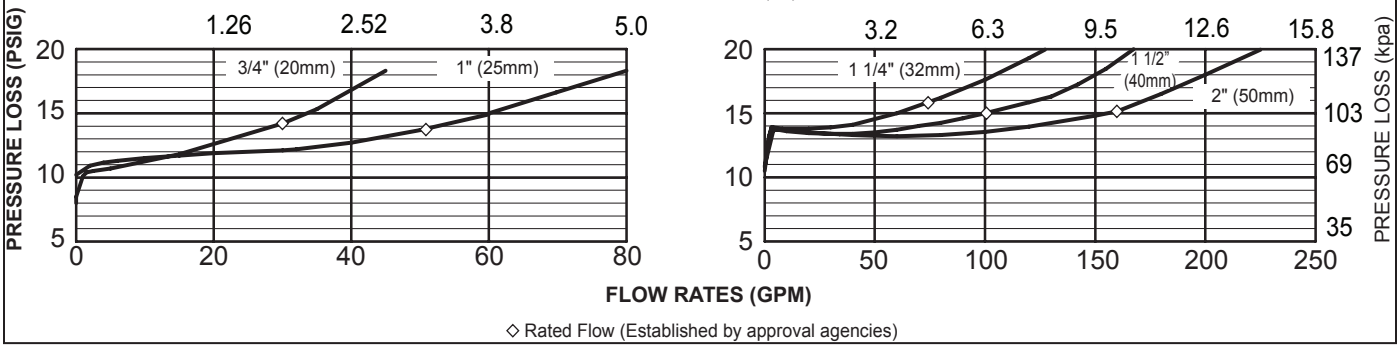
MODEL SIZE		DIMENSIONS (approximate)																WEIGHT			
		A		A UNION BALL VALVES		B LESS BALL VALVES		C		D		E		F		G		LESS BALL VALVES		WITH BALL VALVES	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	lbs.	kg
3/4	20	12	305	13 3/4	349	7 3/4	197	2 1/8	54	3	76	3 1/2	89	5	127	16 1/8	410	10	4.5	12	5.5
1	25	13	330	14 1/2	368	7 3/4	197	2 1/8	54	3	76	3 1/2	89	5	127	17 3/8	441	10	4.5	14	6.4
1 1/4	32	17	432	18 13/16	478	10 15/16	278	2 3/4	70	3 1/2	89	5	127	6 3/4	171	22 9/16	573	22	10	28	12.7
1 1/2	40	17 3/8	441	19 3/8	492	10 15/16	278	2 3/4	70	3 1/2	89	5	127	6 3/4	171	24 1/16	611	22	10	28	12.7
2	50	18 1/2	470	20 1/2	521	10 15/16	278	2 3/4	70	3 1/2	89	5	127	6 3/4	171	26 1/2	673	22	10	34	15.4

DOCUMENT #: BF-975XL(lg) REVISION: 12/07

WILKINS a Zurn company, 1747 Commerce Way, Paso Robles, CA 93446 Phone:**805/238-7100** Fax:**805/238-5766**
In Canada: ZURN INDUSTRIES LIMITED, 3544 Nashua Dr., Mississauga, Ontario L4V 1L2 Phone:**905/405-8272** Fax:**905/405-1292**
Product Support Help Line: 1-877-BACKFLOW **(1-877-222-5356)** • **Website: http://www.zurn.com**

FLOW CHARACTERISTICS

MODEL 975XL 3/4", 1", 1 1/4", 1 1/2" & 2" (STANDARD & METRIC)

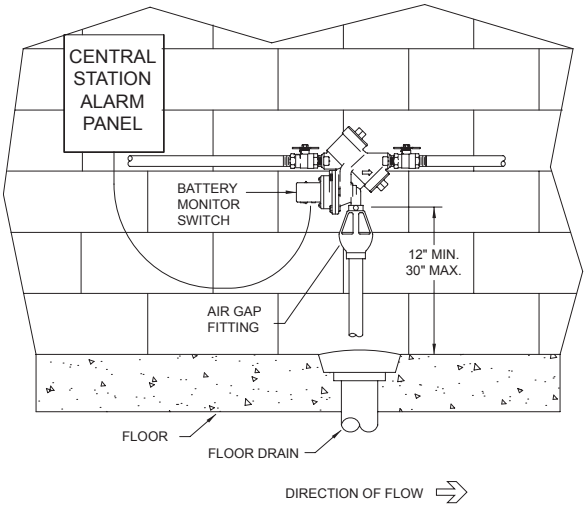


◇ Rated Flow (Established by approval agencies)

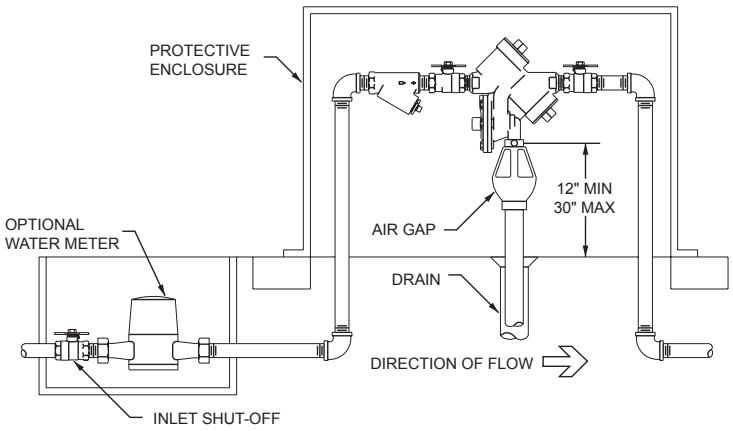
TYPICAL INSTALLATION

Local codes shall govern installation requirements. To be installed in accordance with the manufacturers' instructions and the latest edition of the Uniform Plumbing Code. Unless otherwise specified, the assembly shall be mounted at a minimum of 12" (305mm) and a maximum of 30" (762mm) above adequate drains with sufficient side clearance for testing and maintenance. The installation shall be made so that no part of the unit can be submerged.

Capacity thru Schedule 40 Pipe				
Pipe size	5 ft/sec	7.5 ft/sec	10 ft/sec	15 ft/sec
1/8"	1	1	2	3
1/4"	2	2	3	5
3/8"	3	4	6	9
1/2"	5	7	9	14
3/4"	8	12	17	25
1"	13	20	27	40
1 1/4"	23	35	47	70
1 1/2"	32	48	63	95
2"	52	78	105	167



INDOOR INSTALLATION
(Shown w/optional BMS)

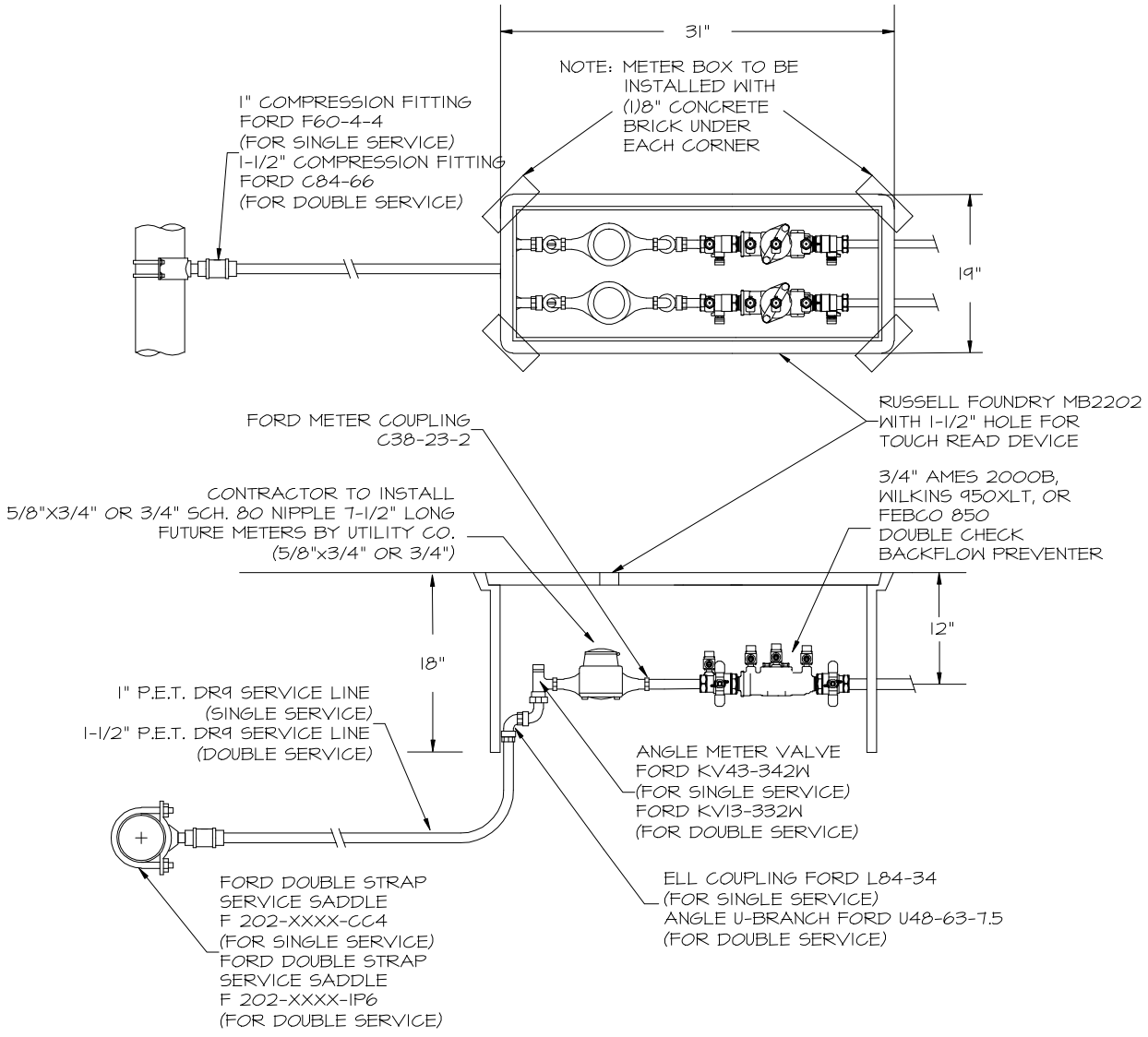


OUTDOOR INSTALLATION

SPECIFICATIONS

The Reduced Pressure Principle Backflow Preventer shall be ASSE® Listed 1013, rated to 180°F and supplied with full port ball valves. The main body and access covers shall be bronze (ASTM B 584), the seat ring and all internal polymers shall be NSF® Listed Noryl™ and the seat disc elastomers shall be silicone. The first and second checks shall be accessible for maintenance without removing the relief valve or the entire device from the line. If installed indoors, the installation shall be supplied with an air gap adapter and integral monitor switch. The Reduced Pressure Principle Backflow Preventer shall be a WILKINS Model 975XL.

INSTALLATION DETAILS



ALTERNATE METER BOX
IN NON-PEDESTRIAN AND NON-VEHICULAR AREAS METER BOX MAY BE A MID STATES PLASTICS MSBCF 1730-18XL

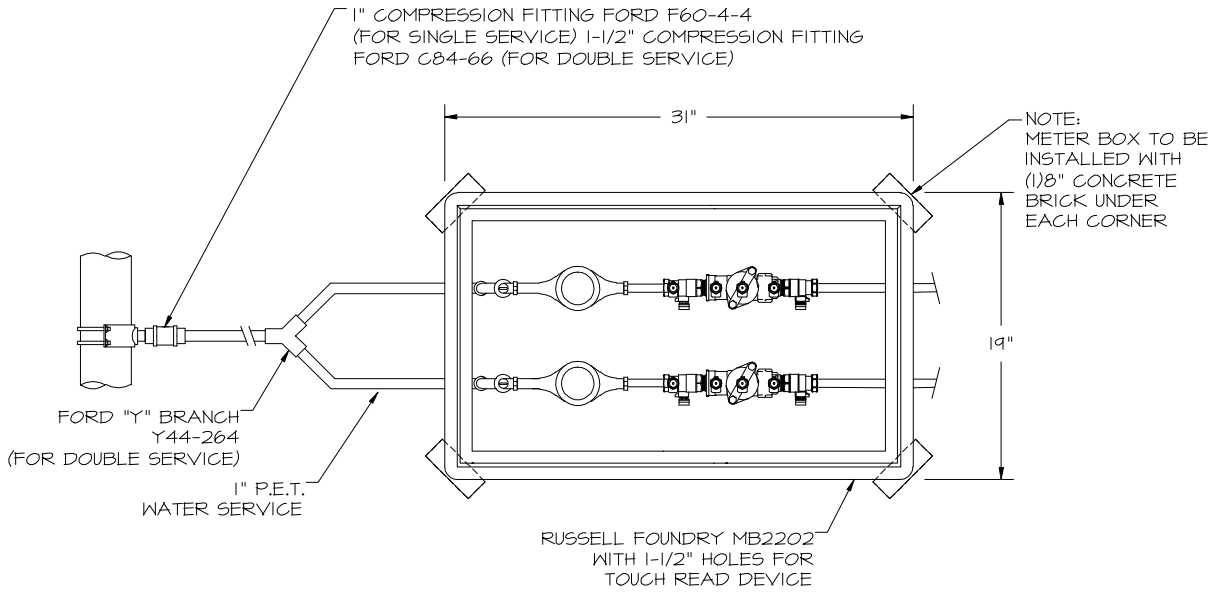
ISSUE DATE 03-28-03

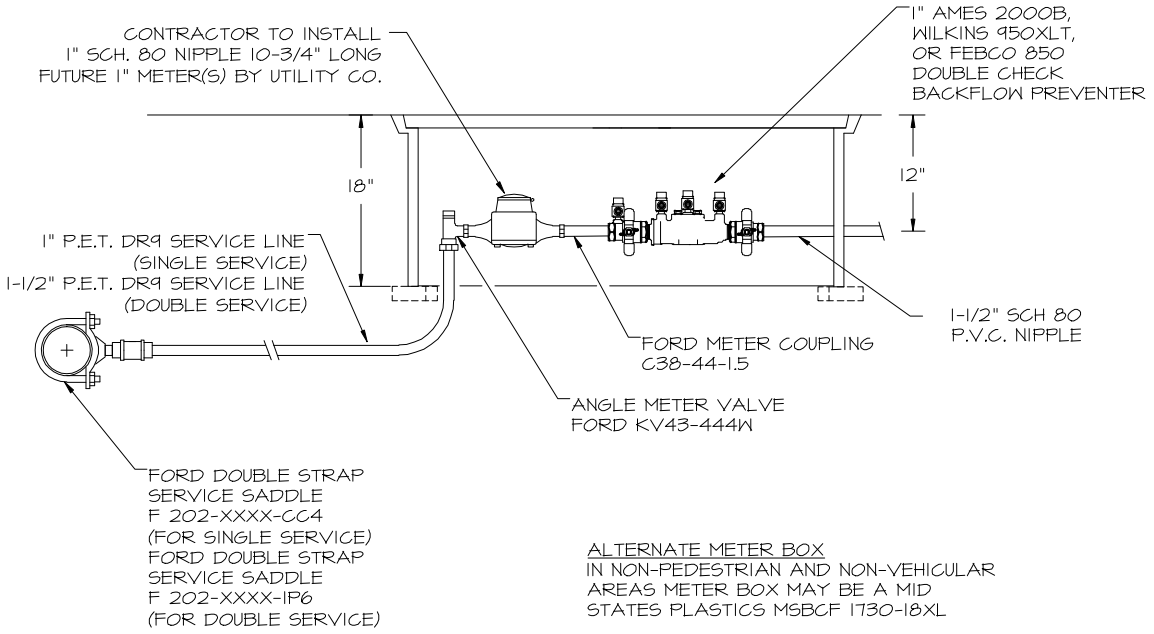
NOT TO SCALE

GRANT & DZURO Engineers Surveyors Planners
1100 Main Street The Villages, FL 32159
Tel No. (352)753-6260 Fax No. (352)753-6264

REVISIONS	4-21-08							

5/8"x3/4" & 3/4" COMMERCIAL WATER METER ASSEMBLY DETAIL





ALTERNATE METER BOX
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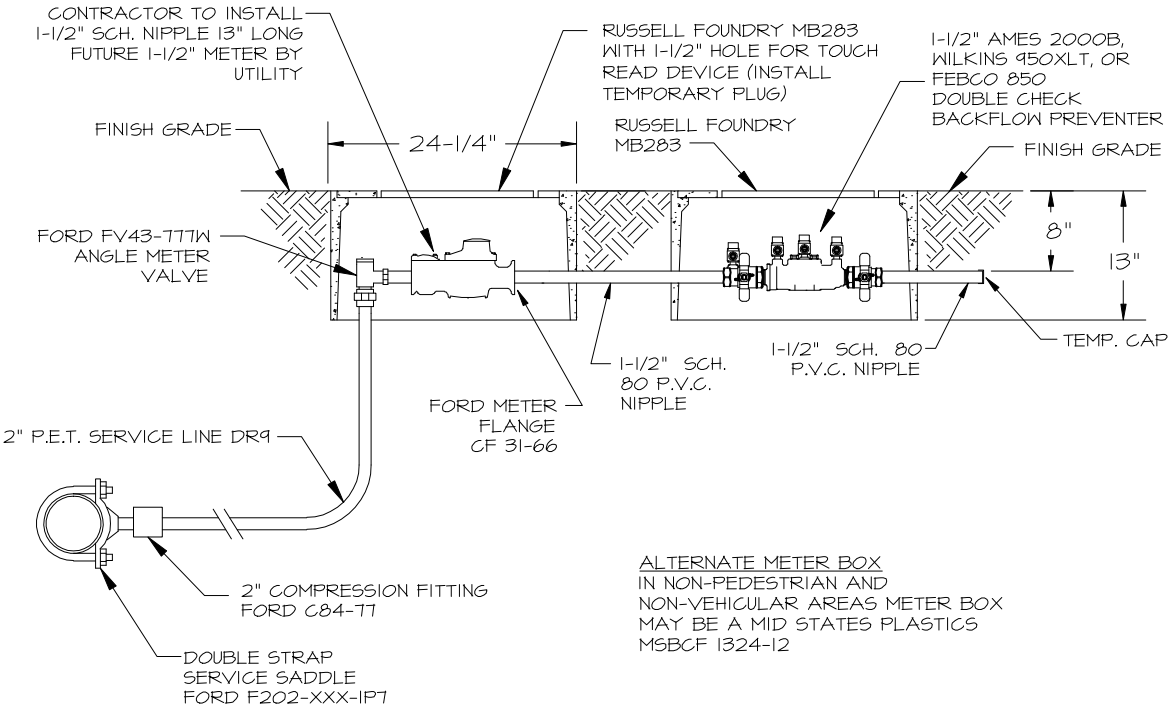
REVISIONS	4-27-05	4-21-08						

1" COMMERCIAL WATER METER ASSEMBLY DETAIL



ALTERNATE METER BOX
IN NON-PEDESTRIAN AND NON-VEHICULAR AREAS METER BOX MAY BE A MID STATES PLASTICS MSBCF 1324-12

ISSUE DATE 03-28-03

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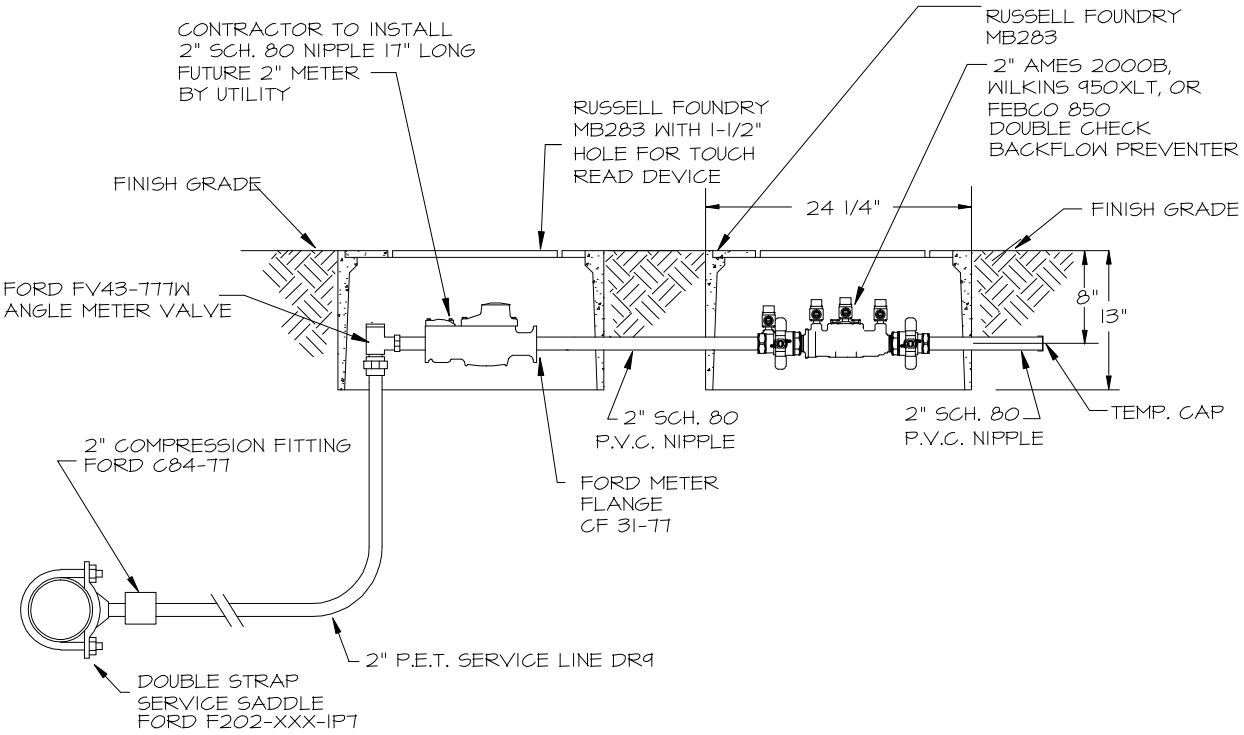
REVISIONS	4-28-05	4-21-08						

1-1/2" COMMERCIAL WATER METER ASSEMBLY DETAIL

PAGE W-25



ALTERNATE METER BOX
IN NON-PEDESTRIAN AND
NON-VEHICULAR AREAS METER BOX
MAY BE A MID STATES PLASTICS
MSBCF 1324-12

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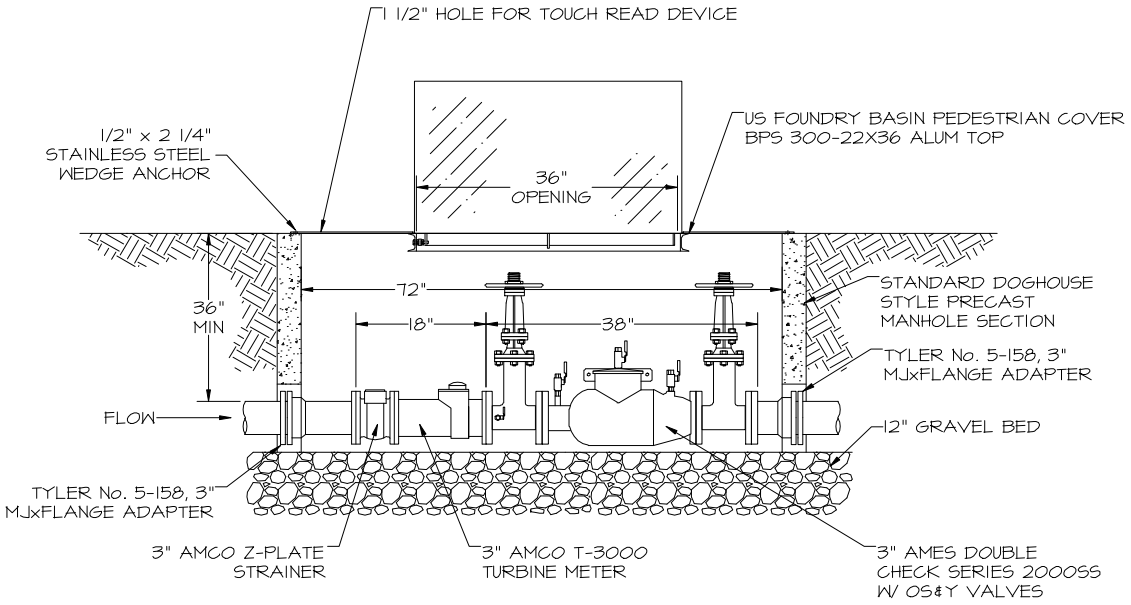
REVISIONS	8-23-03	4-21-08						

2" COMMERCIAL WATER METER ASSEMBLY DETAIL

PAGE
W-26



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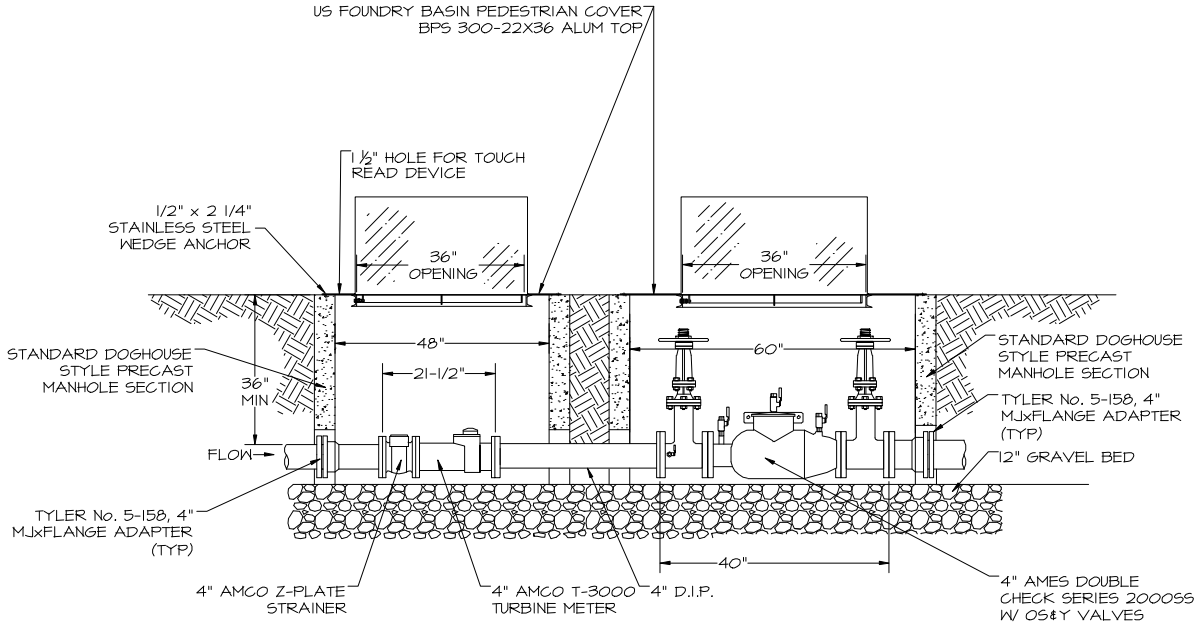
REVISIONS	4-27-05	8-9-05	4-21-08					

3" COMMERCIAL WATER METER ASSEMBLY DETAIL



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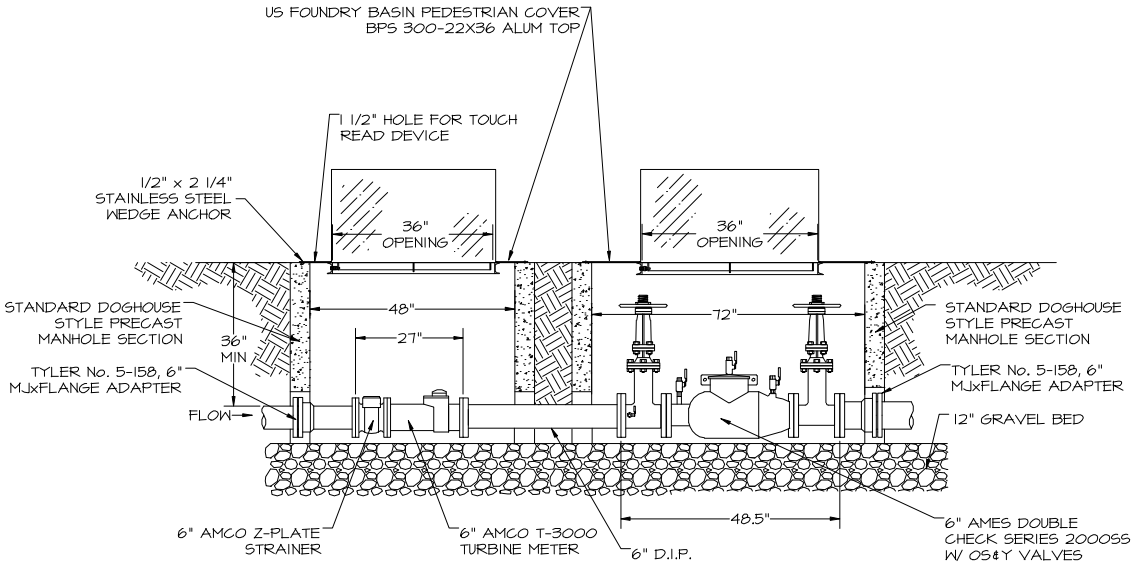
REVISIONS	4-27-05	8-9-05	4-21-08					

4" COMMERCIAL WATER METER ASSEMBLY DETAIL



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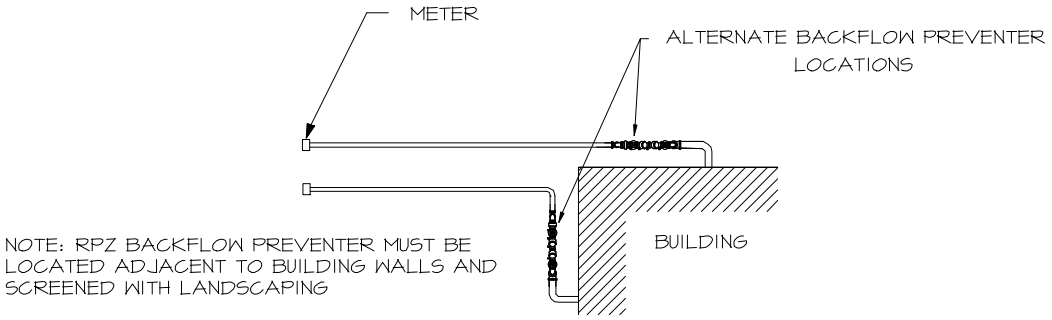
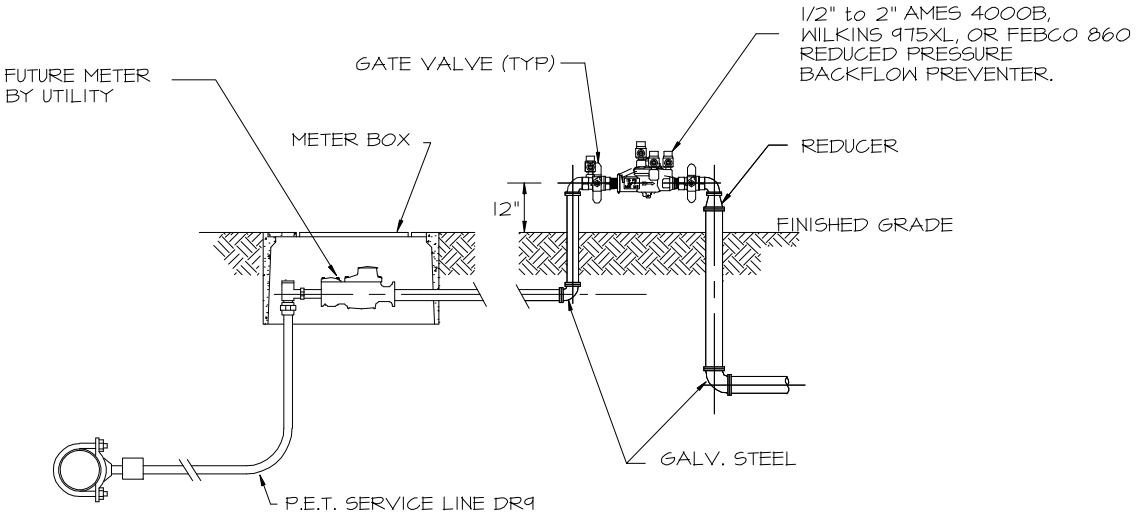
REVISIONS	4-27-05	8-9-05	4-21-08					

6" COMMERCIAL WATER METER ASSEMBLY DETAIL

PAGE
W-29





NOTE: SEE APPROPRIATE ASSEMBLY DETAILS FOR ADDITIONAL INFORMATION

TO BE USED FOR HIGHER RISK FACILITIES ONLY, SUCH AS:

- COMMERCIAL CAR WASH
- COMMERCIAL LAUNDRIES
- FILM LABORATORIES
- HOSPITALS
- MEDICAL & DENTAL OFFICES
- WASTEWATER LIFT STATIONS

ISSUE DATE 07-11-03

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REVISIONS	3-27-07							

BACKFLOW PREVENTER ASSEMBLY DETAIL